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# Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

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# 1 Scope

The present document specifies the 5G radio network layer signalling protocol for the F1 interface. The F1 interface provides means for interconnecting a gNB-CU and a gNB-DU of a gNB within an NG-RAN, or for interconnecting a gNB-CU and a gNB-DU of an en-gNB within an E-UTRAN. The F1 Application Protocol (F1AP) supports the functions of F1 interface by signalling procedures defined in the present document. F1AP is developed in accordance to the general principles stated in TS 38.401 [4] and TS 38.470 [2].

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# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 38.470: "NG-RAN; F1 general aspects and principles".
- [3] 3GPP TS 38.413: "NG-RAN; NG Application Protocol (NGAP)".
- [4] 3GPP TS 38.401: "NG-RAN; Architecture Description".
- [5] ITU-T Recommendation X.691 (2002-07): "Information technology - ASN.1 encoding rules - Specification of Packed Encoding Rules (PER)".
- [6] 3GPP TS 38.300: "NR; Overall description; Stage-2".
- [7] 3GPP TS 37.340: "NR; Multi-connectivity; Overall description; Stage-2".
- [8] 3GPP TS 38.331: "NR; Radio Resource Control (RRC); Protocol specification".
- [9] 3GPP TS 36.423: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN); X2 Application Protocol (X2AP)".
- [10] 3GPP TS 23.401: "General Packet Radio Service (GPRS) enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access".
- [11] 3GPP TS 23.203: "Policy and charging control architecture".
- [12] ITU-T Recommendation X.680 (07/2002): "Information technology – Abstract Syntax Notation One (ASN.1): Specification of basic notation".
- [13] ITU-T Recommendation X.681 (07/2002): "Information technology – Abstract Syntax Notation One (ASN.1): Information object specification".
- [14] 3GPP TR 25.921: (version.7.0.0): "Guidelines and principles for protocol description and error".
- [15] 3GPP TS 36.413: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN); S1 Application Protocol (S1AP)".
- [16] 3GPP TS 38.321: "NR; Medium Access Control (MAC) protocol specification".
- [17] 3GPP TS 38.104: "NR; Base Station (BS) radio transmission and reception".

- [18] 3GPP TS 29.281: "General Packet Radio System (GPRS); Tunnelling Protocol User Plane (GTPv1-U) ".
- [19] 3GPP TS 38.414: "NG-RAN; NG data transport".
- [20] 3GPP TS 36.300: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2".
- [21] 3GPP TS 23.501: "System Architecture for the 5G System".
- [22] 3GPP TS 38.472: "NG-RAN; F1 signalling transport".
- [23] 3GPP TS 23.003: "Numbering, addressing and identification".
- [24] 3GPP TS 38.304: "NR; User Equipment (UE) procedures in Idle mode and RRC Inactive state ".
- [25] 3GPP TS 36.104: "Base Station (BS) radio transmission and reception".
- [26] 3GPP TS 38.101-1: "NR; User Equipment (UE) radio transmission and reception; Part 1: Range 1 Standalone".
- [27] 3GPP TS 36.211: "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical channels and modulation".
- [28] 3GPP TS 38.423: "NG-RAN; Xn application protocol (XnAP)".
- [29] 3GPP TS 32.422: "Trace control and configuration management".
- [30] 3GPP TS 38.340: "NR; Backhaul Adaptation Protocol (BAP) specification".
- [31] 3GPP TS 38.213: "NR; Physical layer procedures for control".
- [32] 3GPP TS 38.314: " NR; Layer 2 measurements".
- [33] 3GPP TS 38.211: "NR; Physical channels and modulation".
- [34] 3GPP TS 38.214: "NR; Physical layer procedures for data".
- [35] 3GPP TS 37.320: "Radio measurement collection for Minimization of Drive Tests (MDT)".
- [36] 3GPP TS 23.032: "Technical Specification Group Services and System Aspects; Universal Geographical Area Description (GAD)".
- [37] 3GPP TS 38.455: "NG-RAN; NR Positioning protocol A (NRPPa)".
- [38] 3GPP TS 38.133: "NR; Requirements for support of radio resource management".
- [39] 3GPP TS 37.355: "LTE Positioning Protocol (LPP)".
- [40] 3GPP TS 23.287: "Architecture enhancements for 5G System (5GS) to support Vehicle-to-Everything (V2X) services".
- [41] 3GPP TS 36.331: "Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification".
- [42] 3GPP TS 38.305: "NG Radio Access Network (NG-RAN); Stage 2 functional specification of User Equipment (UE) positioning in NG-RAN".
- [43] 3GPP TS 38.215: "NR; Physical layer (PHY); Measurements".
- [44] 3GPP TS 23.304: "Proximity based Services (ProSe) in the 5G System (5GS)".
- [45] Void
- [46] 3GPP TS 37.213: "NR; Physical layer procedures for shared spectrum channel access".
- [47] 3GPP TS 37.483: "E1 Application Protocol (E1AP)".

- [48] IEEE Std 1588: "IEEE Standard for a Precision Clock Synchronization Protocol for Networked Measurement and Control Systems", Edition 2019.
- [49] 3GPP TS 23.273: "5G System (5GS) Location Services (LCS); Stage 2".
- [50] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces; Stage 3".

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## 3 Definitions and abbreviations

### 3.1 Definitions

**elementary procedure:** F1AP consists of Elementary Procedures (EPs). An Elementary Procedure is a unit of interaction between gNB-CU and gNB-DU. These Elementary Procedures are defined separately and are intended to be used to build up complete sequences in a flexible manner. If the independence between some EPs is restricted, it is described under the relevant EP description. Unless otherwise stated by the restrictions, the EPs may be invoked independently of each other as standalone procedures, which can be active in parallel. The usage of several F1AP EPs together is specified in stage 2 specifications (e.g., TS 38.470 [2]).

An EP consists of an initiating message and possibly a response message. Two kinds of EPs are used:

- **Class 1:** Elementary Procedures with response (success and/or failure).
- **Class 2:** Elementary Procedures without response.

For Class 1 EPs, the types of responses can be as follows:

Successful:

- A signalling message explicitly indicates that the elementary procedure successfully completed with the receipt of the response.

Unsuccessful:

- A signalling message explicitly indicates that the EP failed.
- On time supervision expiry (i.e., absence of expected response).

Successful and Unsuccessful:

- One signalling message reports both successful and unsuccessful outcome for the different included requests. The response message used is the one defined for successful outcome.

Class 2 EPs are considered always successful.

**BH RLC channel:** as defined in TS 38.300 [6].

**CG-SDT-CS-RNTI:** as defined in TS 38.300 [6].

**Complete candidate configuration:** one type of a candidate configuration as defined in TS 38.331 [8].

**Conditional handover:** as defined in TS 38.300 [6].

**Conditional PSCell Addition:** as defined in TS 37.340 [7].

**Conditional PSCell Change:** as defined in TS 37.340 [7].

**DAPS Handover:** as defined in TS 38.300 [6].

**EN-DC operation:** Used in this specification when the F1AP is applied for gNB-CU and gNB-DU in E-UTRAN.

**F1-terminating IAB-donor:** as defined in TS 38.401 [4].

**gNB:** as defined in TS 38.300 [6].



**gNB-CU:** as defined in TS 38.401 [4].

**gNB-CU UE F1AP ID:** as defined in TS 38.401 [4].

**gNB-DU:** as defined in TS 38.401 [4].

**gNB-DU UE F1AP ID:** as defined in TS 38.401 [4].

**en-gNB:** as defined in TS 37.340 [7].

**IAB-DU:** as defined in TS 38.300 [6].

**IAB-MT:** as defined in TS 38.300 [6].

**IAB-donor:** as defined in TS 38.300 [6].

**IAB-donor-CU:** as defined in TS 38.401 [4].

**IAB-donor-DU:** as defined in TS 38.401 [4].

**IAB-node:** as defined in TS 38.300 [6].

**MBS-associated signalling:** When F1AP messages associated to one MBS session uses the MBS-associated logical F1-connection for association of the message to the MBS session in gNB-DU and gNB-CU.

**MBS-associated logical F1-connection:** The MBS-associated logical F1-connection uses the identities *GNB-CU MBS F1AP ID* and *GNB-DU MBS F1AP ID* according to the definition in TS 38.401 [4]. For a received MBS-associated F1AP message the gNB-CU identifies the associated MBS session based on the *GNB-CU MBS F1AP ID* IE and the gNB-DU identifies the associated MBS session based on the *GNB-DU MBS F1AP ID* IE.

**MBS Session context in a gNB-DU:** as defined in TS 38.401 [4].

**MBS session resource:** as defined in TS 38.401 [4].

**Mobile IAB-DU:** as defined in TS 38.300 [6].

**Mobile IAB-MT:** as defined in TS 38.300 [6].

**Mobile IAB-node:** as defined in TS 38.300 [6].

**MP Relay UE:** as defined in TS 38.300 [6].

**MP Remote UE:** as defined in TS 38.300 [6].

**Multi-path:** as defined in TS 38.300 [6].

**Multicast F1-U Context:** as defined in TS 38.401 [4].

**Other SI:** as defined in TS 38.300 [6].

**PC5 Relay RLC channel:** as defined in TS 38.300 [6].

**Public network integrated NPN:** as defined in TS 23.501 [21].

**RRC-terminating IAB-donor:** as defined in TS 38.401 [4].

**SRAP:** Sidelink relay adaptation protocol, as defined in TS 38.300 [6].

**Stand-alone Non-Public Network:** as defined in TS 23.501 [21].

**UE-associated logical F1-connection:** The UE-associated logical F1-connection uses the identities *GNB-CU UE F1AP ID* and *GNB-DU UE F1AP ID* according to the definition in TS 38.401 [4]. For a received UE associated F1AP message the gNB-CU identifies the associated UE based on the *GNB-CU UE F1AP ID* IE and the gNB-DU identifies the associated UE based on the *GNB-DU UE F1AP ID* IE. The UE-associated logical F1-connection may exist before the F1 UE context is setup in gNB-DU.

**UE-associated signalling:** When F1AP messages associated to one UE uses the UE-associated logical F1-connection for association of the message to the UE in gNB-DU and gNB-CU.

**U2N Relay UE:** a UE that provides functionality to support connectivity to the network for U2N Remote UE(s).

**U2N Remote UE:** a UE that communicates with the network via a U2N Relay UE.

**U2U Relay UE:** as defined in TS 38.300 [6].

**U2U Remote UE:** as defined in TS 38.300 [6].

**Uu Relay RLC channel:** as defined in TS 38.300 [6].

## 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [1].

|         |                                                                             |
|---------|-----------------------------------------------------------------------------|
| 5GC     | 5G Core Network                                                             |
| 5QI     | 5G QoS Identifier                                                           |
| A2X     | Aircraft-to-Everything                                                      |
| AMF     | Access and Mobility Management Function                                     |
| ARP     | Antenna Reference Point                                                     |
| ARPI    | Additional RRM Policy Index                                                 |
| BH      | Backhaul                                                                    |
| CAG     | Closed Access Group                                                         |
| CG      | Cell Group                                                                  |
| CG-SDT  | Configured Grant-Small Data Transmission                                    |
| CGI     | Cell Global Identifier                                                      |
| CHO     | Conditional Handover                                                        |
| CN      | Core Network                                                                |
| CP      | Control Plane                                                               |
| CPA     | Conditional PSCell Addition                                                 |
| CPAC    | Conditional PSCell Addition or Change                                       |
| CPC     | Conditional PSCell Change                                                   |
| DAPS    | Dual Active Protocol Stack                                                  |
| DL      | Downlink                                                                    |
| DL-PRS  | Downlink Positioning Reference Signal                                       |
| EN-DC   | E-UTRA-NR Dual Connectivity                                                 |
| EPC     | Evolved Packet Core                                                         |
| eRedCap | Enhanced Reduced Capability                                                 |
| FSA ID  | MBS Frequency Selection Area (FSA) ID                                       |
| GPSI    | Generic Public Subscription Identifier                                      |
| IAB     | Integrated Access and Backhaul                                              |
| IMEISV  | International Mobile station Equipment Identity and Software Version number |
| LMF     | Location Management Function                                                |
| LTM     | L1/L2 Triggered Mobility                                                    |
| MBS     | Multicast/Broadcast Service                                                 |
| MP      | Multi-path                                                                  |
| MT-SDT  | Mobile Terminated Small Data Transmission                                   |
| N3C     | Non-3GPP Connection                                                         |
| NID     | Network Identifier                                                          |
| NPN     | Non-Public Network                                                          |
| NSAG    | Network Slice AS Group                                                      |
| NSSAI   | Network Slice Selection Assistance Information                              |
| PDC     | Propagation Delay Compensation                                              |
| PEIPS   | Paging Early Indication with Paging Subgrouping                             |
| PNI-NPN | Public Network Integrated NPN                                               |
| posSIB  | Positioning SIB                                                             |
| PSI     | PDU Set Importance                                                          |
| PTM     | Point to Multipoint                                                         |
| PTP     | Point to Point                                                              |
| QMC     | QoE Measurement Collection                                                  |
| QoE     | Quality of Experience                                                       |

|         |                                                       |
|---------|-------------------------------------------------------|
| RANAC   | RAN Area Code                                         |
| RedCap  | Reduced Capability                                    |
| RIM     | Remote Interference Management                        |
| RIM-RS  | RIM Reference Signal                                  |
| RRC     | Radio Resource Control                                |
| RSPP    | Ranging/Sidelink Positioning Protocol                 |
| RSRP    | Reference Signal Received Power                       |
| S-CPAC  | Subsequent Conditional PSCell Addition or Change      |
| S-NSSAI | Single Network Slice Selection Assistance Information |
| SDT     | Small Data Transmission                               |
| SNPN    | Stand-alone Non-Public Network                        |
| SUL     | Supplementary Uplink                                  |
| TAC     | Tracking Area Code                                    |
| TAG     | Timing Advance Group                                  |
| TAI     | Tracking Area Identity                                |
| TEG     | Timing Error Group                                    |
| TRP     | Transmission-Reception Point                          |
| TSS     | Timing Synchronisation Status                         |
| U2N     | UE-to-Network                                         |
| U2U     | UE-to-UE                                              |
| UL-AoA  | Uplink Angle of Arrival                               |
| UL-RSCP | UL Reference Signal Carrier Phase                     |
| UL-RTOA | Uplink Relative Time of Arrival                       |
| UL-SRS  | Uplink Sounding Reference Signal                      |
| V2X     | Vehicle-to-Everything                                 |
| Z-AoA   | Zenith Angles of Arrival                              |

---

## 4 General

### 4.1 Procedure specification principles

The principle for specifying the procedure logic is to specify the functional behaviour of the terminating node exactly and completely. Any rule that specifies the behaviour of the originating node shall be possible to be verified with information that is visible within the system.

The following specification principles have been applied for the procedure text in clause 8:

- The procedure text discriminates between:

- 1) Functionality which "shall" be executed.

The procedure text indicates that the receiving node "shall" perform a certain function Y under a certain condition. If the receiving node supports procedure X but cannot perform functionality Y requested in the REQUEST message of a Class 1 EP, the receiving node shall respond with the message used to report unsuccessful outcome for this procedure, containing an appropriate cause value.

- 2) Functionality which "shall, if supported" be executed.

The procedure text indicates that the receiving node "shall, if supported," perform a certain function Y under a certain condition. If the receiving node supports procedure X, but does not support functionality Y, the receiving node shall proceed with the execution of the EP, possibly informing the requesting node about the not supported functionality.

- Any required inclusion of an optional IE in a response message is explicitly indicated in the procedure text. If the procedure text does not explicitly indicate that an optional IE shall be included in a response message, the optional IE shall not be included. For requirements on including *Criticality Diagnostics* IE, see clause 10.

## 4.2 Forwards and backwards compatibility

The forwards and backwards compatibility of the protocol is assured by mechanism where all current and future messages, and IEs or groups of related IEs, include ID and criticality fields that are coded in a standard format that will not be changed in the future. These parts can always be decoded regardless of the standard version.

## 4.3 Specification notations

For the purposes of the present document, the following notations apply:

|                |                                                                                                                                                                                                                                                                                  |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Procedure      | When referring to an elementary procedure in the specification the Procedure Name is written with the first letters in each word in upper case characters followed by the word "procedure", e.g. Handover Preparation procedure.                                                 |
| Message        | When referring to a message in the specification the MESSAGE NAME is written with all letters in upper case characters followed by the word "message", e.g. HANDOVER REQUEST message.                                                                                            |
| IE             | When referring to an information element (IE) in the specification the <i>Information Element Name</i> is written with the first letters in each word in upper case characters and all letters in <i>Italic font</i> followed by the abbreviation "IE", e.g. <i>E-RAB ID</i> IE. |
| Value of an IE | When referring to the value of an information element (IE) in the specification the "Value" is written as it is specified in the specification enclosed by quotation marks, e.g. "Value".                                                                                        |

---

## 5 F1AP services

F1AP provides the signalling service between gNB-DU and the gNB-CU that is required to fulfil the F1AP functions described in clause 7. F1AP services are divided into the following groups:

|                             |                                                                                                                                                                                                |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Non UE-associated services: | They are related to the whole F1 interface instance between the gNB-DU and gNB-CU utilising a non UE-associated signalling connection.                                                         |
| UE-associated services:     | They are related to one UE. F1AP functions that provide these services are associated with a UE-associated signalling connection that is maintained for the UE in question.                    |
| MBS-associated services:    | They are related to one MBS service. F1AP functions that provide these services are associated with a MBS-associated signalling connection that is maintained for the MBS service in question. |

Unless explicitly indicated in the procedure specification, at any instance in time one protocol endpoint shall have a maximum of one ongoing F1AP procedure related to a certain UE.

Unless explicitly indicated in the procedure specification, at any instance in time one protocol endpoint shall have a maximum of one ongoing F1AP procedure related to a certain MBS session.

All considerations of gNB-DU in this specification also apply to the IAB-DU and IAB-donor-DU, unless stated otherwise. All considerations of gNB-CU in this specification apply to the IAB-donor-CU as well, unless stated otherwise.

---

## 6 Services expected from signalling transport

The signalling connection shall provide in sequence delivery of F1AP messages. F1AP shall be notified if the signalling connection breaks.

## 7 Functions of F1AP

The functions of F1AP are described in TS 38.470 [2].

## 8 F1AP procedures

### 8.1 List of F1AP Elementary procedures

In the following tables, all EPs are divided into Class 1 and Class 2 EPs (see subclause 3.1 for explanation of the different classes):

**Table 1: Class 1 procedures**

| Elementary Procedure                                | Initiating Message                   | Successful Outcome                        | Unsuccessful Outcome                  |
|-----------------------------------------------------|--------------------------------------|-------------------------------------------|---------------------------------------|
|                                                     |                                      | Response message                          | Response message                      |
| Reset                                               | RESET                                | RESET ACKNOWLEDGE                         |                                       |
| F1 Setup                                            | F1 SETUP REQUEST                     | F1 SETUP RESPONSE                         | F1 SETUP FAILURE                      |
| gNB-DU Configuration Update                         | GNB-DU CONFIGURATION UPDATE          | GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE   | GNB-DU CONFIGURATION UPDATE FAILURE   |
| gNB-CU Configuration Update                         | GNB-CU CONFIGURATION UPDATE          | GNB-CU CONFIGURATION UPDATE ACKNOWLEDGE   | GNB-CU CONFIGURATION UPDATE FAILURE   |
| UE Context Setup                                    | UE CONTEXT SETUP REQUEST             | UE CONTEXT SETUP RESPONSE                 | UE CONTEXT SETUP FAILURE              |
| UE Context Release (gNB-CU initiated)               | UE CONTEXT RELEASE COMMAND           | UE CONTEXT RELEASE COMPLETE               |                                       |
| UE Context Modification (gNB-CU initiated)          | UE CONTEXT MODIFICATION REQUEST      | UE CONTEXT MODIFICATION RESPONSE          | UE CONTEXT MODIFICATION FAILURE       |
| UE Context Modification Required (gNB-DU initiated) | UE CONTEXT MODIFICATION REQUIRED     | UE CONTEXT MODIFICATION CONFIRM           | UE CONTEXT MODIFICATION REFUSE        |
| Write-Replace Warning                               | WRITE-REPLACE WARNING REQUEST        | WRITE-REPLACE WARNING RESPONSE            |                                       |
| PWS Cancel                                          | PWS CANCEL REQUEST                   | PWS CANCEL RESPONSE                       |                                       |
| gNB-DU Resource Coordination                        | GNB-DU RESOURCE COORDINATION REQUEST | GNB-DU RESOURCE COORDINATION RESPONSE     |                                       |
| F1 Removal                                          | F1 REMOVAL REQUEST                   | F1 REMOVAL RESPONSE                       | F1 REMOVAL FAILURE                    |
| BAP Mapping Configuration                           | BAP MAPPING CONFIGURATION            | BAP MAPPING CONFIGURATION ACKNOWLEDGE     | BAP MAPPING CONFIGURATION FAILURE     |
| GNB-DU Resource Configuration                       | GNB-DU RESOURCE CONFIGURATION        | GNB-DU RESOURCE CONFIGURATION ACKNOWLEDGE | GNB-DU RESOURCE CONFIGURATION FAILURE |
| IAB TNL Address Allocation                          | IAB TNL ADDRESS REQUEST              | IAB TNL ADDRESS RESPONSE                  | IAB TNL ADDRESS FAILURE               |
| IAB UP Configuration Update                         | IAB UP CONFIGURATION UPDATE REQUEST  | IAB UP CONFIGURATION UPDATE RESPONSE      | IAB UP CONFIGURATION UPDATE FAILURE   |
| Resource Status Reporting Initiation                | RESOURCE STATUS REQUEST              | RESOURCE STATUS RESPONSE                  | RESOURCE STATUS FAILURE               |

|                                  |                                           |                                         |                                        |
|----------------------------------|-------------------------------------------|-----------------------------------------|----------------------------------------|
| Positioning Measurement          | POSITIONING MEASUREMENT REQUEST           | POSITIONING MEASUREMENT RESPONSE        | POSITIONING MEASUREMENT FAILURE        |
| Positioning Information Exchange | POSITIONING INFORMATION REQUEST           | POSITIONING INFORMATION RESPONSE        | POSITIONING INFORMATION FAILURE        |
| TRP Information Exchange         | TRP INFORMATION REQUEST                   | TRP INFORMATION RESPONSE                | TRP INFORMATION FAILURE                |
| Positioning Activation           | POSITIONING ACTIVATION REQUEST            | POSITIONING ACTIVATION RESPONSE         | POSITIONING ACTIVATION FAILURE         |
| E-CID Measurement Initiation     | E-CID MEASUREMENT INITIATION REQUEST      | E-CID MEASUREMENT INITIATION RESPONSE   | E-CID MEASUREMENT INITIATION FAILURE   |
| Broadcast Context Setup          | BROADCAST CONTEXT SETUP REQUEST           | BROADCAST CONTEXT SETUP RESPONSE        | BROADCAST CONTEXT SETUP FAILURE        |
| Broadcast Context Release        | BROADCAST CONTEXT RELEASE COMMAND         | BROADCAST CONTEXT RELEASE COMPLETE      |                                        |
| Broadcast Context Modification   | BROADCAST CONTEXT MODIFICATION REQUEST    | BROADCAST CONTEXT MODIFICATION RESPONSE | BROADCAST CONTEXT MODIFICATION FAILURE |
| Multicast Context Setup          | MULTICAST CONTEXT SETUP REQUEST           | MULTICAST CONTEXT SETUP RESPONSE        | MULTICAST CONTEXT SETUP FAILURE        |
| Multicast Context Release        | MULTICAST CONTEXT RELEASE COMMAND         | MULTICAST CONTEXT RELEASE COMPLETE      |                                        |
| Multicast Context Modification   | MULTICAST CONTEXT MODIFICATION REQUEST    | MULTICAST CONTEXT MODIFICATION RESPONSE | MULTICAST CONTEXT MODIFICATION FAILURE |
| Multicast Distribution Setup     | MULTICAST DISTRIBUTION SETUP REQUEST      | MULTICAST DISTRIBUTION SETUP RESPONSE   | MULTICAST DISTRIBUTION SETUP FAILURE   |
| Multicast Distribution Release   | MULTICAST DISTRIBUTION RELEASE COMMAND    | MULTICAST DISTRIBUTION RELEASE COMPLETE |                                        |
| PDC Measurement Initiation       | PDC MEASUREMENT INITIATION REQUEST        | PDC MEASUREMENT INITIATION RESPONSE     | PDC MEASUREMENT INITIATION FAILURE     |
| PRS Configuration Exchange       | PRS CONFIGURATION REQUEST                 | PRS CONFIGURATION RESPONSE              | PRS CONFIGURATION FAILURE              |
| Measurement Preconfiguration     | MEASUREMENT PRECONFIGURATION REQUIRED     | MEASUREMENT PRECONFIGURATION CONFIRM    | MEASUREMENT PRECONFIGURATION REFUSE    |
| Timing Synchronisation Status    | TIMING SYNCHRONISATION STATUS REQUEST     | TIMING SYNCHRONISATION STATUS RESPONSE  | TIMING SYNCHRONISATION STATUS FAILURE  |
| Multicast Context Notification   | MULTICAST CONTEXT NOTIFICATION INDICATION | MULTICAST CONTEXT NOTIFICATION CONFIRM  | MULTICAST CONTEXT NOTIFICATION REFUSE  |
| Multicast Common Configuration   | MULTICAST COMMON CONFIGURATION REQUEST    | MULTICAST COMMON CONFIGURATION RESPONSE | MULTICAST COMMON CONFIGURATION REFUSE  |

Table 2: Class 2 procedures

| Elementary Procedure                          | Message                         |
|-----------------------------------------------|---------------------------------|
| Error Indication                              | ERROR INDICATION                |
| UE Context Release Request (gNB-DU initiated) | UE CONTEXT RELEASE REQUEST      |
| Initial UL RRC Message Transfer               | INITIAL UL RRC MESSAGE TRANSFER |
| DL RRC Message Transfer                       | DL RRC MESSAGE TRANSFER         |

| Elementary Procedure                            | Message                                               |
|-------------------------------------------------|-------------------------------------------------------|
| UL RRC Message Transfer                         | UL RRC MESSAGE TRANSFER                               |
| UE Inactivity Notification                      | UE INACTIVITY NOTIFICATION                            |
| System Information Delivery                     | SYSTEM INFORMATION DELIVERY<br>COMMAND                |
| Paging                                          | PAGING                                                |
| Notify                                          | NOTIFY                                                |
| PWS Restart Indication                          | PWS RESTART INDICATION                                |
| PWS Failure Indication                          | PWS FAILURE INDICATION                                |
| gNB-DU Status Indication                        | GNB-DU STATUS INDICATION                              |
| RRC Delivery Report                             | RRC DELIVERY REPORT                                   |
| Network Access Rate Reduction                   | NETWORK ACCESS RATE<br>REDUCTION                      |
| Trace Start                                     | TRACE START                                           |
| Deactivate Trace                                | DEACTIVATE TRACE                                      |
| DU-CU Radio Information Transfer                | DU-CU RADIO INFORMATION<br>TRANSFER                   |
| CU-DU Radio Information Transfer                | CU-DU RADIO INFORMATION<br>TRANSFER                   |
| Resource Status Reporting                       | RESOURCE STATUS UPDATE                                |
| Access And Mobility Indication                  | ACCESS AND MOBILITY<br>INDICATION                     |
| Reference Time Information<br>Reporting Control | REFERENCE TIME INFORMATION<br>REPORTING CONTROL       |
| Reference Time Information Report               | REFERENCE TIME INFORMATION<br>REPORT                  |
| Access Success                                  | ACCESS SUCCESS                                        |
| Cell Traffic Trace                              | CELL TRAFFIC TRACE                                    |
| Positioning Assistance Information<br>Control   | POSITIONING ASSISTANCE<br>INFORMATION CONTROL         |
| Positioning Assistance Information<br>Feedback  | POSITIONING ASSISTANCE<br>INFORMATION FEEDBACK        |
| Positioning Measurement Report                  | POSITIONING MEASUREMENT<br>REPORT                     |
| Positioning Measurement Abort                   | POSITIONING MEASUREMENT<br>ABORT                      |
| Positioning Measurement Failure<br>Indication   | POSITIONING MEASUREMENT<br>FAILURE INDICATION         |
| Positioning Measurement Update                  | POSITIONING MEASUREMENT<br>UPDATE                     |
| Positioning Deactivation                        | POSITIONING DEACTIVATION                              |
| E-CID Measurement Failure<br>Indication         | E-CID MEASUREMENT FAILURE<br>INDICATION               |
| E-CID Measurement Report                        | E-CID MEASUREMENT REPORT                              |
| E-CID Measurement Termination                   | E-CID MEASUREMENT<br>TERMINATION COMMAND              |
| Positioning Information Update                  | POSITIONING INFORMATION<br>UPDATE                     |
| Multicast Group Paging                          | MULTICAST GROUP PAGING                                |
| Broadcast Context Release Request               | BROADCAST CONTEXT RELEASE<br>REQUEST                  |
| Multicast Context Release Request               | MULTICAST CONTEXT RELEASE<br>REQUEST                  |
| PDC Measurement Report                          | PDC MEASUREMENT REPORT                                |
| PDC Measurement Failure<br>Indication           | PDC MEASUREMENT FAILURE<br>INDICATION                 |
| PDC Measurement Termination                     | PDC MEASUREMENT<br>TERMINATION COMMAND                |
| Measurement Activation                          | MEASUREMENT ACTIVATION                                |
| QoE Information Transfer                        | QOE INFORMATION TRANSFER                              |
| Positioning System Information<br>Delivery      | POSITIONING SYSTEM<br>INFORMATION DELIVERY<br>COMMAND |
| DU-CU Cell Switch Notification                  | DU-CU CELL SWITCH<br>NOTIFICATION                     |

| Elementary Procedure                     | Message                                  |
|------------------------------------------|------------------------------------------|
| CU-DU Cell Switch Notification           | CU-DU CELL SWITCH NOTIFICATION           |
| DU-CU TA Information Transfer            | DU-CU TA INFORMATION TRANSFER            |
| CU-DU TA Information Transfer            | CU-DU TA INFORMATION TRANSFER            |
| QoE Information Transfer Control         | QOE INFORMATION TRANSFER CONTROL         |
| RACH Indication                          | RACH INDICATION                          |
| Timing Synchronisation Status Report     | TIMING SYNCHRONISATION STATUS REPORT     |
| Mobile IAB F1 Setup Triggering           | MIAB F1 SETUP TRIGGERING                 |
| Mobile IAB F1 Setup Outcome Notification | MIAB F1 SETUP OUTCOME NOTIFICATION       |
| Broadcast Transport Resource Request     | BROADCAST TRANSPORT RESOURCE REQUEST     |
| SRS Information Reservation Notification | SRS INFORMATION RESERVATION NOTIFICATION |
| DU-CU Access And Mobility Indication     | DU-CU ACCESS AND MOBILITY INDICATION     |
| CU-DU Mobility Initiation                | CU-DU MOBILITY INITIATION REQUEST        |

## 8.2 Interface Management procedures

### 8.2.1 Reset

#### 8.2.1.1 General

The purpose of the Reset procedure is to initialise or re-initialise the F1AP UE-related contexts, in the event of a failure in the gNB-CU or gNB-DU. This procedure does not affect the application level configuration data exchanged during, e.g., the F1 Setup procedure.

The procedure uses non-UE associated signalling.

#### 8.2.1.2 Successful Operation

##### 8.2.1.2.1 Reset Procedure Initiated from the gNB-CU

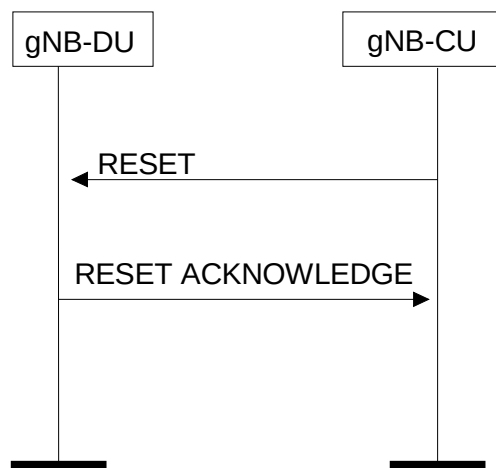


Figure 8.2.1.2.1-1: Reset procedure initiated from the gNB-CU. Successful operation



In the event of a failure at the gNB-CU, which has resulted in the loss of some or all transaction reference information, a RESET message shall be sent to the gNB-DU.

At reception of the RESET message the gNB-DU shall release all allocated resources on F1 and radio resources related to the UE association(s) indicated explicitly or implicitly in the RESET message and remove the indicated UE contexts including F1AP ID.

After the gNB-DU has released all assigned F1 resources and the UE F1AP IDs for all indicated UE associations which can be used for new UE-associated logical F1-connections over the F1 interface, the gNB-DU shall respond with the RESET ACKNOWLEDGE message. The gNB-DU does not need to wait for the release of radio resources to be completed before returning the RESET ACKNOWLEDGE message.

If the RESET message contains the *UE-associated logical F1-connection list* IE, then:

- The gNB-DU shall use the *gNB-CU UE F1AP ID* IE and/or the *gNB-DU UE F1AP ID* IE to explicitly identify the UE association(s) to be reset.
- The gNB-DU shall include in the RESET ACKNOWLEDGE message, for each UE association to be reset, the *UE-associated logical F1-connection Item* IE in the *UE-associated logical F1-connection list* IE. The *UE-associated logical F1-connection Item* IEs shall be in the same order as received in the RESET message and shall include also unknown UE-associated logical F1-connections. Empty *UE-associated logical F1-connection Item* IEs, received in the RESET message, may be omitted in the RESET ACKNOWLEDGE message.
- If the *gNB-CU UE F1AP ID* IE is included in the *UE-associated logical F1-connection Item* IE for a UE association, the gNB-DU shall include the *gNB-CU UE F1AP ID* IE in the corresponding *UE-associated logical F1-connection Item* IE in the RESET ACKNOWLEDGE message.
- If the *gNB-DU UE F1AP ID* IE is included in the *UE-associated logical F1-connection Item* IE for a UE association, the gNB-DU shall include the *gNB-DU UE F1AP ID* IE in the corresponding *UE-associated logical F1-connection Item* IE in the RESET ACKNOWLEDGE message.

#### Interactions with other procedures:

If the RESET message is received, any other ongoing procedure (except for another Reset procedure) on the same F1 interface related to a UE association, indicated explicitly or implicitly in the RESET message, shall be aborted.

#### 8.2.1.2.2 Reset Procedure Initiated from the gNB-DU

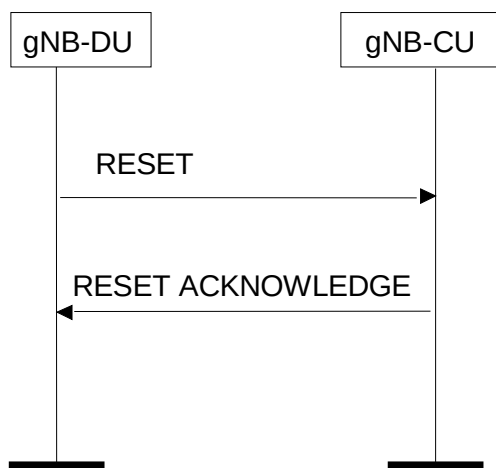


**Figure 8.2.1.2.2-1: Reset procedure initiated from the gNB-DU. Successful operation**

In the event of a failure at the gNB-DU, which has resulted in the loss of some or all transaction reference information, a RESET message shall be sent to the gNB-CU.

At reception of the RESET message the gNB-CU shall release all allocated resources on F1 related to the UE association(s) indicated explicitly or implicitly in the RESET message and remove the F1AP ID for the indicated UE associations.

After the gNB-CU has released all assigned F1 resources and the UE F1AP IDs for all indicated UE associations which can be used for new UE-associated logical F1-connections over the F1 interface, the gNB-CU shall respond with the RESET ACKNOWLEDGE message.

If the RESET message contains the *UE-associated logical F1-connection list* IE, then:

- The gNB-CU shall use the *gNB-CU UE F1AP ID* IE and/or the *gNB-DU UE F1AP ID* IE to explicitly identify the UE association(s) to be reset.
- The gNB-CU shall in the RESET ACKNOWLEDGE message include, for each UE association to be reset, the *UE-associated logical F1-connection Item* IE in the *UE-associated logical F1-connection list* IE. The *UE-associated logical F1-connection Item* IEs shall be in the same order as received in the RESET message and shall include also unknown UE-associated logical F1-connections. Empty *UE-associated logical F1-connection Item* IEs, received in the RESET message, may be omitted in the RESET ACKNOWLEDGE message.
- If the *gNB-CU UE F1AP ID* IE is included in the *UE-associated logical F1-connection Item* IE for a UE association, the gNB-CU shall include the *gNB-CU UE F1AP ID* IE in the corresponding *UE-associated logical F1-connection Item* IE in the RESET ACKNOWLEDGE message.
- If the *gNB-DU UE F1AP ID* IE is included in a *UE-associated logical F1-connection Item* IE for a UE association, the gNB-CU shall include the *gNB-DU UE F1AP ID* IE in the corresponding *UE-associated logical F1-connection Item* IE in the RESET ACKNOWLEDGE message.

#### Interactions with other procedures:

If the RESET message is received, any other ongoing procedure (except for another Reset procedure) on the same F1 interface related to a UE association, indicated explicitly or implicitly in the RESET message, shall be aborted.

### 8.2.1.3 Abnormal Conditions

Not applicable.

## 8.2.2 Error Indication

### 8.2.2.1 General

The Error Indication procedure is initiated by a node in order to report detected errors in one incoming message, provided they cannot be reported by an appropriate failure message.

If the error situation arises due to reception of a message utilising UE associated signalling, then the Error Indication procedure uses UE associated signalling. Otherwise the procedure uses non-UE associated signalling.

### 8.2.2.2 Successful Operation

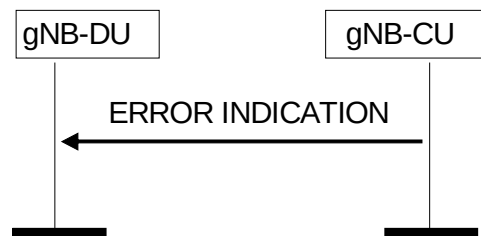


Figure 8.2.2.2-1: Error Indication procedure, gNB-CU originated. Successful operation

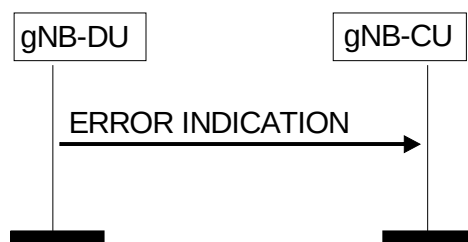


**Figure 8.2.2.2-2: Error Indication procedure, gNB-DU originated. Successful operation**

When the conditions defined in clause 10 are fulfilled, the Error Indication procedure is initiated by an ERROR INDICATION message sent from the receiving node.

The ERROR INDICATION message shall contain at least either the *Cause* IE or the *Criticality Diagnostics* IE. In case the Error Indication procedure is triggered by utilising UE associated signalling the *gNB-CU UE F1AP ID* IE and *gNB-DU UE F1AP ID* IE shall be included in the ERROR INDICATION message. If one or both of the *gNB-CU UE F1AP ID* IE and the *gNB-DU UE F1AP ID* IE are not correct, the cause shall be set to appropriate value, e.g., "Unknown or already allocated gNB-CU UE F1AP ID", "Unknown or already allocated gNB-DU UE F1AP ID" or "Unknown or inconsistent pair of UE F1AP ID".

### 8.2.2.3 Abnormal Conditions

Not applicable.

## 8.2.3 F1 Setup

### 8.2.3.1 General

The purpose of the F1 Setup procedure is to exchange application level data needed for the gNB-DU and the gNB-CU to correctly interoperate on the F1 interface. This procedure shall be the first F1AP procedure triggered for the F1-C interface instance after a TNL association has become operational.

**NOTE:** If F1-C signalling transport is shared among multiple F1-C interface instances, one F1 Setup procedure is issued per F1-C interface instance to be setup, i.e. several F1 Setup procedures may be issued via the same TNL association after that TNL association has become operational.

**NOTE:** Exchange of application level configuration data also applies between the gNB-DU and the gNB-CU in case the DU does not broadcast system information other than for radio frame timing and SFN, as specified in the TS 37.340 [7]. How to use this information when this option is used is not explicitly specified.

The procedure uses non-UE associated signalling.

This procedure erases any existing application level configuration data in the two nodes and replaces it by the one received. This procedure also re-initialises the F1AP UE-related contexts (if any) and erases all related signalling connections in the two nodes like a Reset procedure would do.

### 8.2.3.2 Successful Operation

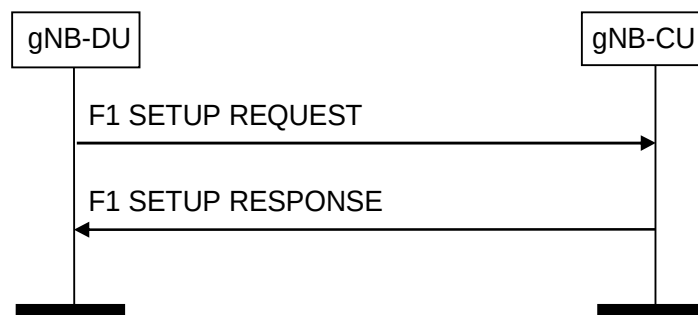


**Figure 8.2.3.2-1: F1 Setup procedure: Successful Operation**

The gNB-DU initiates the procedure by sending a F1 SETUP REQUEST message including the appropriate data to the gNB-CU. The gNB-CU responds with a F1 SETUP RESPONSE message including the appropriate data.

The exchanged data shall be stored in respective node and used as long as there is an operational TNL association. When this procedure is finished, the F1 interface is operational and other F1 messages may be exchanged.

If the F1 SETUP REQUEST message contains the *gNB-DU Name* IE, the gNB-CU may use this IE as a human readable name of the gNB-DU. If the F1 SETUP REQUEST message contains the *Extended gNB-DU Name* IE, the gNB-CU may use this IE as a human readable name of the gNB-DU and shall ignore the *gNB-DU Name* IE if included.

If the F1 SETUP RESPONSE message contains the *gNB-CU Name* IE, the gNB-DU may use this IE as a human readable name of the gNB-CU. If the F1 SETUP RESPONSE message contains the *Extended gNB-CU Name* IE, the gNB-DU may use this IE as a human readable name of the gNB-CU and shall ignore the *gNB-CU Name* IE if included.

If the F1 SETUP REQUEST message contains the *gNB-DU Served Cells List* IE, the gNB-CU shall take into account as specified in TS 38.401 [4].

For NG-RAN, the gNB-DU shall include the *gNB-DU System Information* IE and the *TAI Slice Support List* IE in the F1 SETUP REQUEST message.

The gNB-CU may include the *Cells to be Activated List* IE in the F1 SETUP RESPONSE message. The *Cells to be Activated List* IE includes a list of cells that the gNB-CU requests the gNB-DU to activate. The gNB-DU shall activate the cells included in the *Cells to be Activated List* IE and reconfigure the physical cell identity for cells for which the *NR PCI* IE is included.

If *Cells to be Activated List Item* IE is included in the F1 SETUP RESPONSE message, and the information for the cell indicated by the *NR CGI* IE includes the *IAB Info IAB-donor-CU* IE, the gNB-DU shall, if supported, apply the *IAB STC Info* IE therein to the indicated cell.

For NG-RAN, the gNB-CU shall include the *gNB-CU System Information* IE in the F1 SETUP RESPONSE message.

For NG-RAN, the gNB-DU may include the *RAN Area Code* IE in the F1 SETUP REQUEST message. The gNB-CU may use it according to TS 38.300 [6].

For NG-RAN, the gNB-DU may include *Supported MBS FSA ID List* IE in the *Served Cell Information* IE in the F1 SETUP REQUEST message. The gNB-CU may use it according to TS 38.300 [6].

For NG-RAN, the gNB-CU may include *Available PLMN List* IE, and optionally also *Extended Available PLMN List* IE in the F1 SETUP RESPONSE message, if the available PLMN(s) are different from what gNB-DU has provided in F1 SETUP REQUEST message, gNB-DU shall take this into account and only broadcast the PLMN(s) included in the received Available PLMN list(s).

For NG-RAN, the gNB-CU may include *Available SNPN ID List* IE in the F1 SETUP RESPONSE message. If the available SNPN(s) are different from what gNB-DU has provided in F1 SETUP REQUEST message, gNB-DU shall take this into account and only broadcast the SNPN(s) included in the received Available SNPN ID list.

The *Latest RRC Version Enhanced* IE shall be included in the F1 SETUP REQUEST message and in the F1 SETUP RESPONSE message.

If in F1 SETUP REQUEST message, the *Cell Direction* IE is present, the gNB-CU should use it to understand whether the cell is for UL or DL only. If in F1 SETUP REQUEST message, the *Cell Direction* IE is omitted in the *Served Cell Information* IE it shall be interpreted as that the Cell Direction is Bi-directional.

If the *Intended TDD DL-UL Configuration* IE is present in the F1 SETUP REQUEST message, the receiving gNB-CU shall use the received information for Cross Link Interference management and/or NR-DC power coordination. The gNB-CU may merge the Intended TDD DL-UL Configuration information received from two or more gNB-DUs. The gNB-CU shall consider the received *Intended TDD DL-UL Configuration* IE content valid until reception of an update of the IE for the same cell(s).

If the *Aggressor gNB Set ID* IE is included in the *Served Cell Information* IE in the F1 SETUP REQUEST message, the gNB-CU shall, if supported, take it into account.

If the *Victim gNB Set ID* IE is included in the *Served Cell Information* IE in the F1 SETUP REQUEST message, the gNB-CU shall, if supported, take it into account.

If the F1 SETUP REQUEST message contains the *Transport Layer Address Info* IE, the gNB-CU shall, if supported, take into account for IPsec tunnel establishment.

If the *SFN Offset* IE is contained in the *Served Cell Information* IE in the F1 SETUP REQUEST message, the gNB-CU shall, if supported, use this information to deduce the SFN0 offset of the reported cell.

If the F1 SETUP RESPONSE message contains the *Transport Layer Address Info* IE, the gNB-DU shall, if supported, take into account for IPsec tunnel establishment.

If the F1 SETUP RESPONSE message contains the *Uplink BH Non-UP Traffic Mapping* IE, the gNB-DU shall, if supported, consider the information therein for mapping of non-UP uplink traffic.

If the *BAP Address* IE is included in the F1 SETUP REQUEST message, without an accompanying *RRC Terminating IAB-Donor gNB-ID* IE, the receiving gNB-CU shall, if supported, consider the information therein for discovering the co-location of an IAB-DU and an IAB-MT.

If the F1 SETUP REQUEST message is received from an IAB-donor-DU, the gNB-CU shall, if supported, include the *BAP Address* IE in the F1 SETUP RESPONSE message.

NOTE: How to identify the IAB-donor-DU is up to gNB-CU implementation.

If the F1 SETUP RESPONSE message contains the *BAP Address* IE, the gNB-DU shall, if supported, store the received BAP address and use it as specified in TS 38.340 [30].

If the *NR PRACH Configuration List* IE is included in the *Served Cell Information* IE contained in the F1 SETUP REQUEST message, the gNB-CU may store the information, and forward it to other RAN nodes for RACH optimisation. If the *L139 Info* IE included in the *NR PRACH Configuration List* IE is present, it shall contain the *Root Sequence Index* IE.

If the *RedCap Broadcast Information* IE is included in the *Served Cell Information* IE in the F1 SETUP REQUEST message, the gNB-CU may store and use this information to determine a suitable target in case of subsequent outgoing mobility involving RedCap UEs.

If the *eRedCap Broadcast Information* IE is included in the *Served Cell Information* IE in the F1 SETUP REQUEST message, the gNB-CU may store and use this information to determine a suitable target in case of subsequent outgoing mobility involving eRedCap UEs.

If the *TAI NSAG Support List* IE is included in the *Served Cell Information* IE in the F1 SETUP REQUEST message, the gNB-CU shall, if supported, use this information as specified in TS 23.501 [21].

If both the *RRC Terminating IAB-Donor gNB-ID* IE and the *BAP Address* IE are included in the F1 SETUP REQUEST message, the gNB-CU shall, if supported, consider that the BAP address indicated by the *BAP Address* IE is assigned by the gNB-CU of the RRC-terminating IAB-donor indicated by the *RRC Terminating IAB-Donor gNB-ID* IE, and use this BAP address and gNB-ID for the subsequent IAB Transport Migration Management procedure towards the RRC-terminating IAB-donor of the mobile IAB-node, as specified in TS 38.423 [28].

If the F1 SETUP REQUEST message contains the *Mobile IAB-MT User Location Information* IE, the gNB-CU shall, if supported, take it into account when reporting UE location information to the AMF for a UE served by the mobile IAB-node.

If the *XR Broadcast Information* IE is included in the *Served Cell Information* IE in the F1 SETUP REQUEST message, the gNB-CU shall, if supported, consider the indicated cell does not allow 2Rx XR UEs in case of subsequent outgoing mobility involving XR UEs.

If the *NCGI to be Updated List* IE is included in the F1 SETUP RESPONSE message, the gNB-DU shall, if supported, change the NCGI of the cell indicated by the *Old NCGI* IE to the NCGI indicated by the *New NCGI* IE.

If the *Barring Exemption for Emergency Call Information* IE is included in the *Served Cell Information* IE in the F1 SETUP REQUEST message, the gNB-CU may store the information and consider the indicated cell allows emergency bearer services for UEs who would otherwise consider the cell as barred as specified in TS 38.304 [24].

### 8.2.3.3 Unsuccessful Operation

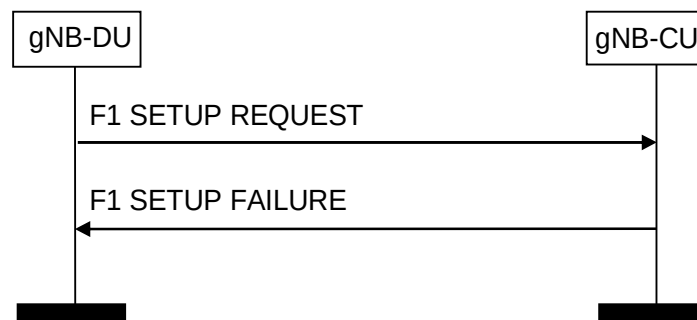


**Figure 8.2.3.3-1: F1 Setup procedure: Unsuccessful Operation**

If the gNB-CU cannot accept the setup, it should respond with a F1 SETUP FAILURE and appropriate cause value.

If the F1 SETUP FAILURE message includes the *Time To Wait* IE, the gNB-DU shall wait at least for the indicated time before reinitiating the F1 setup towards the same gNB-CU.

### 8.2.3.4 Abnormal Conditions

Not applicable.

## 8.2.4 gNB-DU Configuration Update

### 8.2.4.1 General

The purpose of the gNB-DU Configuration Update procedure is to update application level configuration data needed for the gNB-DU and the gNB-CU to interoperate correctly on the F1 interface. This procedure does not affect existing UE-related contexts, if any. The procedure uses non-UE associated signalling.

**NOTE:** Update of application level configuration data also applies between the gNB-DU and the gNB-CU in case the DU does not broadcast system information other than for radio frame timing and SFN, as specified in the TS 37.340 [7]. How to use this information when this option is used is not explicitly specified.

### 8.2.4.2 Successful Operation

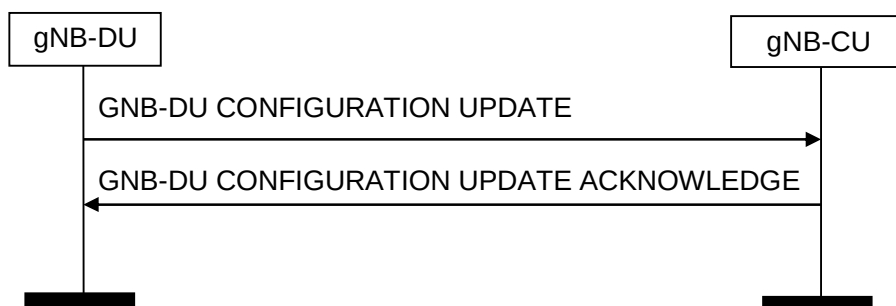


**Figure 8.2.4.2-1: gNB-DU Configuration Update procedure: Successful Operation**

The gNB-DU initiates the procedure by sending a GNB-DU CONFIGURATION UPDATE message to the gNB-CU including an appropriate set of updated configuration data that it has just taken into operational use. The gNB-CU responds with GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE message to acknowledge that it successfully updated the configuration data. If an information element is not included in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU shall interpret that the corresponding configuration data is not changed and shall continue to operate the F1-C interface with the existing related configuration data.

The updated configuration data shall be stored in both nodes and used as long as there is an operational TNL association or until any further update is performed.

If *gNB-DU ID* IE is contained in the GNB-DU CONFIGURATION UPDATE message for a newly established SCTP association, the gNB-CU will associate this association with the related gNB-DU.

If *Served Cells To Add Item* IE is contained in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU shall add cell information according to the information in the *Served Cell Information* IE. For NG-RAN, the gNB-DU shall include the *gNB-DU System Information* IE.

If *Served Cells To Modify Item* IE is contained in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU shall modify information of cell indicated by *Old NR CGI* IE according to the information in the *Served Cell Information* IE and overwrite the served cell information for the affected served cell. Further, if the *gNB-DU System Information* IE is present the gNB-CU shall store and replace any previous information received.

If *Served Cells To Delete Item* IE is contained in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU shall delete information of cell indicated by *Old NR CGI* IE.

If *Cells Status Item* IE is contained in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU shall update the information about the cells, as described in TS 38.401 [4]. If the *Switching Off Ongoing* IE is present in the *Cells Status Item* IE, contained in the GNB-DU CONFIGURATION UPDATE message, and the corresponding *Service State* IE is set to "Out-of-Service", the gNB-CU shall ignore the *Switching Off Ongoing* IE.

If *Cells to be Activated List Item* IE is contained in the GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE message, the gNB-DU shall activate the cell indicated by *NR CGI* IE and reconfigure the physical cell identity for cells for which the *NR PCI* IE is included.

If *Cells to be Activated List Item* IE is contained in the GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE message and the indicated cells are already activated, the gNB-DU shall update the cell information received in *Cells to be Activated List Item* IE.

If *Cells to be Activated List Item* IE is included in the GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE message, and the information for the cell indicated by the *NR CGI* IE includes the *IAB Info IAB-donor-CU* IE, the gNB-DU shall, if supported, apply the *IAB STC Info* IE therein to the indicated cell.

If *Cells to be Deactivated List Item* IE is contained in the GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE message, the gNB-DU shall deactivate all the cells with *NR CGI* listed in the IE.

If *Dedicated SI Delivery Needed UE List* IE is contained in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU should take it into account when informing the UE of the updated system information via the dedicated RRC message.

For NG-RAN, the gNB-CU shall include the *gNB-CU System Information* IE in the GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE message. The *SIB type to Be Updated List* IE shall contain the full list of SIBs to be broadcast.

For NG-RAN, the gNB-DU may include the *RAN Area Code* IE in the GNB-DU CONFIGURATION UPDATE message. The gNB-CU shall store and replace any previously provided *RAN Area Code* IE by the received *RAN Area Code* IE.

For NG-RAN, the gNB-DU may include the *Supported MBS FSA ID List* IE in the *Served Cell Information* IE in the GNB-DU CONFIGURATION UPDATE message. The gNB-CU shall store and replace any previously provided *MBS FSA ID list* IE by the received *MBS FSA ID list* IE.

If *Available PLMN List* IE, and optionally also *Extended Available PLMN List* IE, is contained in GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE message, the gNB-DU shall overwrite the whole available PLMN list and update the corresponding system information.

If *Available SNPN ID List* IE is contained in GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE message, the gNB-DU shall overwrite the whole available SNPN ID list and update the corresponding system information.

If in GNB-DU CONFIGURATION UPDATE message, the *Cell Direction* IE is present, the gNB-CU should use it to understand whether the cell is for UL or DL only. If in GNB-DU CONFIGURATION UPDATE message, the *Cell Direction* IE is omitted in the *Served Cell Information* IE it shall be interpreted as that the Cell Direction is Bi-directional.

If the GNB-DU CONFIGURATION UPDATE message includes *gNB-DU TNL Association To Remove List* IE, the gNB-CU shall, if supported, initiate removal of the TNL association(s) indicated by gNB-DU TNL endpoint(s) and

gNB-CU TNL endpoint(s) if the *TNL Association Transport Layer Address gNB-CU* IE is present, or the TNL association(s) indicated by gNB-DU TNL endpoint(s) if the *TNL Association Transport Layer Address gNB-CU* IE is absent:

- if the received *TNL Association Transport Layer Address* IE includes the *Port Number* IE, the gNB-DU TNL endpoint is identified by the *Endpoint IP Address* IE and the *Port Number* IE. Otherwise, the gNB-DU TNL endpoints correspond to all gNB-DU TNL endpoints identified by the *Endpoint IP Address* IE and any port number(s).
- if the received *TNL Association Transport Layer Address gNB-CU* IE includes the *Port Number* IE, the *gNB-CU* TNL endpoint is identified by the *Endpoint IP Address* IE and the *Port Number* IE. Otherwise, the *gNB-CU* TNL endpoints correspond to all *gNB-CU* TNL endpoints identified by the *Endpoint IP Address* IE and any port number(s).

If the *Intended TDD DL-UL Configuration* IE is present in the GNB-DU CONFIGURATION UPDATE message, the receiving gNB-CU shall use the received information for Cross Link Interference management and/or NR-DC power coordination. The gNB-CU may merge the *Intended TDD DL-UL Configuration* information received from two or more gNB-DUs. The gNB-CU shall consider the received *Intended TDD DL-UL Configuration* IE content valid until reception of an update of the IE for the same cell(s).

If the *Aggressor gNB Set ID* IE is included in the *Served Cell Information* IE in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU shall, if supported, take it into account.

If the *Victim gNB Set ID* IE is included in the *Served Cell Information* IE in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU shall, if supported, take it into account.

If the GNB-DU CONFIGURATION UPDATE message includes *Transport Layer Address Info* IE, the gNB-CU shall, if supported, take into account for IPSec tunnel establishment.

If the GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE message includes *Transport Layer Address Info* IE, the gNB-DU shall, if supported, take into account for IPSec tunnel establishment.

If the GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE message contains the *Uplink BH Non-UP Traffic Mapping* IE, the gNB-DU shall, if supported, consider the information therein for mapping of non-UP uplink traffic.

If the *SFN Offset* IE is contained in the *Served Cell Information* IE in GNB-DU CONFIGURATION UPDATE message, the gNB-CU shall, if supported, use this information to deduce the SFN0 offset of the reported cell.

If the *NR PRACH Configuration List* IE is included in the *Served Cell Information* IE contained in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU may store the information, and forward it to other RAN nodes for RACH optimisation. If the *L139 Info* IE included in the *NR PRACH Configuration List* IE is present, it shall contain the *Root Sequence Index* IE.

If the GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE message contains the *BAP Address* IE, the gNB-DU shall, if supported, store the received BAP address and use it as specified in TS 38.340 [30].

If the *Coverage Modification Notification* IE is contained in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU shall, if supported, take it into account for Coverage and Capacity Optimization and network energy saving. If the *Coverage Modification Cause* IE is set to the "network energy saving", gNB-CU may consider those deactivated SSB beams are due to network energy saving.

If the *Cells for SON* IE is present in the GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE message, the gNB-DU may store or update this information and behaves as follows:

- For each served cell indicated by the *NR CGI* IE included within the *Cells for SON Item* IE, the gNB-DU may adjust the PRACH configuration of this served cell.
- If the *Neighbour NR Cells for SON List* IE is present in the *Cells for SON Item* IE, the gNB-DU may take the PRACH configuration of neighbour cells included in the *Neighbour NR Cells for SON List* IE into consideration when adjusting the PRACH configuration of the served cell.

If the *RedCap Broadcast Information* IE is contained in the *Served Cell Information* IE in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU may store and use this information to determine a suitable target in case of subsequent outgoing mobility involving RedCap UEs.



If the *eRedCap Broadcast Information* IE is contained in the *Served Cell Information* IE in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU may store and use this information to determine a suitable target in case of subsequent outgoing mobility involving eRedCap UEs.

If the *TAI NSAG Support List* IE is included in the *Served Cell Information* IE in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU shall, if supported, use this information as specified in TS 23.501 [21].

If the *gNB-DU Name* IE is included in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU may store it or update this IE value if already stored, and use it as a human readable name of the gNB-DU. If the *Extended gNB-DU Name* IE is included in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU may store it or update this IE value if already stored, and use it as a human readable name of the gNB-DU and shall ignore the *gNB-DU Name* IE if also included.

If the *RRC Terminating IAB-Donor Related Info* IE is included in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU shall, if supported, consider that the BAP address indicated by the *Mobile IAB-MT BAP Address* IE is assigned by the gNB-CU of the RRC-terminating IAB-donor indicated by the *RRC Terminating IAB-Donor gNB-ID* IE, and it shall use this BAP address and gNB ID for the subsequent IAB Transport Migration Management procedure towards the RRC-terminating IAB-donor of the mobile IAB-node as needed, as specified in TS 38.423 [28].

If the GNB-DU CONFIGURATION UPDATE message contains the *Mobile IAB-MT User Location Information* IE, the gNB-CU shall, if supported, take it into account when reporting UE location information to the AMF for a UE served by the mobile IAB-node.

If the *XR Broadcast Information* IE is included in the *Served Cell Information* IE in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU shall, if supported, consider the indicated cell does not allow 2Rx XR UEs in case of subsequent outgoing mobility involving XR UEs.

If the *Barring Exemption for Emergency Call Information* IE is included in the *Served Cell Information* IE in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU may store the information and consider the indicated cell allows emergency bearer services for UEs who would otherwise consider the cell as barred as specified in TS 38.304 [24].

### 8.2.4.3 Unsuccessful Operation

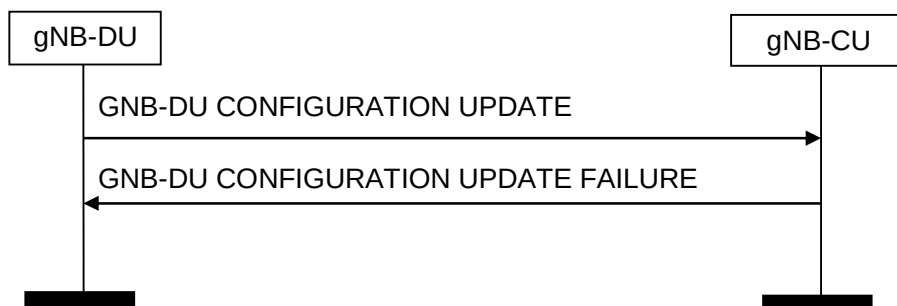


**Figure 8.2.4.3-1: gNB-DU Configuration Update procedure: Unsuccessful Operation**

If the gNB-CU cannot accept the update, it shall respond with a GNB-DU CONFIGURATION UPDATE FAILURE message and appropriate cause value.

If the GNB-DU CONFIGURATION UPDATE FAILURE message includes the *Time To Wait* IE, the gNB-DU shall wait at least for the indicated time before reinitiating the GNB-DU CONFIGURATION UPDATE message towards the same gNB-CU.

### 8.2.4.4 Abnormal Conditions

Not applicable.

## 8.2.5 gNB-CU Configuration Update

### 8.2.5.1 General

The purpose of the gNB-CU Configuration Update procedure is to update application level configuration data needed for the gNB-DU and gNB-CU to interoperate correctly on the F1 interface. This procedure does not affect existing UE-related contexts, if any. The procedure uses non-UE associated signalling.

### 8.2.5.2 Successful Operation

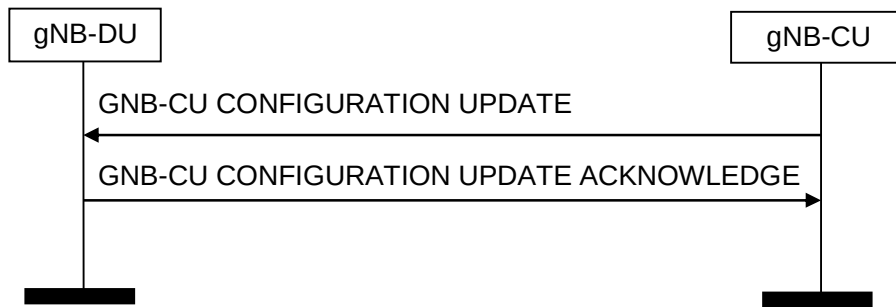


**Figure 8.2.5.2-1: gNB-CU Configuration Update procedure: Successful Operation**

The gNB-CU initiates the procedure by sending a GNB-CU CONFIGURATION UPDATE message including the appropriate updated configuration data to the gNB-DU. The gNB-DU responds with a GNB-CU CONFIGURATION UPDATE ACKNOWLEDGE message to acknowledge that it successfully updated the configuration data. If an information element is not included in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall interpret that the corresponding configuration data is not changed and shall continue to operate the F1-C interface with the existing related configuration data.

The updated configuration data shall be stored in the respective node and used as long as there is an operational TNL association or until any further update is performed.

If *Cells to be Activated List Item* IE is contained in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall activate the cell indicated by *NR CGI* IE and reconfigure the physical cell identity for which the *NR PCI* IE is included.

If the *SSBs within the cell to be Activated List* IE is included in the *Cells to be Activated List Item* IE within the gNB-CU CONFIGURATION UPDATE message, the gNB-DU shall, if supported, only activate those SSB beams indicated by the *SSB Index* IE.

If at least one requested SSB beam in the *SSBs within the cell to be Activated List* IE is activated, the gNB-DU includes the *Cells with SSBs Activated List* IE in the GNB-CU CONFIGURATION UPDATE ACKNOWLEDGE message. The gNB-CU shall consider that the SSB beams indicated by the *SSBs activated List* IE as activated.

If *Cells to be Deactivated List Item* IE is contained in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall deactivate the cell indicated by *NR CGI* IE.

If *Cells to be Activated List Item* IE is contained in the GNB-CU CONFIGURATION UPDATE message and the indicated cells are already activated, the gNB-DU shall update the cell information received in *Cells to be Activated List Item* IE.

If *Cells to be Activated List Item* IE is included in the GNB-CU CONFIGURATION UPDATE message, and the information for the cell indicated by the *NR CGI* IE includes the *IAB Info IAB-donor-CU* IE, the gNB-DU shall, if supported, apply the *IAB STC Info* IE therein to the indicated cell.

If the *Cells Allowed to be Deactivated List* IE is contained in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall, if supported, consider that it is allowed to deactivate the SSB beams within the indicated cells for network energy saving purpose.

If the *gNB-CU System Information* IE is contained in the gNB-CU CONFIGURATION UPDATE message, the gNB-DU shall include the *Dedicated SI Delivery Needed UE List* IE in the GNB-CU CONFIGURATION UPDATE ACKNOWLEDGE message for UEs that are unable to receive system information from broadcast.

If *Dedicated SI Delivery Needed UE List* IE is contained in the GNB-CU CONFIGURATION UPDATE ACKNOWLEDGE message, the gNB-CU should take it into account when informing the UE of the updated system information via the dedicated RRC message.

If the *gNB-CU TNL Association To Add List* IE is contained in the gNB-CU CONFIGURATION UPDATE message, the gNB-DU shall, if supported, use it to establish the TNL association(s) with the gNB-CU. If the *gNB-CU TNL Association To Add List* is included in the GNB-CU CONFIGURATION UPDATE message, and if the *TNL Association Transport Layer Information* IE does not include the *Port Number* IE, the gNB-DU shall assume that port number value 38472 is used for the endpoint. The gNB-DU shall report to the gNB-CU, in the gNB-CU CONFIGURATION UPDATE ACKNOWLEDGE message, the successful establishment of the TNL association(s) with the gNB-CU as follows:

- A list of TNL address(es) with which the gNB-DU successfully established the TNL association shall be included in the *gNB-CU TNL Association Setup List* IE;
- A list of TNL address(es) with which the gNB-DU failed to establish the TNL association shall be included in the *gNB-CU TNL Association Failed To Setup List* IE.

If the GNB-CU CONFIGURATION UPDATE message includes *gNB-CU TNL Association To Remove List* IE, the gNB-DU shall, if supported, initiate removal of the TNL association(s) indicated by gNB-CU TNL endpoint(s) and gNB-DU TNL endpoint(s) if the *TNL Association Transport Layer Address gNB-DU* IE is present, or the TNL association(s) indicated by gNB-CU TNL endpoint(s) if the *TNL Association Transport Layer Address gNB-DU* IE is absent:

- if the received *TNL Association Transport Layer Address* IE includes the *Port Number* IE, the gNB-CU TNL endpoint is identified by the *Endpoint IP Address* IE and the *Port Number* IE. Otherwise, the gNB-CU TNL endpoints correspond to all gNB-CU TNL endpoints identified by the *Endpoint IP Address* IE and any port number(s).
- if the received *TNL Association Transport Layer Address gNB-DU* IE includes the *Port Number* IE, the gNB-DU TNL endpoint is identified by the *Endpoint IP Address* IE and the *Port Number* IE. Otherwise, the gNB-DU TNL endpoints correspond to all gNB-DU node TNL endpoints identified by the *Endpoint IP Address* IE and any port number(s).

If the *gNB-CU TNL Association To Update List* IE is contained in the gNB-CU CONFIGURATION UPDATE message the gNB-DU shall, if supported, overwrite the previously stored information for the related TNL Association(s).

- if the received *TNL Association Transport Layer Address* IE includes the *Port Number* IE, the gNB-CU TNL endpoint is identified by the *Endpoint IP Address* IE and the *Port Number* IE. Otherwise, the gNB-CU TNL endpoints correspond to all gNB-CU TNL endpoints identified by the *Endpoint IP Address* IE and any port number(s).

If in the gNB-CU CONFIGURATION UPDATE message the *TNL Association usage* IE is included in the *gNB-CU TNL Association To Add List* IE or the *gNB-CU TNL Association To Update List* IE, the gNB-DU node shall, if supported, use it as described in TS 38.472 [22].

For NG-RAN, the gNB-CU shall include the *gNB-CU System Information* IE in the GNB-CU CONFIGURATION UPDATE message. The *SIB type to Be Updated List* IE shall contain the full list of SIBs to be broadcast.

If *Protected E-UTRA Resources List* IE is contained in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall protect the corresponding resource of the cells indicated by *E-UTRA Cells List* IE for spectrum sharing between E-UTRA and NR.

If the GNB-CU CONFIGURATION UPDATE message contains the *Protected E-UTRA Resource Indication* IE, the receiving gNB-DU should forward it to lower layers and use it for cell-level resource coordination. The gNB-DU shall consider the received *Protected E-UTRA Resource Indication* IE when expressing its desired resource allocation during gNB-DU Resource Coordination procedure. The gNB-DU shall consider the received *Protected E-UTRA Resource Indication* IE content valid until reception of a new update of the IE for the same gNB-DU.

If *Available PLMN List* IE, and optionally also *Extended Available PLMN List* IE, is contained in GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall overwrite the whole available PLMN list and update the corresponding system information.

If *Available SNPN ID List* IE is contained in GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall overwrite the whole available SNPN ID list and update the corresponding system information.

If *Cells Failed to be Activated Item* IE is contained in the GNB-CU CONFIGURATION UPDATE ACKNOWLEDGE message, the gNB-CU shall consider that the indicated cells are out-of-service as defined in TS 38.401 [4].

If the *Neighbour Cell Information List* IE is present in the GNB-CU CONFIGURATION UPDATE message, the receiving gNB-DU shall use the received information for Cross Link Interference management and/or NR-DC power coordination. The gNB-DU shall consider the received *Neighbour Cell Information List* IE content valid until reception of an update of the IE for the same cell(s). If the *Intended TDD DL-UL Configuration NR* IE is absent from the *Neighbour Cell Information List* IE, whereas the corresponding *NR CGI* IE is present, the receiving gNB-DU shall remove the previously stored *Neighbour Cell Information* IE corresponding to the *NR CGI*.

If the GNB-CU CONFIGURATION UPDATE message includes *Transport Layer Address Info* IE, the gNB-DU shall, if supported, take into account for IPsec tunnel establishment.

If the GNB-CU CONFIGURATION UPDATE ACKNOWLEDGE message includes *Transport Layer Address Info* IE, the gNB-CU shall, if supported, take into account for IPsec tunnel establishment.

If the GNB-CU CONFIGURATION UPDATE message contains the *Uplink BH Non-UP Traffic Mapping* IE, the gNB-DU shall, if supported, consider the information therein for mapping of non-UP uplink traffic.

If the *IAB Barred* IE is included in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall, if supported, consider it as an indication of whether the cell allows IAB-node access or not.

If the *BAP Address* IE is included in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall, if supported, store the received BAP address and use it as specified in TS 38.340 [30].

If the *CCO Assistance Information* IE is contained in the GNB-CU CONFIGURATION UPDATE message, and the *NR CGI* IE contained in the *Affected Cells and Beams* IE is served by the gNB-DU, the gNB-DU may use it to determine a new cell and/or beam configuration.

If the *CCO Assistance Information* IE is contained in the GNB-CU CONFIGURATION UPDATE message and the *NR CGI* IE contained in the *Affected Cells and Beams* IE is not served by the gNB-DU, the gNB-DU may use it to adjust coverage of its cells. If the *CCO issue detection* IE set to "network energy saving" is included in the *CCO Assistance Information* IE, the gNB-DU may consider the indicated SSB beams by the *Affected Cells and Beam* IE are deactivated due to network energy saving.

If the *Cells for SON* IE is present in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU may store or update this information and it behaves as follows:

- For each served cell indicated by the *NR CGI* IE included within the *Cells for SON Item* IE, the gNB-DU may adjust the PRACH configuration of this served cell.
- If the *Neighbour NR Cells for SON List* IE is present in the *Cells for SON Item* IE, the gNB-DU may take the PRACH configuration of neighbour cells included in the *Neighbour NR Cells for SON List* IE into consideration when adjusting the PRACH configuration of the served cell.

If the *gNB-CU Name* IE is included in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU may store it or update this IE value if already stored, and use it as a human readable name of the gNB-CU. If the *Extended gNB-CU Name* IE is included in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU may store it or update this IE value if already stored, and use it as a human readable name of the gNB-CU and shall ignore the *gNB-CU Name* IE if also included.

If the *Mobile IAB Barred* IE is included in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall, if supported, consider it as an indication of whether the cell allows mobile IAB-node access.

### 8.2.5.3 Unsuccessful Operation

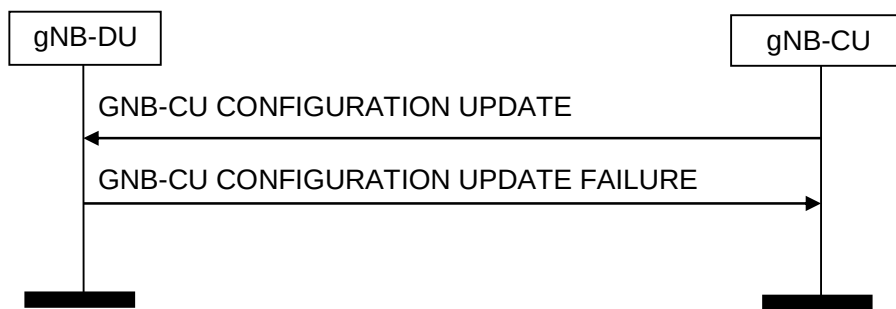


**Figure 8.2.5.3-1: gNB-CU Configuration Update: Unsuccessful Operation**

If the gNB-DU cannot accept the update, it shall respond with a GNB-CU CONFIGURATION UPDATE FAILURE message and appropriate cause value.

If the GNB-CU CONFIGURATION UPDATE FAILURE message includes the *Time To Wait* IE, the gNB-CU shall wait at least for the indicated time before reinitiating the GNB-CU CONFIGURATION UPDATE message towards the same gNB-DU.

### 8.2.5.4 Abnormal Conditions

Not applicable.

## 8.2.6 gNB-DU Resource Coordination

### 8.2.6.1 General

The purpose of the gNB-DU Resource Coordination procedure is to enable coordination of radio resource allocation between a gNB-CU and a gNB-DU for the purpose of spectrum sharing between E-UTRA and NR. This procedure is to be used only for the purpose of spectrum sharing between E-UTRA and NR.

The procedure uses non-UE-associated signalling.

### 8.2.6.2 Successful Operation

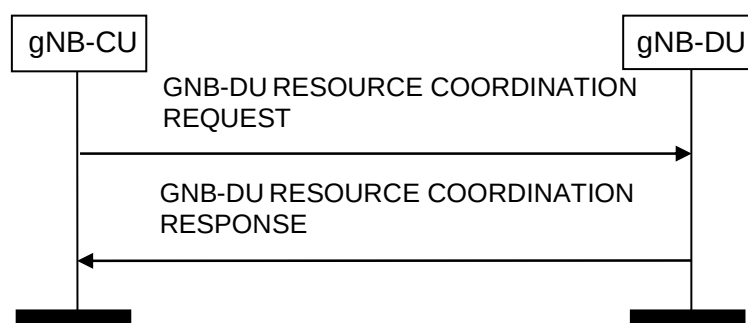


**Figure 8.2.6.2-1: gNB-DU Resource Coordination, successful operation**

A gNB-CU initiates the procedure by sending the GNB-DU RESOURCE COORDINATION REQUEST message to a gNB-DU over the F1 interface.

The gNB-DU extracts the *E-UTRA – NR Cell Resource Coordination Request Container* IE and it replies by sending the GNB-DU RESOURCE COORDINATION RESPONSE message.

In case of NR-initiated gNB-DU Resource Coordination procedure, the *Ignore Coordination Request Container* IE shall be present and set to "yes" and the *E-UTRA – NR Cell Resource Coordination Request Container* IE in the GNB-DU RESOURCE COORDINATION REQUEST message shall be ignored.

## 8.2.7 gNB-DU Status Indication

### 8.2.7.1 General

The purpose of the gNB-DU Status Indication procedure is informing the gNB-CU that the gNB-DU is overloaded so that overload reduction actions can be applied. This procedure is also used to inform the IAB-donor-CU about a downlink congestion at an IAB-DU or an IAB-donor-DU. The procedure uses non-UE associated signalling.

### 8.2.7.2 Successful Operation

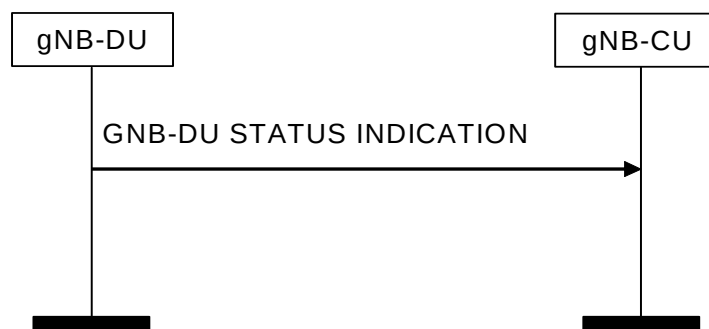


**Figure 8.2.7.2-1: gNB-DU Status Indication procedure**

If the *gNB-DU Overload Information* IE in the GNB-DU STATUS INDICATION message indicates that the gNB-DU is overloaded, the gNB-CU shall apply overload reduction actions until informed, with a new GNB-DU STATUS INDICATION message, that the overload situation has ceased.

The detailed overload reduction policy is up to gNB-CU implementation.

If the gNB-DU is an IAB-DU or an IAB-donor-DU, and if the *IAB Congestion Indication* IE is present in the GNB-DU STATUS INDICATION message and only includes the *Child Node Identifier* IE, the gNB-CU shall, if supported, consider that the backhaul link between the gNB-DU and the node identified by the *Child Node Identifier* IE is congested. If the *IAB Congestion Indication* IE is present in the GNB-DU STATUS INDICATION message and includes both the *Child Node Identifier* IE and the *BH RLC CH ID* IE, the gNB-CU shall, if supported, consider that congestion occurs on the corresponding BH RLC channel(s) over the link towards the node identified by the *Child Node Identifier* IE.

### 8.2.7.3 Abnormal Conditions

Void.

## 8.2.8 F1 Removal

### 8.2.8.1 General

The purpose of the F1 Removal procedure is to remove the interface instance and all related resources between the gNB-DU and the gNB-CU in a controlled manner. If successful, this procedure erases any existing application level configuration data in the two nodes.

**NOTE:** In case the signalling transport is shared among several F1-C interface instances, and the TNL association is still used by one or several F1-C interface instances, the initiating node should not initiate the removal of the TNL association.

The procedure uses non-UE-associated signaling.

### 8.2.8.2 Successful Operation

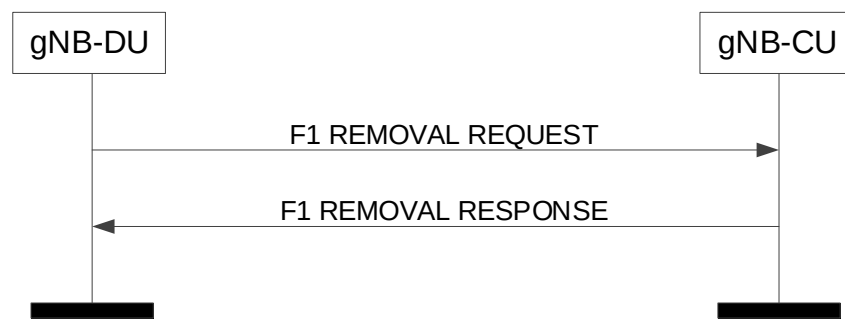


**Figure 8.2.8-1: F1 Removal, gNB-DU initiated, successful operation**

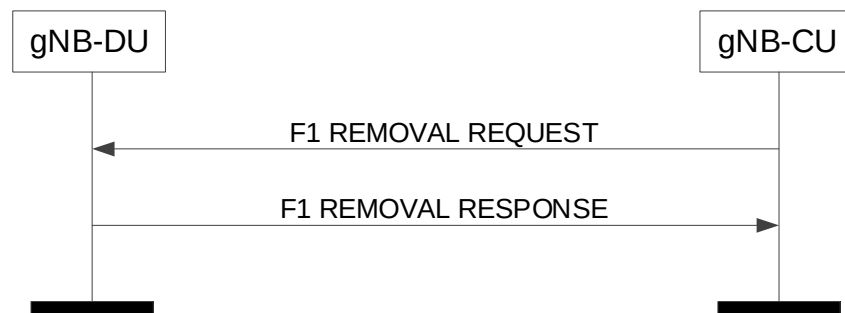


**Figure 8.2.8.2-2: F1 Removal, gNB-CU initiated, successful operation**

#### Successful F1 Removal, gNB-DU initiated

The gNB-DU initiates the procedure by sending the F1 REMOVAL REQUEST message to the gNB-CU. Upon reception of the F1 REMOVAL REQUEST message the gNB-CU shall reply with the F1 REMOVAL RESPONSE message. After receiving the F1 REMOVAL RESPONSE message, the gNB-DU may initiate removal of the TNL association towards the gNB-CU, if applicable, and may remove all resources associated with that interface instance. The gNB-CU may then remove all resources associated with that interface instance.

#### Successful F1 Removal, gNB-CU initiated

The gNB-CU initiates the procedure by sending the F1 REMOVAL REQUEST message to the gNB-DU. Upon reception of the F1 REMOVAL REQUEST message the gNB-DU shall reply with the F1 REMOVAL RESPONSE message. After receiving the F1 REMOVAL RESPONSE message, the gNB-CU may initiate removal of the TNL association towards the gNB-DU, if applicable, and may remove all resources associated with that interface instance. The gNB-DU may then remove all resources associated with that interface instance.

### 8.2.8.3 Unsuccessful Operation

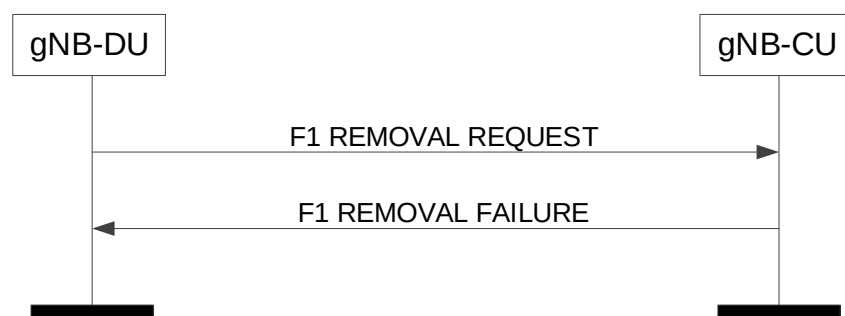


**Figure 8.2.8.3-1: F1 Removal, gNB-DU initiated, unsuccessful operation**

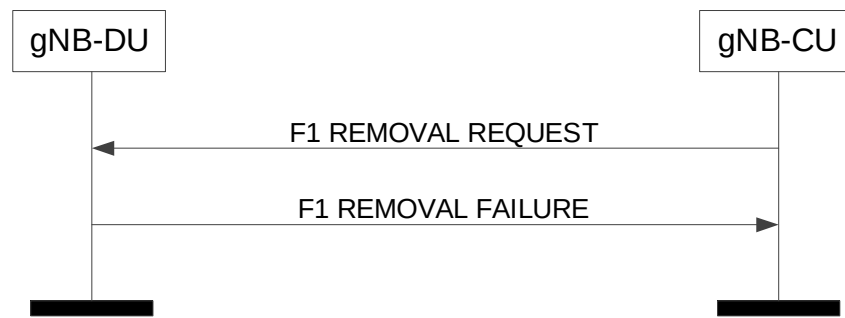


**Figure 8.2.8.3-2: F1 Removal, gNB-CU initiated, unsuccessful operation**

#### Unsuccessful F1 Removal, gNB-DU initiated

If the gNB-CU cannot accept to remove the interface instance with the gNB-DU it shall respond with an F1 REMOVAL FAILURE message with an appropriate cause value.

#### Unsuccessful F1 Removal, gNB-CU initiated

If the gNB-DU cannot accept to remove the interface instance with the gNB-CU it shall respond with an F1 REMOVAL FAILURE message with an appropriate cause value.

### 8.2.8.4 Abnormal Conditions

Not applicable.

## 8.2.9 Network Access Rate Reduction

### 8.2.9.1 General

The purpose of the Network Access Rate Reduction procedure is to indicate to the gNB-DU that the rate at which UEs are accessing the network need to be reduced from its current level.

The procedure uses non-UE associated signalling.

### 8.2.9.2 Successful operation

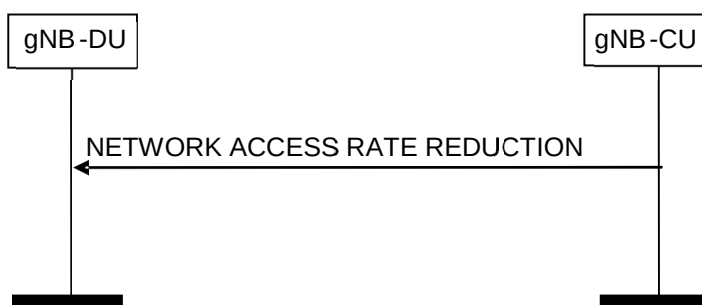


**Figure 8.2.9.2-1: Network Access Rate Reduction, Successful operation**

The gNB-CU initiates the procedure by sending a NETWORK ACCESS RATE REDUCTION message to the gNB-DU. When receiving the NETWORK ACCESS RATE REDUCTION message the gNB-DU should take into account the information contained in the *UAC Assistance Information* IE to set the parameters for Unified Access Barring.

If the *NID* IE is contained in the NETWORK ACCESS RATE REDUCTION message, the gNB-DU should take it into account and combine the *NID* IE with the *PLMN Identity* IE to identify the SNPN.



### 8.2.9.3 Abnormal Conditions

Not applicable

## 8.2.10 Resource Status Reporting Initiation

### 8.2.10.1 General

This procedure is used by an gNB-CU to request the reporting of load measurements to gNB-DU.

The procedure uses non UE-associated signalling.

### 8.2.10.2 Successful Operation

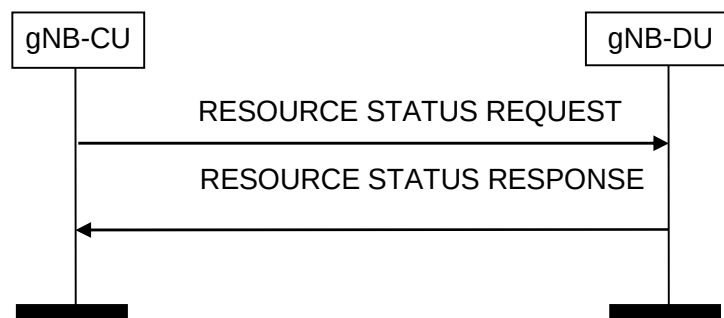


**Figure 8.2.10.2-1: Resource Status Reporting Initiation, successful operation**

gNB-CU initiates the procedure by sending the RESOURCE STATUS REQUEST message to gNB-DU to start a measurement, stop a measurement, or add cells to report for a measurement. Upon receipt, gNB-DU:

- shall initiate the requested measurement according to the parameters given in the request in case the *Registration Request* IE set to "start"; or
- shall stop all cells measurements and terminate the reporting in case the *Registration Request* IE is set to "stop"; or
- shall add cells indicated in the *Cell To Report List* IE to the measurements initiated before for the given measurement IDs, in case the *Registration Request* IE is set to "add". If measurements are already initiated for a cell indicated in the *Cell To Report List* IE, this information shall be ignored.

If the *Registration Request* IE is set to "start" in the RESOURCE STATUS REQUEST message and the *Report Characteristics* IE indicates cell specific measurements, the *Cell To Report List* IE shall be included.

If *Registration Request* IE is set to "add" in the RESOURCE STATUS REQUEST message, the *Cell To Report List* IE shall be included.

If gNB-DU is capable to provide all requested resource status information, it shall initiate the measurement as requested by gNB-CU, and respond with the RESOURCE STATUS RESPONSE message.

#### Interaction with other procedures

When starting a measurement, the *Report Characteristics* IE in the RESOURCE STATUS REQUEST indicates the type of objects gNB-DU shall perform measurements on. For each cell, gNB-DU shall include in the RESOURCE STATUS UPDATE message:

- the *Radio Resource Status* IE, if the first bit, "PRB Periodic" of the *Report Characteristics* IE included in the RESOURCE STATUS REQUEST message is set to 1. If the cell for which *Radio Resource Status* IE is requested to be reported supports more than one SSB, the *Radio Resource Status* IE for such cell shall include the *SSB Area Radio Resource Status Item* IE for all SSB areas supported by the cell. If the *SSB To Report List* IE is included for a cell, the *Radio Resource* IE for such cell shall only include the *SSB Area Radio Resource Status List* IE; If the cell for which *Radio Resource Status* IE is requested to be reported supports more than one slice, and if the *Slice To Report List* IE is included for a cell, the *Radio Resource Status* IE for such cell shall, if

supported, include the requested *Slice Radio Resource Status Item IE*; If the cell for which *Radio Resource Status IE* is requested to be reported supports MIMO the *Radio Resource Status IE* for such cell may include the *MIMO PRB usage Information IE*;

- the *TNL Capacity Indicator IE*, if the second bit, "TNL Capacity Ind Periodic" of the *Report Characteristics IE* included in the RESOURCE STATUS REQUEST message is set to 1;
- the *Composite Available Capacity Group IE*, if the third bit, "Composite Available Capacity Periodic" of the *Report Characteristics IE* included in the RESOURCE STATUS REQUEST message is set to 1. If *Cell Capacity Class Value IE* is included within the *Composite Available Capacity Group IE*, this IE is used to assign weights to the available capacity indicated in the *Capacity Value IE*. If the cell for which *Composite Available Capacity Group IE* is requested to be reported supports more than one SSB the *Composite Available Capacity Group IE* for such cell shall include the *SSB Area Capacity Value List IE* for all SSB areas supported by the cell, providing the SSB area capacity with respect to the *Cell Capacity Class Value IE*. If the *SSB To Report List IE* is included for a cell, the *Composite Available Capacity Group IE* for such cell shall include the requested *SSB Area Capacity Value List IE* providing the SSB area capacity with respect to the *Cell Capacity Class Value*. If the cell for which *Composite Available Capacity Group IE* is requested to be reported supports more than one slice, and if the *Slice To Report List IE* is included for a cell, the *Slice Available Capacity IE* for such cell shall include the requested *Slice Available Capacity Value Downlink IE* and *Slice Available Capacity Value Uplink IE*, providing the slice capacity with respect to the *Cell Capacity Class Value*.
- the *Hardware Load Indicator IE*, if the fourth bit, "HW LoadInd Periodic" of the *Report Characteristics IE* included in the RESOURCE STATUS REQUEST message is set to 1;
- the *Number of Active UEs IE*, if the fifth bit, "Number of Active UEs Periodic" of the *Report Characteristics IE* included in the RESOURCE STATUS REQUEST message is set to 1;
- the *NR-U Channel List IE*, if the sixth bit, "NR-U Channel List Periodic" of the *Report Characteristics IE* included in the RESOURCE STATUS REQUEST message is set to "1".

If the *Reporting Periodicity IE* in the RESOURCE STATUS REQUEST is present, this indicates the periodicity for the reporting of periodic measurements. The gNB-DU shall report once, unless otherwise requested within the *Reporting Periodicity IE*.

### 8.2.10.3 Unsuccessful Operation

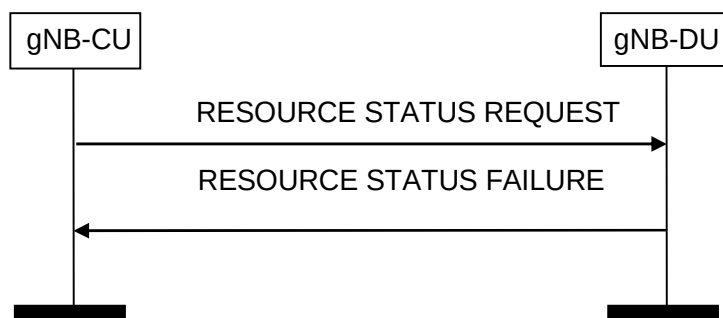


**Figure 8.2.10.3-1: Resource Status Reporting Initiation, unsuccessful operation**

If any of the requested measurements cannot be initiated, gNB-DU shall send the RESOURCE STATUS FAILURE message with an appropriate cause value.

### 8.2.10.4 Abnormal Conditions

If the initiating gNB-CU does not receive either RESOURCE STATUS RESPONSE message or RESOURCE STATUS FAILURE message, the gNB-CU may reinitiate the Resource Status Reporting Initiation procedure towards the same gNB-DU, provided that the content of the new RESOURCE STATUS REQUEST message is identical to the content of the previously unacknowledged RESOURCE STATUS REQUEST message with the same Transaction ID.

If the *Report Characteristics IE* bitmap is set to "0" (all bits are set to "0") in the RESOURCE STATUS REQUEST message then gNB-DU shall initiate a RESOURCE STATUS FAILURE message with an appropriate cause value.

If the gNB-DU receives a RESOURCE STATUS REQUEST message which includes the *Registration Request* IE set to "start" and the *gNB-CU Measurement ID* IE corresponding to an existing on-going load measurement reporting, for which a different Transaction ID is used, then gNB-DU shall initiate a RESOURCE STATUS FAILURE message with an appropriate cause value.

## 8.2.11 Resource Status Reporting

### 8.2.11.1 General

This procedure is initiated by gNB-DU to report the result of measurements admitted by gNB-DU following a successful Resource Status Reporting Initiation procedure.

The procedure uses non UE-associated signalling.

### 8.2.11.2 Successful Operation



**Figure 8.2.11.2-1: Resource Status Reporting, successful operation**

The gNB-DU shall report the results of the admitted measurements in RESOURCE STATUS UPDATE message. The admitted measurements are the measurements that were successfully initiated during the preceding Resource Status Reporting Initiation procedure.

If some results of the admitted measurements in RESOURCE STATUS UPDATE message are missing, the gNB-CU shall consider that these results were not available at the gNB-DU.

### 8.2.11.3 Unsuccessful Operation

Not applicable.

### 8.2.11.4 Abnormal Conditions

Void.

## 8.2.12 DU-CU TA Information Transfer

### 8.2.12.1 General

The purpose of the DU-CU TA Information Transfer procedure is to enable the gNB-DU to send the TA related information to the gNB-CU. The procedure uses non-UE-associated signalling.

### 8.2.12.2 Successful Operation

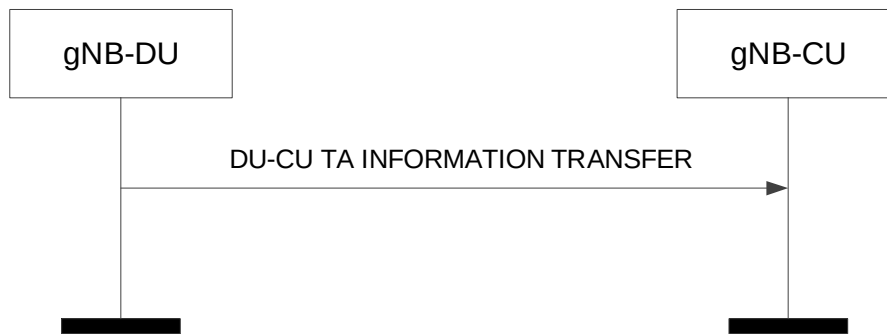


**Figure 8.2.12.2-1: DU-CU TA Information Transfer procedure. Successful operation.**

The gNB-DU initiates the procedure by sending a DU-CU TA Information Transfer message.

Upon reception of the DU-CU TA Information Transfer message, the gNB-CU shall, if supported, consider that the received information is the TA information from the candidate cell(s) that is indicated by the included *Candidate Cell ID* IE.

If the *Tag ID Pointer* IE is included, the gNB-CU shall, if supported, consider it to determine the TAG corresponding to the received TA value.

### 8.2.12.3 Unsuccessful Operation

Not applicable.

### 8.2.12.4 Abnormal Conditions

Not applicable.

## 8.2.13 CU-DU TA Information Transfer

### 8.2.13.1 General

The purpose of the CU-DU TA Information Transfer procedure is to enable the gNB-CU to send the TA related information to the gNB-DU. The procedure uses non-UE-associated signalling.

### 8.2.13.2 Successful Operation



**Figure 8.2.13.2-1: CU-DU TA Information Transfer procedure. Successful operation.**

The gNB-CU initiates the procedure by sending a CU-DU TA Information Transfer message.

Upon reception of the CU-DU TA Information Transfer message, the gNB-DU shall, if supported, consider that the received information is the TA information from the candidate cell(s) that is indicated by the included *Candidate Cell ID* IE.

If the *Tag ID Pointer* IE is included, the gNB-DU shall, if supported, consider it to determine the TAG corresponding to the received TA value.

### 8.2.13.3 Unsuccessful Operation

Not applicable.

### 8.2.13.4 Abnormal Conditions

Not applicable.

## 8.2.14 RACH Indication

### 8.2.14.1 General

This procedure is initiated by the gNB-DU to inform the gNB-CU about the occurrences of successful random access procedures in the gNB-DU.

The procedure uses non-UE-associated signalling.

### 8.2.14.2 Successful Operation

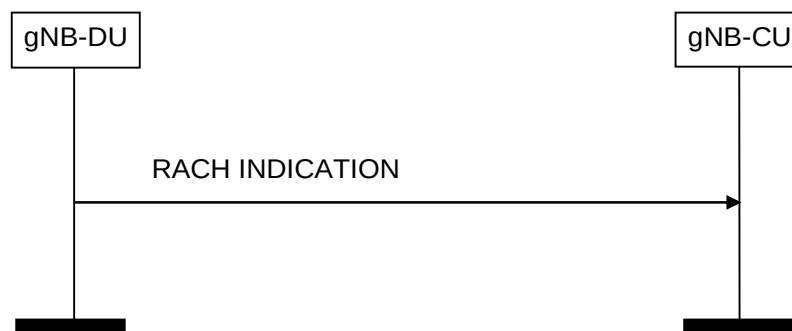


**Figure 8.2.14.2-1: RACH Indication procedure.**

The gNB-DU initiates the procedure by sending the RACH INDICATION message to the gNB-CU.

The RACH INDICATION message contains information concerning one or more successful random access procedures occurring at the gNB-DU and not known to the gNB-CU as described in TS 38.401 [4].

Upon reception of the RACH INDICATION message, the gNB-CU may trigger retrieval of RACH Reports from the UE.

### 8.2.14.3 Abnormal Conditions

Not applicable.

## 8.3 UE Context Management procedures

### 8.3.1 UE Context Setup

#### 8.3.1.1 General

The purpose of the UE Context Setup procedure is to establish the UE Context including, among others, SRB, DRB, BH RLC channel, Uu Relay RLC channel, PC5 Relay RLC channel, and SL DRB configuration. The procedure uses UE-associated signalling.

### 8.3.1.2 Successful Operation

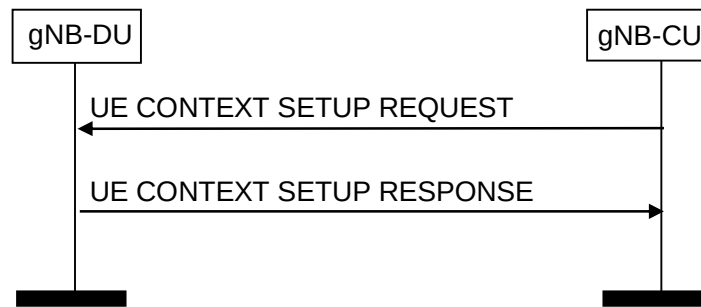


**Figure 8.3.1.2-1: UE Context Setup Request procedure: Successful Operation**

The gNB-CU initiates the procedure by sending UE CONTEXT SETUP REQUEST message to the gNB-DU. If the gNB-DU succeeds to establish the UE context, it replies to the gNB-CU with UE CONTEXT SETUP RESPONSE. If no UE-associated logical F1-connection exists, the UE-associated logical F1-connection shall be established as part of the procedure. Except for RACH based SDT and UE configured with BWP specific ServingCellMO, the gNB-CU shall perform RRC Reconfiguration or RRC connection resume to send UE to the RRC\_CONNECTED state as described in TS 38.331 [8], and in this case, the *CellGroupConfig* IE shall transparently be signaled to the UE as specified in TS 38.331 [8]. In the cases of RACH based SDT procedure and UE configured with BWP specific ServingCellMO, the *CellGroupConfig* IE shall be ignored by the gNB-CU.

If the *UE-CapabilityRAT-ContainerList* IE is included in the UE CONTEXT SETUP REQUEST, the gNB-DU shall take this information into account for UE specific configurations.

If the *servingCellMO* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall configure *servingCellMO* for the indicated SpCell accordingly.

If the *servingCellMO List* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, select *servingCellMO* after determining the list of BWPs for the UE and include the list of *servingCellMOs* that have been encoded in *CellGroupConfig* IE as *ServingCellMO-encoded-in-CGC List* IE in the UE CONTEXT SETUP RESPONSE message.

If the *Configured BWP List* IE is included in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall, if supported, take it into account when requesting the gNB-DU for generating preconfigured measurement GAP for the indicated BWPs.

If the *SpCell UL Configured* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall configure UL for the indicated SpCell accordingly.

If the *SCell To Be Setup List* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall consider it as a list of candidate SCells to be set up. If the *SCell UL Configured* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall configure UL for the indicated SCell accordingly. If the *servingCellMO* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall configure *servingCellMO* for the indicated SCell accordingly.

If the *DRX Cycle* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall use the provided value from the gNB-CU.

If the *Non-Integer DRX Cycle* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use the provided value from the gNB-CU.

If the *UL Configuration* IE in *DRB to Be Setup Item* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall take it into account for UL scheduling.

If the *SRB To Be Setup List* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall act as specified in TS 38.401 [4]. If *Duplication Indication* IE is contained in the *SRB To Be Setup List* IE, the gNB-DU shall, if supported, setup two RLC entities for the indicated SRB. If the *Additional Duplication Indication* IE is contained in the *SRB To Be Setup List* IE, the gNB-DU shall, if supported, setup the indicated RLC entities for the indicated SRB. If the *SDT RLC Bearer Configuration* IE is contained in the *SRB To Be Setup List* IE, the gNB-DU shall, if supported, use it for packet transmission belonging to the SDT SRB indicated by the *SRB ID* IE. If the *SRB Mapping Info* IE is contained in the *SRB To Be Setup List* IE, the gNB-DU shall, if supported, store the mapping information indicated in

the *SRB Mapping Info* IE for the SRB identified by the *SRB ID* IE and the Uu Relay RLC channel identified by the *SRB Mapping Info* IE. The gNB-DU shall use the mapping information stored for the mapping of SRB data to Uu Relay RLC channel.

If the *DRB To Be Setup List* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall act as specified in TS 38.401 [4]. If the *QoS Flow Mapping Indication* IE is included in the *DRB To Be Setup List* IE for a QoS flow, the gNB-DU may take it into account that only the uplink or downlink QoS flow is mapped to the indicated DRB. If the *SDT RLC Bearer Configuration* IE is contained in the *DRB To Be Setup List* IE, the gNB-DU shall, if supported, use it for packet transmission belonging to the SDT DRB indicated by the *DRB ID* IE. If the *DRB Mapping Info* IE is contained in the *DRB To Be Setup List* IE, the gNB-DU shall, if supported, store the mapping information indicated in the *DRB Mapping Info* IE for the DRB identified by the *DRB ID* IE and the Uu Relay RLC channel identified by the *DRB Mapping Info* IE. The gNB-DU shall use the mapping information stored for the mapping of DRB data to Uu Relay RLC channel.

If the *PSI based SDU Discard UL* IE is included in the *DRB To Be Setup List* IE, the gNB-DU shall, if supported, take it into account to perform UL PSI based SDU discarding activation or deactivation for the indicated DRB as defined in TS 38.321 [16].

For each GBR DRB, if the *Alternative QoS Parameters Sets* IE is included in the *GBR QoS Flow Information* IE in the UE CONTEXT SETUP REQUEST message, gNB-DU shall, if supported, behave the same as the NG-RAN node in the PDU Session Resource Setup procedure, specified in TS 38.413 [3].

If the *BH Information* IE is included in the *UL UP TNL Information to be setup List* IE or the *Additional PDCP Duplication TNL List* IE for a DRB, the gNB-DU shall, if supported, use the indicated BAP Routing ID and BH RLC channel for transmission of the corresponding GTP-U packets to the IAB-donor, as specified in TS 38.340 [30].

If the *BH RLC Channel To Be Setup List* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall act as specified in TS 38.401 [4]. If the *Traffic Mapping Information* IE is included in the *BH RLC Channel To Be Setup Item IEs* IE for a BH RLC Channel, the gNB-DU shall, if supported, process the *Traffic Mapping Information* IE as follows:

- if the *IP to layer2 Traffic Mapping Info* IE is included, the gNB-DU shall store the mapping information contained in the *IP to layer2 Traffic Mapping Info To Add* IE, if present, for the egress BH RLC channel identified by the *BH RLC CH ID* IE, and shall remove the previously stored mapping information as indicated by the *IP to layer2 Mapping Traffic Info To Remove* IE, if present. The gNB-DU shall use the mapping information stored for the mapping of IP traffic to layer 2, as specified in TS 38.340 [30].
- if the *BAP layer BH RLC channel Mapping Info* IE is included, the gNB-DU shall store the mapping information contained in the *BAP layer BH RLC channel Mapping Info To Add* IE, if present, for the egress or ingress BH RLC channel identified by the *BH RLC CH ID* IE, and shall remove the previously stored mapping information as indicated by the *BAP layer BH RLC channel Mapping Info To Remove* IE, if present. The gNB-DU shall use the mapping information stored when forwarding traffic on BAP sublayer, as specified in TS 38.340 [30].

If two *UL UP TNL Information* IEs are included in UE CONTEXT SETUP REQUEST message for a DRB, gNB-DU shall include two *DL UP TNL Information* IEs in UE CONTEXT SETUP RESPONSE message and setup two RLC entities for the indicated DRB. gNB-CU and gNB-DU use the *UL UP TNL Information* IEs and *DL UP TNL Information* IEs to support packet duplication for intra-gNB-DU CA as defined in TS 38.470 [2]. The first *UP TNL Information* IE of the two *UP TNL Information* IEs is for the primary path.

If one or two *Additional PDCP Duplication UP TNL Information* IEs are included in the UE CONTEXT SETUP REQUEST message for a DRB, the gNB-DU shall, if supported, include one or two *Additional PDCP Duplication UP TNL Information* IEs in the UE CONTEXT SETUP RESPONSE message and setup one or two additional RLC entities for the indicated DRB. The gNB-CU and the gNB-DU use the *Additional PDCP Duplication UP TNL Information* IEs to support packet duplication for intra-gNB-DU CA as defined in TS 38.470 [2].

If *Duplication Activation IE* is included in the UE CONTEXT SETUP REQUEST message for a DRB, gNB-DU should take it into account when activating/deactivating CA based PDCP duplication for the DRB. If the *RLC Duplication State List* IE is included in the *RLC Duplication Information* IE contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, take it into account when activating/deactivating CA based PDCP duplication for the DRB with more than two RLC entities.

If *DC Based Duplication Configured* IE is included in the UE CONTEXT SETUP REQUEST message for a DRB, gNB-DU shall regard that DC based PDCP duplication is configured for this DRB if the value is set to be "true" and it should take the responsibility of PDCP duplication activation/deactivation. If *DC Based Duplication Activation* IE is

included in the UE CONTEXT SETUP REQUEST message for a DRB, gNB-DU should take it into account when activating/deactivating DC based PDCP duplication for this DRB. If the *RLC Duplication State List* IE is included in the *RLC Duplication Information* IE contained in the UE CONTEXT SETUP REQUEST message for a DRB, the gNB-DU shall, if supported, take it into account when activating/deactivating DC based PDCP duplication for the DRB with more than two RLC entities. If the *Primary Path Indication* IE is included in the *RLC Duplication Information* IE, the gNB-DU shall, if supported, take it into account when performing DC based PDCP duplication for the DRB with more than two RLC entities.

If *UL PDCP SN length* IE is included in the UE CONTEXT SETUP REQUEST message for a DRB, gNB-DU shall, if supported, store this information and use it for lower layer configuration.

For EN-DC operation, and if the *Subscriber Profile ID for RAT/Frequency priority* IE is received from an MeNB, the UE CONTEXT SETUP REQUEST message shall contain the *Subscriber Profile ID for RAT/Frequency priority* IE. If the *Additional RRM Policy Index* IE is received from an MeNB, the UE CONTEXT SETUP REQUEST message shall, if supported, contain the *Additional RRM Policy Index* IE. The gNB-DU shall store the received Subscriber Profile ID for RAT/Frequency priority in the UE context and use it as defined in TS 36.300 [20]. The gNB-DU shall, if supported, store the received Additional RRM Policy Index in the UE context and use it as defined in TS 36.300 [20].

If the *Index to RAT/Frequency Selection Priority* IE is available at the gNB-CU, the *Index to RAT/Frequency Selection Priority* IE shall be included in the UE CONTEXT SETUP REQUEST. The gNB-DU may use it for RRM purposes.

The gNB-DU shall report to the gNB-CU, in the UE CONTEXT SETUP RESPONSE message, the result for all the requested DRBs, SRBs, BH RLC channels, PC5 Relay RLC channels, and SL DRBs in the following way:

- A list of DRBs which are successfully established shall be included in the *DRB Setup List* IE;
- A list of DRBs which failed to be established shall be included in the *DRB Failed to Setup List* IE;
- A list of SRBs which failed to be established shall be included in the *SRB Failed to Setup List* IE.
- A list of successfully established SRBs with logical channel identities for primary path shall be included in the *SRB Setup List* IE only if CA based PDCP duplication is initiated for the concerned SRBs.
- A list of BH RLC channels which are successfully established shall be included in the *BH RLC Channel Setup List* IE;
- A list of BH RLC channels which failed to be established shall be included in the *BH RLC Channel Failed to be Setup List* IE;
- A list of SL DRBs which are successfully established shall be included in the *SL DRB Setup List* IE;
- A list of SL DRBs which failed to be established shall be included in the *SL DRB Failed to Setup List* IE.
- A list of Uu Relay RLC channels which are successfully established shall be included in the *Uu RLC Channel Setup List* IE;
- A list of Uu Relay RLC channels which failed to be established shall be included in the *Uu RLC Channel Failed to be Setup List* IE;
- A list of PC5 Relay RLC channels which are successfully established shall be included in the *PC5 RLC Channel Setup List* IE;
- A list of PC5 Relay RLC channels which failed to be established shall be included in the *PC5 RLC Channel Failed to be Setup List* IE;

If *Duplication Indication* IE in *SL DRB To Be Setup List* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, generate two PC5 RLC bearer configurations for the indicated SL DRB.

When the gNB-DU reports the unsuccessful establishment of a DRB or SRB or SL DRB or a BH RLC channel or a PC5 Relay RLC channel, the cause value should be precise enough to enable the gNB-CU to know the reason for the unsuccessful establishment.

For EN-DC operation, the gNB-CU shall include in the UE CONTEXT SETUP REQUEST the *E-UTRAN QoS* IE. The allocation of resources according to the values of the *Allocation and Retention Priority* IE included in the *E-UTRAN QoS* IE shall follow the principles described for the E-RAB Setup procedure in TS 36.413 [15].



For NG-RAN operation, the gNB-CU shall include in the UE CONTEXT SETUP REQUEST the *DRB Information* IE.

For DC operation, the *CG-ConfigInfo* IE shall be included in the *CU to DU RRC Information* IE at the gNB acting as secondary node. If the *CG-ConfigInfo* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall regard it as a reconfiguration with sync as defined in TS 38.331 [8].

For sidelink operation, the *CG-ConfigInfo* IE shall be included in the *CU to DU RRC Information* IE if the gNB-CU receives sidelink related UE information from UE. If the *CG-ConfigInfo* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall regard it as an indication of V2X sidelink information or NR sidelink information as defined in TS 38.331 [8].

If the *HandoverPreparationInformation* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT SETUP REQUEST message, the gNB-DU of the gNB acting as master node shall regard it as a reconfiguration with sync as defined in TS 38.331 [8]. The gNB-CU shall only initiate the UE Context Setup procedure for handover or secondary node addition when at least one DRB is setup for the UE, or at least one BH RLC channel is set up for IAB-MT. If the *HandoverPreparationInformation* IE containing the sidelink related UE information is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall regard it as an indication of V2X sidelink information or NR sidelink information as defined in TS 38.331 [8].

If the received *CU to DU RRC Information* IE does not include source cell group configuration, the gNB-DU shall generate the cell group configuration using full configuration. Otherwise, delta configuration is allowed.

If the gNB-CU includes the SMTTC information of the measured frequency(ies) in the *MeasurementTimingConfiguration* IE of the *CU to DU RRC Information* IE that is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall generate the measurement gaps based on the received SMTTC information. Then the gNB-DU shall send the measurement gaps information to the gNB-CU in the *MeasGapConfig* IE of the *DU to CU RRC Information* IE that is included in the UE CONTEXT SETUP RESPONSE message.

If the *MeasConfig* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall deduce that changes to the measurements configuration need to be applied. If the *measObjectToAddModList* IE is included in the *MeasConfig* IE, then the frequencies added in such IE are to be activated. Then the gNB-DU shall decide if measurement gaps are needed or not and, if needed, the gNB-DU shall send the measurement gaps information to the gNB-CU in the *MeasGapConfig* IE of the *DU to CU RRC Information* IE that is included in the UE CONTEXT SETUP RESPONSE message. If the *measObjectToRemoveList* IE is included in the *MeasConfig* IE, the gNB-DU shall ignore it.

If the *NeedForGapsInfoNR* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it as described in TS 38.331 [8]. If the *NeedForGapNCSG-InfoNR* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it as described in TS 38.331 [8].

If the *NeedForGapNCSG-InfoEUTRA* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it as described in TS 38.331 [8].

If the *NeedForInterruptionInfoNR* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it as described in TS 38.331 [8].

For EN-DC operation, if the gNB-CU includes the *Resource Coordination Transfer Information* IE in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it for the purpose of resource coordination. If the *Ignore PRACH Configuration* IE is present and set to "true" the *E-UTRA PRACH Configuration* IE in the UE CONTEXT SETUP REQUEST message shall be ignored. If the gNB-CU received the MeNB Resource Coordination Information as defined in TS 36.423 [9], it shall transparently transfer it to the gNB-DU via the *Resource Coordination Transfer Container* IE in the UE CONTEXT SETUP REQUEST message. The gNB-DU shall use the information received in the *Resource Coordination Transfer Container* IE for reception of MeNB Resource Coordination Information at the gNB acting as secondary node as described in TS 36.423 [9]. If the *Resource Coordination E-UTRA Cell Information* IE is included in the *Resource Coordination Transfer Information* IE, the gNB-DU shall store the information replacing previously received information for the same E-UTRA cell, and use the stored information for the purpose of resource coordination.

For NGEN-DC or NE-DC operation, if the gNB-CU includes the *Resource Coordination Transfer Information* IE in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it for the purpose of resource coordination. If the gNB-CU received the MR-DC Resource Coordination Information as defined in TS 38.423 [28], it shall transparently transfer it to the gNB-DU via the *Resource Coordination Transfer Container* IE in the UE CONTEXT SETUP REQUEST message. The gNB-DU shall use the information received in the *Resource*

*Coordination Transfer Container* IE for reception of MR-DC Resource Coordination Information at the gNB as described in TS 38.423 [28].

The *UEAssistanceInformation* IE shall be included in *CU to DU RRC Information* IE in the UE CONTEXT SETUP REQUEST message if the gNB-CU received this IE from the UE; if the *UEAssistanceInformation* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, take it into account when configuring resources for the UE.

The *UEAssistanceInformationEUTRA* IE shall be included in *CU to DU RRC Information* IE in the UE CONTEXT SETUP REQUEST message if the gNB-CU received this IE from the UE; if the *UEAssistanceInformationEUTRA* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, take it into account when configuring LTE sidelink resources for the UE.

If the *Resource Coordination Transfer Container* IE is included in the UE CONTEXT SETUP RESPONSE, the gNB-CU shall transparently transfer this information for the purpose of resource coordination as described in TS 36.423 [9], TS 38.423 [28].

If the *Masked IMEISV* IE is contained in the UE CONTEXT SETUP REQUEST message the gNB-DU shall, if supported, use it to determine the characteristics of the UE for subsequent handling.

If the *SCell Failed To Setup List* IE is contained in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall regard the corresponding SCell(s) failed to be set up with an appropriate cause value for each SCell failed to setup.

If the *Inactivity Monitoring Request* IE is contained in the UE CONTEXT SETUP REQUEST message, gNB-DU may consider that the gNB-CU has requested the gNB-DU to perform UE inactivity monitoring. If the *Inactivity Monitoring Response* IE is contained in the UE CONTEXT SETUP RESPONSE message and set to "Not-supported", the gNB-CU shall consider that the gNB-DU does not support UE inactivity monitoring for the UE.

If the *ServCellInfoList* IE is included in the *DU to CU RRC Information* IE contained in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall take it into account to generate the content of inter-node RRC message, i.e., *CG-Config* or *CG-ConfigInfo*, as described in TS 38.331 [8].

If the *Full Configuration* IE is contained in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall consider that the gNB-DU has generated the *CellGroupConfig* IE using full configuration.

If the *C-RNTI* IE is included in the UE CONTEXT SETUP RESPONSE, the gNB-CU shall consider that the C-RNTI has been allocated by the gNB-DU for this UE context.

The UE Context Setup Procedure is not used to configure SRB0.

If the UE CONTEXT SETUP REQUEST message contains the *RRC-Container* IE, the gNB-DU shall send the corresponding RRC message to the UE via SRB1.

If the *Notification Control* IE is included in the *DRB to Be Setup List* IE contained in the UE CONTEXT SETUP REQUEST message and it is set to active, the gNB-DU shall, if supported, monitor the QoS of the DRB and notify the gNB-CU if the QoS cannot be fulfilled any longer or if the QoS can be fulfilled again. The *Notification Control* IE can only be applied to GBR bearers.

If the *UL PDU Session Aggregate Maximum Bit Rate* IE is included in the *QoS Flow Level QoS Parameters* IE contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall store the received UL PDU Session Aggregate Maximum Bit Rate and use it when enforcing uplink traffic policing for non-GBR Bearers for the concerned UE as specified in TS 23.501 [21].

The gNB-DU shall store the received gNB-DU UE Aggregate Maximum Bit Rate Uplink and use it for non-GBR Bearers for the concerned UE.

If the UE CONTEXT SETUP REQUEST message contains the *QoS Flow Mapping Indication* IE, the gNB-DU may take it into account that only the uplink or downlink QoS flow is mapped to the DRB.

If the UE CONTEXT SETUP REQUEST message contains the *New gNB-CU UE F1AP ID* IE, the gNB-DU shall, if supported, replace the value received in the *gNB-CU UE F1AP ID* IE by the value of the *New gNB-CU UE F1AP ID* and use it for further signalling.

If the *RAN UE ID* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall store and replace any previous information received.

If the *Trace Activation* IE is included in the UE CONTEXT SETUP REQUEST message the gNB-DU shall, if supported, initiate the requested trace function as described in TS 32.422 [29].

In particular, the gNB-DU shall, if supported:

- if the *Trace Activation* IE includes the *MDT Activation* IE set to "Immediate MDT and Trace", initiate the requested trace session and MDT session as described in TS 32.422 [29];
- if the *Trace Activation* IE includes the *MDT Activation* IE set to "Immediate MDT Only", initiate the requested MDT session as described in TS 32.422 [29] and the gNB-DU shall ignore *Interfaces To Trace* IE, and *Trace Depth* IE. If the *Management Based MDT PLMN List* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, store the received information in the UE context, and use this information to allow subsequent selection of the UE for management based MDT defined in TS 32.422 [29].

For each QoS flow whose DRB has been successfully established and the *QoS Monitoring Request* IE was included in the *QoS Flow Level QoS Parameters* IE contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall store this information, and, if supported, perform delay measurement and QoS monitoring, as specified in TS 23.501 [21].

If the UE CONTEXT SETUP REQUEST message contains the *Configured BAP Address* IE, the gNB-DU shall, if supported, store this BAP address configured for the corresponding child IAB-node and use it as specified in TS 38.340 [30].

If the *BAP Control PDU Channel* IE is included in the *BH RLC Channel to be Setup List* IE, the gNB-DU shall, if supported, consider that the configured BH RLC channel can be used to transmit BAP Control PDUs, and use this BH RLC channel as specified in TS 38.340 [30].

If the *F1-C Transfer Path* IE is included in UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, take it into account.

If the *NR V2X Services Authorized* IE is contained in the UE CONTEXT SETUP REQUEST message and it contains one or more IEs set to "authorized", the gNB-DU node shall, if supported, consider that the UE is authorized for the relevant service(s).

If the *LTE V2X Services Authorized* IE is contained in the UE CONTEXT SETUP REQUEST message and it contains one or more IEs set to "authorized", the gNB-DU node shall, if supported, consider that the UE is authorized for the relevant service(s).

If the *NR UE Sidelink Aggregate Maximum Bit Rate* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it for the concerned UE's sidelink communication in network scheduled mode for NR V2X services.

If the *LTE UE Sidelink Aggregate Maximum Bit Rate* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it for the concerned UE's sidelink communication in network scheduled mode for LTE V2X services.

If the *PC5 Link Aggregate Bit Rate* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it for the concerned UE's sidelink communication in network scheduled mode for NR V2X services as defined in TS 23.287 [40].

If the *NR A2X Services Authorized* IE is contained in the UE CONTEXT SETUP REQUEST message and it contains one or more IEs set to "authorized", the gNB-DU node shall, if supported, consider that the UE is authorized for the relevant service(s).

If the *LTE A2X Services Authorized* IE is contained in the UE CONTEXT SETUP REQUEST message and it contains one or more IEs set to "authorized", the gNB-DU node shall, if supported, consider that the UE is authorized for the relevant service(s).

If the *NR UE Sidelink Aggregate Maximum Bit Rate for A2X* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it for the concerned UE's sidelink communication in network scheduled mode for NR A2X services.

If the *LTE UE Sidelink Aggregate Maximum Bit Rate for A2X* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it for the concerned UE's sidelink communication in network scheduled mode for LTE A2X services.

If the *TSC Traffic Characteristics* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, take into account the corresponding information received in the *TSC Traffic Characteristics* IE. If the *RAN Feedback Type* IE is included in the *TSC Assistance Information Uplink* IE of the *TSC Traffic Characteristics* IE, the gNB-DU shall, if supported, take this information into account when determining the feedback to provide in the *TSC Traffic Characteristics Feedback* IE in the UE CONTEXT SETUP RESPONSE message.

If the *Conditional Inter-DU Mobility Information* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall consider that the request concerns a conditional handover, conditional PSCell addition, conditional PSCell change, or subsequent CPAC for the included *SpCell ID* IE and shall include it as the *Requested Target Cell ID* IE in the UE CONTEXT SETUP RESPONSE message. The gNB-DU shall regard it as a reconfiguration with sync as defined in TS 38.331 [8].

If the *Target gNB-DU UE F1AP ID* IE is contained in the *Conditional Inter-DU Mobility Information* IE included in the UE CONTEXT SETUP REQUEST message, then the gNB-DU shall replace the existing prepared conditional handover, conditional PSCell addition or conditional PSCell change, or subsequent CPAC identified by the *Target gNB-DU UE F1AP ID* IE and the *SpCell ID* IE.

If the *Serving NID* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall combine the *Serving NID* IE with the *Serving PLMN* IE to identify the serving NPN, and may take it into account for UE context establishment.

If the *Estimated Arrival Probability* IE is contained in the *Conditional Inter-DU Mobility Information* IE included in the UE CONTEXT SETUP REQUEST message, then the gNB-DU may use the information to allocate necessary resources for the UE.

If the *S-CPAC Request* IE is included within the *Conditional Inter-DU Mobility Information* IE in the UE CONTEXT SETUP REQUEST message and is set to "initiation", the gNB-DU shall, if supported, consider that the procedure is triggered for S-CPAC preparation.

If for a given E-RAB for EN-DC operation the *ENB DL Transport Layer Address* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it as part of its ACL functionality configuration actions, if such ACL functionality is deployed.

If for a given Qos flow for NG-RAN operation the *PDPC Terminating Node DL Transport Layer Address* IE is included in the UE CONTEXT SETUP REQUEST message, then the gNB-DU shall, if supported, use it as part of its ACL functionality configuration actions, if such ACL functionality is deployed.

If the *F1-C Transfer Path NRDC* IE is included in UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, take it into account.

If the *MDT Polluted Measurement Indicator* IE is included in the UE CONTEXT SETUP REQUEST, the gNB-DU shall take this information into account as specified in TS 38.401 [4].

If the *SCG Activation Request* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU may use it to configure SCG resources as specified in TS 37.340 [7], and if supported, shall include the *SCG Activation Status* IE in the UE CONTEXT SETUP RESPONSE message. If the *SCG Activation Request* IE in the UE CONTEXT SETUP REQUEST message is set to "Activate SCG", the gNB-DU shall activate the SCG resources and set the *SCG Activation Status* IE in the UE CONTEXT SETUP RESPONSE message to "SCG Activated".

If the *Old CG-SDT Session Info* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, retrieve the old CG-SDT resource configuration and old UE context based on the indicated gNB-CU F1AP UE ID and gNB-DU F1AP UE ID.

If the *5G ProSe Authorized* IE is contained in the UE CONTEXT SETUP REQUEST message and it contains one or more IEs set to "authorized", the gNB-DU node shall, if supported, consider that the UE is authorized for the relevant service(s).

If the *5G ProSe UE PC5 Aggregate Maximum Bit Rate* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it for the concerned UE's sidelink communication in network scheduled mode for 5G ProSe services.

If the *5G ProSe PC5 Link Aggregate Bit Rate* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it for the concerned UE's sidelink communication in network scheduled mode for 5G ProSe services as defined in TS 23.304 [44].

If the *PC5 RLC Channel To Be Setup List* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, act as specified in TS 38.401 [4]. gNB-DU generates the PC5 Relay RLC channel configurations for a L2 U2N Remote UE, a L2 U2U Remote UE or a L2 U2U Relay UE.

If the *Path Switch Configuration* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it to configure the path switch from direct path to indirect path as specified in TS 38.401 [4] or from indirect path to indirect path as specified in TS 38.331 [8].

If the *MUSIM-GapConfig* IE is contained in the *CU to DU RRC Information* IE included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, decide to use this IE for MUSIM gap configuration or select another one based on the received *UEAssistanceInformation* IE. If gNB-DU selects a different MUSIM gap configuration from received *UEAssistanceInformation* IE, then it shall include the selected MUSIM gap information to the gNB-CU in the *MUSIM-GapConfig* IE of the *DU to CU RRC Information* IE that is included in the UE CONTEXT SETUP RESPONSE message.

If *MUSIM-GapConfig* IE is not contained in the *CU to DU RRC Information* IE, then gNB-DU shall, if supported, send the selected MUSIM gap configuration based on the received *UEAssistanceInformation* IE, to the gNB-CU in the *MUSIM-GapConfig* IE of the *DU to CU RRC Information* IE that is included in the UE CONTEXT SETUP RESPONSE message. When *MUSIM-GapConfig* IE is received, the gNB-CU should use this value.

If the *gNB-DU UE Slice Maximum Bit Rate List* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, store and use the information for the uplink traffic policing for each concerned slice as specified in TS 23.501 [21].

If the *Multicast MBS Session Setup List* IE is contained in the UE CONTEXT SETUP REQUEST message the gNB-DU shall, if supported, store and use the information for configuring MBS Session Resources, if applicable.

If the *UE Multicast MRB To Be Setup List* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, take it into account for configuring MBS Session Resources, if applicable. And if the *MBS PTP Retransmission Tunnel Required* IE is included in the *UE Multicast MRB to Be Setup Item IEs* IE, the gNB-DU shall, if supported trigger the establishment of the MBS PTP Retransmission F1-U tunnel. If the *MBS PTP Forwarding Tunnel Required Information* IE is included in the *UE Multicast MRB to Be Setup Item IEs* IE, the gNB-DU shall, if supported trigger the establishment of the MBS PTP Forwarding F1-U tunnel. If the *Source MRB ID* IE is included in the *UE Multicast MRB to Be Setup Item IEs* IE, the DU shall, if supported, use it to identify the MRB configuration as provided to the UE in the source cell and take it into account for configuring MBS Session Resources.

If the *Dedicated SI Delivery Indication* IE is included in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall, if supported, take it into account for the system information delivery to the UE as described in TS 38.331 [8].

If the *PDU Set QoS Parameters* IE is included in the *QoS Flow Level QoS Parameters* IE contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, store this information and use it as specified in TS 23.501 [21].

If the *ECN Marking or Congestion Information Reporting Request* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it accordingly for the specific DRB. If the *ECN Marking or Congestion Information Reporting Status* IE is included in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall, if supported, use it to deduce if ECN marking or congestion information reporting is active or not active.

If the *InterFrequencyConfig-NoGap* IE is included in the *DU to CU RRC Information* IE contained in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall, if supported, use it as described in TS 38.331 [8].

If the *ul-GapFR2-Config* IE is contained in the *DU to CU RRC Information* IE that is included in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall, if supported, use it as described in TS 38.331 [8].

If the *TwoPHRModeMCG* IE or the *TwoPHRModeSCG* IE is contained in the *DU to CU RRC Information* IE that is included in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall, if supported, use this value as described in TS 38.331 [8].

If the *MBSInterestIndication* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, take it into account when configuring resources for the UE.

If the *ncd-SSB-RedCapInitialBWP-SDT* IE is contained in the *DU to CU RRC Information* IE that is included in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall, if supported, use it as described in TS 38.331 [8].

If the *Network Controlled Repeater Authorized* IE is contained in the UE CONTEXT SETUP REQUEST message and it is set to "authorized", the gNB-DU node shall, if supported, consider that the UE is authorized as Network Controlled Repeater.

If the *musim-CapabilityRestrictionIndication* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it as described in TS 38.331 [8].

If the *LTM Indicator* IE set to "true" is contained in the *LTM Information Setup* IE included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, consider that the request concerns LTM for the included *SpCell ID* IE and shall include it as the *Requested Target Cell ID* IE in the UE CONTEXT SETUP RESPONSE message. The gNB-DU shall regard it as a reconfiguration with sync as defined in TS 38.331 [8].

If the *Request for Lower Layer Configuration* IE set to "true" is contained within the *Reference Configuration* IE in the *LTM Information Setup* IE included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, provide the lower layer configuration in the *Reference Configuration Information* IE in the *LTM Configuration* IE in the UE CONTEXT SETUP RESPONSE message for the gNB-CU to generate the LTM reference configuration.

If the *Reference Configuration Information* IE is contained within the *Reference Configuration* IE in the *LTM Information Setup* IE included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, take it into account for generating the LTM lower layer configuration.

If the *CSI Resource Configuration* is contained in the *LTM Information Setup* IE included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it to generate the LTM CSI reporting configuration(s) in the *CellGroupConfig* IE for the requested LTM candidate cell.

If the *LTM Configuration ID Mapping List* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, consider this as the mapping information for the LTM candidate cell(s).

If the *Early Sync Information Request* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, include the *Early Sync Information* IE of the accepted candidate cell for early TA acquisition (early UL synchronisation), in the UE CONTEXT SETUP RESPONSE message. If the *Early UL Sync Configuration* IE is included in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall, if supported, consider it as the generated early UL sync information from the accepted candidate cell in the gNB-DU. If the *Early UL Sync Configuration for SUL* IE is included in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall, if supported, consider it as the generated early UL sync information for SUL from the accepted candidate cell in the gNB-DU.

If the *LTM Configuration* IE is included in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall, if supported, consider it as the generated configuration for LTM from the accepted candidate cell in the candidate gNB-DU.

If the *Complete Candidate Configuration Indicator* IE set to "complete" is contained in the *LTM Configuration* IE included in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall, if supported, consider that the LTM candidate configuration is a complete candidate configuration.

If the *Direct Path Addition* IE is contained in the *Path Addition Information* IE which is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, consider that the request concerns the direct path addition for the included *SpCell ID* IE as specified in TS 38.401 [4] and regard it as a reconfiguration with sync as defined in TS 38.331 [8].

If the *Indirect Path Addition* IE is contained in the *Path Addition Information* IE which is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, consider that the request concerns the indirect path addition for the MP Remote UE using PC5 link and use it as specified in TS 38.401 [4].

If the *N3C Indirect Path Addition* IE is contained in the *Path Addition Information* IE, the gNB-DU shall, if supported, consider that the request concerns the indirect path addition for the MP Remote UE using N3C and use it as specified in TS 38.401 [4].

If the *S-CPAC Lower Layer Reference Config Request* IE set to "true" is contained in the *Conditional Inter-DU Mobility Information* IE included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, provide the lower layer configuration in the *Reference Configuration Information* IE in the *S-CPAC Configuration* IE in the UE CONTEXT SETUP RESPONSE message for the gNB-CU to generate the S-CPAC reference configuration.

If the *Complete Candidate Configuration Indicator* IE set to "complete" is contained in the *S-CPAC Configuration* IE included in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall, if supported, consider that the S-CPAC candidate configuration is a complete candidate configuration.

If the *musim-CandidateBandList* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it for temporary capability restriction.

If the *DL LBT Failure Information Request* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, consider that the gNB-CU requests collection of DL LBT failure information for the analysis of the MRO events of the UE specified in TS 38.300 [6], and act as specified in TS 38.401 [4].

If the *Ranging and Sidelink Positioning Service Information* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, take it into account for the UE's Ranging and Sidelink Positioning service.

#### Interaction with UE Inactivity Notification procedure

If the *SDT Volume Threshold* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use the information during an SDT transaction to inform the gNB-CU via the UE INACTIVITY NOTIFICATION message as specified in TS 38.401 [4].

### 8.3.1.3 Unsuccessful Operation

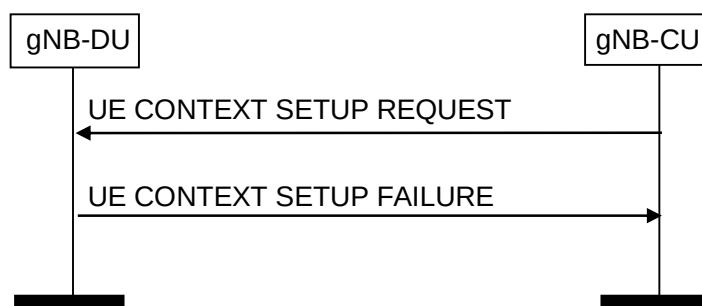


**Figure 8.3.1.3-1: UE Context Setup Request procedure: unsuccessful Operation**

If the gNB-DU is not able to establish an F1 UE context, or cannot even establish one bearer it shall consider the procedure as failed and reply with the UE CONTEXT SETUP FAILURE message. If the *Conditional Inter-DU Mobility Information* IE or the *LTM Indicator* IE was included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall include the received *SpCell ID* IE as the *Requested Target Cell ID* IE in the UE CONTEXT SETUP FAILURE message.

If the gNB-DU is not able to accept the *SpCell ID* IE in UE CONTEXT SETUP REQUEST message, it shall reply with the UE CONTEXT SETUP FAILURE message with an appropriate cause value. Further, if the *Candidate SpCell List* IE is included in the UE CONTEXT SETUP REQUEST message and the gNB-DU is not able to accept the *SpCell ID* IE, the gNB-DU shall, if supported, include the *Potential SpCell List* IE in the UE CONTEXT SETUP FAILURE message and the gNB-CU should take this into account for selection of an opportune SpCell. The gNB-DU shall include the cells in the *Potential SpCell List* IE in a priority order, where the first cell in the list is the one most desired and the last one is the one least desired (e.g., based on load conditions). If the *Potential SpCell List* IE is present but no *Potential SpCell Item* IE is present, the gNB-CU should assume that none of the cells in the *Candidate SpCell List* IE are acceptable for the gNB-DU.

### 8.3.1.4 Abnormal Conditions

If the gNB-DU receives a UE CONTEXT SETUP REQUEST message containing a *E-UTRAN QoS* IE for a GBR QoS DRB but where the *GBR QoS Information* IE is not present, the gNB-DU shall report the establishment of the corresponding DRB as failed in the *DRB Failed to Setup List* IE of the UE CONTEXT SETUP RESPONSE message with an appropriate cause value. If the gNB-DU receives a UE CONTEXT SETUP REQUEST message containing a *DRB QoS* IE for a GBR QoS DRB but where the *GBR QoS Flow Information* IE is not present, the gNB-DU shall report the establishment of the corresponding DRBs as failed in the *DRB Failed to Setup List* IE of the UE CONTEXT SETUP RESPONSE message with an appropriate cause value.

If the *Delay Critical* IE is included in the *Dynamic 5QI Descriptor* IE within the *DRB QoS* IE in the UE CONTEXT SETUP REQUEST message and is set to the value "delay critical" but the *Maximum Data Burst Volume* IE is not

present, the gNB-DU shall report the establishment of the corresponding DRB as failed in the *DRB Failed to Setup List* IE of the of the UE CONTEXT SETUP RESPONSE message with an appropriate cause value.

In case of "CHO-replace" when the *Target gNB-DU UE F1AP ID* IE is included, if the candidate cell in the *SpCell ID* IE included in the UE CONTEXT SETUP REQUEST message was not prepared using the same UE-associated signaling connection, the gNB-DU shall ignore this candidate cell.

## 8.3.2 UE Context Release Request (gNB-DU initiated)

### 8.3.2.1 General

The purpose of the UE Context Release Request procedure is to enable the gNB-DU to request the gNB-CU to release the UE-associated logical F1-connection, candidate cells in conditional handover, conditional PSCell addition, conditional PSCell change, or LTM or subsequent CPAC. The procedure uses UE-associated signalling.

### 8.3.2.2 Successful Operation

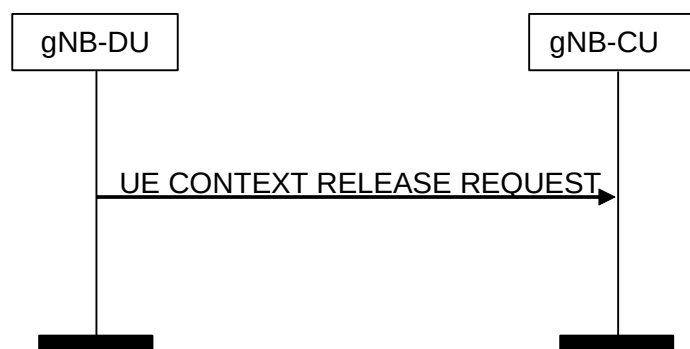


**Figure 8.3.2.2-1: UE Context Release (gNB-DU initiated) procedure. Successful operation**

The gNB-DU controlling a UE-associated logical F1-connection initiates the procedure by generating a UE CONTEXT RELEASE REQUEST message towards the affected gNB-CU node.

The UE CONTEXT RELEASE REQUEST message shall indicate the appropriate cause value.

If the *Candidate Cells To Be Cancelled List* IE is included in the UE CONTEXT RELEASE REQUEST message, the gNB-CU shall consider that the only the resources reserved for the candidate cells identified by the included NR CGIs and associated to the UE-associated signaling identified by the *gNB-CU UE F1AP ID* IE and the *gNB-DU UE F1AP ID* IE are about to be released by the gNB-DU.

If the *LTM Cells To Be Released List* IE is included in the UE CONTEXT RELEASE REQUEST message, the gNB-CU shall, if supported, consider that only the resources reserved for the LTM cells identified by the included NR CGIs and associated to the UE-associated signaling identified by the *gNB-CU UE F1AP ID* IE and the *gNB-DU UE F1AP ID* IE are about to be released by the gNB-DU.

#### Interactions with UE Context Release procedure:

The UE Context Release procedure may be initiated upon reception of a UE CONTEXT RELEASE REQUEST message.

#### Interactions with UE Context Setup procedure:

The UE Context Release Request procedure may be performed before the UE Context Setup procedure to request the release of an existing UE-associated logical F1-connection and related resources in the gNB-DU.

### 8.3.2.3 Abnormal Conditions

If one or more candidate cells in the *Candidate Cells To Be Cancelled List* IE included in the UE CONTEXT RELEASE REQUEST message were not prepared using the same UE-associated signaling connection, the gNB-CU shall ignore those non-associated candidate cells.



If one or more LTM cells in the *LTM Cells To Be Released List* IE included in the UE CONTEXT RELEASE REQUEST message were not prepared using the same UE-associated signaling connection, the gNB-CU shall ignore those non-associated LTM cells.

### 8.3.3 UE Context Release (gNB-CU initiated)

#### 8.3.3.1 General

The purpose of the UE Context Release procedure is to enable the gNB-CU to order the release of the UE-associated logical connection, candidate cells in conditional handover, conditional PSCell addition, or conditional PSCell change or LTM or subsequent CPAC. The procedure uses UE-associated signalling.

#### 8.3.3.2 Successful Operation

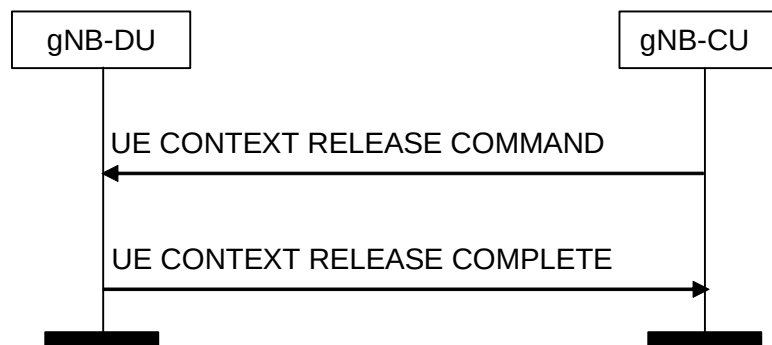


**Figure 8.3.3.2-1: UE Context Release (gNB-CU initiated) procedure. Successful operation**

The gNB-CU initiates the procedure by sending the UE CONTEXT RELEASE COMMAND message to the gNB-DU.

Upon reception of the UE CONTEXT RELEASE COMMAND message, the gNB-DU shall release all related signalling and user data transport resources and reply with the UE CONTEXT RELEASE COMPLETE message. If the *CG-SDT Kept Indicator* IE is contained in the UE CONTEXT RELEASE COMMAND message and set to "true", the gNB-DU shall, if supported, consider that the UE is sent to RRC\_INACTIVE state with CG-SDT configuration and store the configured CG-SDT resources, C-RNTI, CG-SDT-CS-RNTI, the CG-SDT related RLC configurations and F1-U connections associated with the SDT bearers while releasing the UE context.

If the *old gNB-DU UE F1AP ID* IE is included in the UE CONTEXT RELEASE COMMAND message, the gNB-DU shall additionally release the UE context associated with the old gNB-DU UE F1AP ID.

If the UE CONTEXT RELEASE COMMAND message contains the *RRC-Container IE*, the gNB-DU shall send the RRC container to the UE via the SRB indicated by the *SRB ID* IE.

If the UE CONTEXT RELEASE COMMAND message includes the *Execute Duplication* IE, the gNB-DU shall perform CA based duplication or multi-path relay based duplication, if configured, for the SRB for the included *RRC-Container IE*.

If the *Candidate Cells To Be Cancelled List* IE is included in the UE CONTEXT RELEASE COMMAND message, the gNB-DU shall consider that the gNB-CU is cancelling only the conditional handover, conditional PSCell addition, conditional PSCell change, or subsequent CPAC associated to the cells identified by the included NR CGIs and associated to the UE-associated signaling identified by the *gNB-CU UE F1AP ID* IE and the *gNB-DU UE F1AP ID* IE.

If the *Positioning Context Reservation Indication* IE is included in the UE CONTEXT RELEASE COMMAND message, the gNB-DU shall not release the positioning context including the SRS configuration for the UE.

If the *LTM Cells To Be Released List* IE is included in the UE CONTEXT RELEASE COMMAND message, the gNB-DU shall, if supported, consider that the gNB-CU is cancelling only the LTM cells identified by the included NR CGIs and associated to the UE-associated signaling identified by the *gNB-CU UE F1AP ID* IE and the *gNB-DU UE F1AP ID* IE.

If the *Recommended SSBs for Paging List* IE is included in the UE CONTEXT RELEASE COMPLETE message, the gNB-CU shall, if supported, store it and may use it as assistance information for subsequent paging.

If the *DL LBT Failure Information Request* IE is included in the UE CONTEXT RELEASE COMMAND message, the gNB-DU shall, if supported, consider that the gNB-CU requests the reporting of DL LBT Failure information for the analysis of the MRO events of the UE specified in TS 38.300 [6], and act as specified in TS 38.401 [4].

#### Interactions with UE Context Setup procedure:

The UE Context Release procedure may be performed before the UE Context Setup procedure to release an existing UE-associated logical F1-connection and related resources in the gNB-DU, e.g. when gNB-CU rejects UE access it shall trigger UE Context Release procedure with the cause value of UE rejection.

#### 8.3.3.3 Void

#### 8.3.3.4 Abnormal Conditions

If one or more candidate cells in the *Candidate Cells To Be Cancelled List* IE included in the UE CONTEXT RELEASE COMMAND message were not prepared using the same UE-associated signalling connection, the gNB-DU shall ignore those non-associated candidate cells.

If one or more LTM cells in the *LTM Cells To Be Released List* IE included in the UE CONTEXT RELEASE COMMAND message were not prepared using the same UE-associated signalling connection, the gNB-DU shall ignore those non-associated LTM cells.

### 8.3.4 UE Context Modification (gNB-CU initiated)

#### 8.3.4.1 General

The purpose of the UE Context Modification procedure is to modify the established UE Context, e.g., establishing, modifying and releasing radio resources or sidelink resources. This procedure is also used to command the gNB-DU to stop data transmission for the UE for mobility (see TS 38.401 [4]). The procedure uses UE-associated signalling.

#### 8.3.4.2 Successful Operation

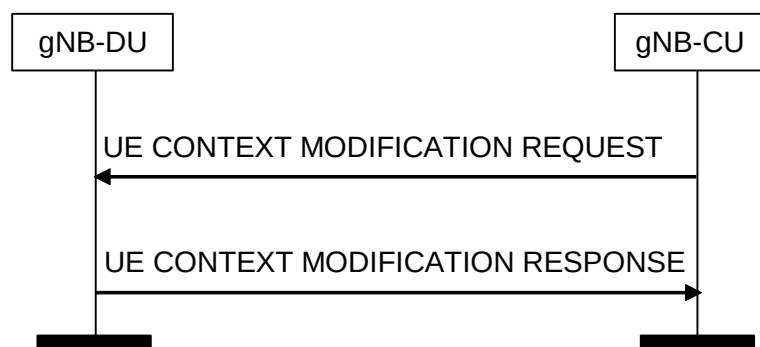


**Figure 8.3.4.2-1: UE Context Modification procedure. Successful operation**

The UE CONTEXT MODIFICATION REQUEST message is initiated by the gNB-CU.

Upon reception of the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall perform the modifications, and if successful reports the update in the UE CONTEXT MODIFICATION RESPONSE message.

If the *SpCell ID* IE is included in the UE CONTEXT MODIFICATION REQUEST message and neither the *LTM Information Modify* IE nor the *Conditional Intra-DU Mobility Information* IE is present, the gNB-DU shall replace any previously received value and regard it as a reconfiguration with sync as defined in TS 38.331 [8]. If the *ServCellIndex* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall take this into account for the indicated SpCell. If the *SpCell UL Configured* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall configure UL for the indicated SpCell accordingly. If the *servingCellMO* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall configure servingCellMO for the indicated SpCell accordingly. If the *servingCellMO List* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, configure servingCellMO after determining the list of BWPs for

the UE and include the list of servingCellMOs that have been encoded in *CellGroupConfig* IE as *ServingCellMO-encoded-in-CGC List* IE in the UE CONTEXT MODIFICATION RESPONSE message.

If the *Configured BWP List* IE is included in the UE CONTEXT MODIFICATION RESPONSE message the gNB-CU shall, if supported, take it into account when requesting the gNB-DU for generating preconfigured measurement GAP for the indicated BWPs.

If the *Preconfigured Measurement GAP Request* IE is present in the *CU to DU RRC Information* IE in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, consider that the content of the previous *CellGroupConfig* IE was not sent to the UE and generate the pre-configured measurement GAP for the indicated BWPs in the *MeasConfig* IE. If the gNB-DU successfully generates pre-configured measurement GAP for the indicated BWPs, the gNB-DU shall update the *CellGroupConfig* IE with the content of the previous *CellGroupConfig* IE and the preconfigured measurement GAP configuration in the UE CONTEXT MODIFICATION RESPONSE message.

If the *SCell To Be Setup List* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall consider it as a list of candidate SCells to be set up. If the *SCell To Be Setup List* IE is included in the UE CONTEXT MODIFICATION REQUEST message and the indicated SCell(s) are already setup, the gNB-DU shall replace any previously received value. If the *SCell UL Configured* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall configure UL for the indicated SCell accordingly. If the *servingCellMO* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall configure servingCellMO for the indicated SCell accordingly.

If the *SCell To Be Removed List* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall consider it as a list of SCells to be removed.

If the *DRX Cycle* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall use the provided value from the gNB-CU. If the *DRX configuration indicator* IE is contained in the UE CONTEXT MODIFICATION REQUEST message and set to "release", the gNB-DU shall release DRX configuration.

If the *Non-Integer DRX Cycle* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, use the provided value from the gNB-CU.

If the *SL DRX Cycle list* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, use the provided value from the gNB-CU for the indicated RX UE of this UE. If the *SL DRX configuration indicator* IE is contained in the UE CONTEXT MODIFICATION REQUEST message and set to "release", the gNB-DU shall, if supported, release SL DRX configuration for the indicated RX UE of this UE.

If the *SRB To Be Setup List* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall act as specified in the TS 38.401 [4], and replace any previously received value. If *Duplication Indication* IE is contained in the *SRB To Be Setup List* IE, the gNB-DU shall, if supported, setup two RLC entities for the indicated SRB if the value is set to be "true", or delete the RLC entity of secondary path if the value is set to be "false". If the *Additional Duplication Indication* IE is contained in the *SRB To Be Setup List* IE, the gNB-DU shall, if supported, setup the indicated RLC entities for the indicated SRB. If the *SRB Mapping Info* IE is contained in the *SRB To Be Setup List* IE, the gNB-DU shall, if supported, store the mapping information indicated in the *SRB Mapping Info* IE for the SRB identified by the *SRB ID* IE and the Uu Relay RLC channel identified by the *SRB Mapping Info*. The gNB-DU shall use the mapping information stored for the mapping of SRB data to Uu Relay RLC channel. If the *Path Addition Information* IE and the *SRB Mapping Info* IE are both contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, setup one RLC entity if necessary for the direct path and map the indicated SRB to the Uu Relay RLC channel based on the *SRB Mapping Info* IE. If the *Duplication Indication* IE and *SRB Mapping Info* IE are both contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, setup one RLC entity for the direct path if the value is set to be "true", and map the indicated SRB to the Uu Relay RLC channel based on the *SRB Mapping Info* IE. If the *Additional Duplication Indication* IE and *SRB Mapping Info* IE are both contained in the *SRB To Be Setup List* IE, the gNB-DU shall, if supported, setup the indicated RLC entities for the indicated SRB, and map the indicated SRB to the Uu Relay RLC channel based on the *SRB Mapping Info* IE. The number of RLC entities to be set up is the indicated value of *Additional Duplication Indication* IE minus 1.

If the *DRB To Be Setup List* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall act as specified in the TS 38.401 [4]. If the *DRB Mapping Info* IE is contained in the *DRB To Be Setup List* IE, the gNB-DU shall, if supported, store the mapping information indicated in the *DRB Mapping Info* IE, if present, for the DRB identified by the *DRB ID* IE and the Uu Relay RLC channel identified by the *DRB Mapping Info*. The gNB-DU shall use the mapping information stored for the mapping of DRB data to Uu Relay RLC channel.

If the *PSI based SDU Discard UL* IE is included in the *DRB To Be Setup List* IE or the *DRB To Be Modified List* IE, the gNB-DU shall, if supported, take it into account to perform UL PSI based SDU discarding activation or deactivation for the indicated DRB as defined in TS 38.321 [16].

If the *BH Information* IE is included in the *UL UP TNL Information to be setup List* IE or the *Additional PDCP Duplication TNL List* IE for a DRB, the gNB-DU shall, if supported, use the indicated BAP Routing ID and BH RLC channel for transmission of the corresponding GTP-U packets to the IAB-donor, as specified in TS 38.340 [30].

If the *BH RLC Channel To Be Setup List* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall act as specified in TS 38.401 [4]. If the *Traffic Mapping Information* IE is included in the *BH RLC Channel To Be Setup Item IEs* IE for a BH RLC Channel, the gNB-DU shall, if supported, process the *Traffic Mapping Information* IE following the behaviour described for the UE Context Setup procedure.

If the *BH RLC Channel To Be Modified List* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall act as specified in TS 38.401 [4]. If the *Traffic Mapping Information* IE is included in the *BH RLC Channel To Be Modified Item IEs* IE for a BH RLC Channel, the gNB-DU shall, if supported, process the *Traffic Mapping Information* IE following the behaviour described for the UE Context Setup procedure.

If the *BH RLC Channel To Be Released List* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall release the BH RLC channels in the list.

If two *UL UP TNL Information* IEs are included and the *DRB Mapping Info* IE is not contained in UE CONTEXT MODIFICATION REQUEST message for a DRB, the gNB-DU shall include two *DL UP TNL Information* IEs in UE CONTEXT MODIFICATION RESPONSE message and setup two RLC entities for the indicated DRB. If the *UL UP TNL Information* IE with the *DRB Mapping Info* IE and the *UL UP TNL Information* IE without the *DRB Mapping Info* IE are both contained in the UE CONTEXT MODIFICATION REQUEST message for a DRB, the gNB-DU shall, if supported, include two *DL UP TNL Information* IEs in UE CONTEXT MODIFICATION RESPONSE message, setup one RLC entity for the *UL UP TNL Information* IE without the *DRB Mapping Info* IE, and map the indicated DRB to the Uu Relay RLC channel based on the *DRB Mapping Info* IE. gNB-CU and gNB-DU use the *UL UP TNL Information* IEs and *DL UP TNL Information* IEs to support packet duplication for intra-gNB-DU CA and multi-path relay as defined in TS 38.470 [2]. The first *UP TNL Information* IE of the two *UP TNL Information* IEs is for the primary path.

If one or two *Additional PDCP Duplication UP TNL Information* IEs are included in the UE CONTEXT MODIFICATION REQUEST message for a DRB, the gNB-DU shall, if supported, include one or two *Additional PDCP Duplication UP TNL Information* IEs in the UE CONTEXT MODIFICATION RESPONSE message and setup one or two additional RLC entities for the indicated DRB. The gNB-CU and the gNB-DU use the *Additional PDCP Duplication UP TNL Information* IEs to support packet duplication for intra-gNB-DU CA and multi-path relay as defined in TS 38.470 [2].

If *Duplication Activation* IE is included in the UE CONTEXT MODIFICATION REQUEST message for a DRB, the gNB-DU should take it into account when activating/deactivating CA based PDCP duplication or multi-path relay based PDCP duplication for the DRB. If the *RLC Duplication State List* IE is included in the *RLC Duplication Information* IE contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, take it into account for the DRB with more than two RLC entities.

If *DC Based Duplication Configured* IE is included in the UE CONTEXT MODIFICATION REQUEST message for a DRB, the gNB-DU shall regard that DC based PDCP duplication is configured for this DRB if the value is set to be "true" and it should take the responsibility of PDCP duplication activation/deactivation. Otherwise, the gNB-DU shall regard that DC based PDCP duplication is de-configured for this DRB if the value is set to be "false", and it should stop PDCP duplication activation/deactivation by MAC CE. If *DC Based Duplication Activation* IE is included in the UE CONTEXT MODIFICATION REQUEST message for a DRB, the gNB-DU should take it into account when activating/deactivating DC based PDCP duplication for this DRB. If the *RLC Duplication State List* IE is included in the *RLC Duplication Information* IE contained in the UE CONTEXT MODIFICATION REQUEST message for a DRB, the gNB-DU shall, if supported, take it into account when activating/deactivating DC based PDCP duplication for the DRB with more than two RLC entities. If the *Primary Path Indication* IE is included in the *RLC Duplication Information* IE, the gNB-DU shall, if supported, take it into account when performing DC based PDCP duplication for the DRB with more than two RLC entities.

For a certain DRB which was allocated with two GTP-U tunnels, if such DRB is modified and given one GTP-U tunnel via the UE Context Modification procedure, the gNB-DU shall consider that the CA based PDCP duplication or multi-path relay based PDCP duplication for the concerned DRB is de-configured. If such UE Context Modification procedure occurs, the *Duplication Activation* IE shall not be included for the concerned DRB.

If the *UL Configuration* IE in *DRB to Be Setup Item* IE or *DRB to Be Modified Item* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall take it into account for UL scheduling.

If the *RRC Reconfiguration Complete Indicator* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall consider the ongoing reconfiguration procedure involving changes of the L1/L2 configuration at the gNB-DU signalled to the gNB-CU via the *CellGroupConfig* IE for MR-DC operation or standalone operation has been successfully performed when such IE is set to 'true'; otherwise (when such IE is set to 'failure'), the gNB-DU shall consider the ongoing reconfiguration procedure has been failed and it shall continue to use the old L1/L2 configuration.

If *DL PDCP SN length* IE is included in the UE CONTEXT MODIFICATION REQUEST message for a DRB, gNB-DU shall, if supported, store this information and use it for lower layer configuration.

If *UL PDCP SN length* IE is included in the UE CONTEXT MODIFICATION REQUEST message for a DRB, gNB-DU shall, if supported, store this information and use it for lower layer configuration.

If the *RLC Failure Indication* IE is included in UE CONTEXT MODIFICATION REQUEST message, the gNB-DU should consider that the RLC entity indicated by such IE needs to be re-established when the CA-based packet duplication is active, and the gNB-DU may include the *Associated SCell List* IE in UE CONTEXT MODIFICATION RESPONSE by containing a list of SCell(s) associated with the RLC entity indicated by the *RLC Failure Indication* IE.

If the UE CONTEXT MODIFICATION REQUEST message contains the *RRC-Container* IE, the gNB-DU shall send the corresponding RRC message to the UE. If the UE CONTEXT MODIFICATION REQUEST message includes the *Execute Duplication* IE, the gNB-DU shall perform CA based duplication or multi-path relay based duplication, if configured, for the SRB for the included *RRC-Container* IE.

If the UE CONTEXT MODIFICATION REQUEST message contains the *Transmission Action Indicator* IE, the gNB-DU shall stop or restart (if already stopped) data transmission for the UE, according to the value of this IE. It is up to gNB-DU implementation when to stop or restart the UE scheduling.

For EN-DC operation, if the *DRB to Be Setup List* IE is present in the UE CONTEXT MODIFICATION REQUEST message the gNB-CU shall include the *E-UTRAN QoS* IE. The allocation of resources according to the values of the *Allocation and Retention Priority* IE included in the *E-UTRAN QoS* IE shall follow the principles described for the E-RAB Setup procedure in TS 36.413 [15]. For NG-RAN operation, the gNB-CU shall include the *DRB Information* IE in the UE CONTEXT MODIFICATION REQUEST message.

If the gNB-CU includes the SMTC information of the measured frequency(ies) in the *MeasurementTimingConfiguration* IE of the *CU to DU RRC Information* IE that is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall generate the measurement gaps based on the received SMTC information. Then the gNB-DU shall send the measurement gaps information to the gNB-CU in the *MeasGapConfig* IE of the *DU to CU RRC Information* IE that is included in the UE CONTEXT MODIFICATION RESPONSE message.

If the *MeasConfig* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall deduce that changes to the measurements' configuration need to be applied. The gNB-DU shall take the received info, e.g. the *measObjectToAddModList* IE, and/or the *measObjectToRemoveList* IE into account, when generating measurement gap and when deciding if a measurement gap is needed or not.

If the *NeedForGapsInfoNR* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, use it as described in TS 38.331 [8]. If the *NeedForGapNCSCG-InfoNR* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, use it as described in TS 38.331 [8]. If the *NeedForGapNCSCG-InfoEUTRA* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, use it as described in TS 38.331 [8]. If the *NeedForInterruptionInfoNR* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, use it as described in TS 38.331 [8].

For DC operation, if the gNB-CU includes the *CG-Config* IE in the *CU to DU RRC Information* IE that is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU may initiate low layer parameters coordination taking this information into account.

For sidelink operation, the *CG-ConfigInfo* IE shall be included in the *CU to DU RRC Information* IE if the gNB-CU receives sidelink related UE information from UE. If the *CG-ConfigInfo* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall regard it as an indication of V2X sidelink information or NR sidelink information as defined in TS 38.331 [8].

For EN-DC operation, if the gNB-CU includes the *Resource Coordination Transfer Information* IE in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, use it for the purpose of resource coordination. If the gNB-CU received the MeNB Resource Coordination Information as defined in TS 36.423 [9], after completion of UE Context Setup procedures, the gNB-CU shall transparently transfer it to the gNB-DU via the *Resource Coordination Transfer Container* IE in the UE CONTEXT MODIFICATION REQUEST message. The gNB-DU shall use the information received in the *Resource Coordination Transfer Container* IE for reception of MeNB Resource Coordination Information at the gNB acting as secondary node as described in TS 36.423 [9]. If the *Resource Coordination E-UTRA Cell Information* IE is included in the *Resource Coordination Transfer Information* IE, the gNB-DU shall store the information replacing previously received information for the same E-UTRA cell, and use the stored information for the purpose of resource coordination. If the *Ignore PRACH Configuration* IE is present and set to "true" the *E-UTRA PRACH Configuration* IE in the UE CONTEXT MODIFICATION REQUEST message shall be ignored.

For NGEN-DC or NE-DC operation, if the gNB-CU includes the *Resource Coordination Transfer Information* IE in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, use it for the purpose of resource coordination. If the gNB-CU received the MR-DC Resource Coordination Information as defined in TS 38.423 [28], after completion of UE Context Setup procedures, the gNB-CU shall transparently transfer it to the gNB-DU via the *Resource Coordination Transfer Container* IE in the UE CONTEXT MODIFICATION REQUEST message. The gNB-DU shall use the information received in the *Resource Coordination Transfer Container* IE for reception of MR-DC Resource Coordination Information at the gNB as described in TS 38.423 [28].

For EN-DC operation, and if the *Subscriber Profile ID for RAT/Frequency priority* IE is received from an MeNB, the UE CONTEXT MODIFICATION REQUEST message shall contain the *Subscriber Profile ID for RAT/Frequency priority* IE. If the *Additional RRM Policy Index* IE is received from an MeNB, the UE CONTEXT MODIFICATION REQUEST message shall, if supported, contain the *Additional RRM Policy Index* IE. The gNB-DU shall store the received Subscriber Profile ID for RAT/Frequency priority in the UE context and use it as defined in TS 36.300 [20]. The gNB-DU shall, if supported, store the received Additional RRM Policy Index in the UE context and use it as defined in TS 36.300 [20].

If the *Index to RAT/Frequency Selection Priority* IE is modified at the gNB-CU, the *Index to RAT/Frequency Selection Priority* IE shall be included in the UE CONTEXT MODIFICATION REQUEST. The gNB-DU may use it for RRM purposes.

Only one of the following IEs shall be contained in the UE CONTEXT MODIFICATION REQUEST message: the *Uplink TxDirectCurrentList Information* IE or the *Uplink TxDirectCurrentTwoCarrierList Information* IE or the *Uplink TxDirectCurrentMoreCarrierList Information* IE. If the UE CONTEXT MODIFICATION REQUEST message contains one of the *Uplink TxDirectCurrentList Information* IE or the *Uplink TxDirectCurrentTwoCarrierList Information* IE or the *Uplink TxDirectCurrentMoreCarrierList Information* IE, the gNB-DU may take that into account when selecting L1 configuration.

The *UEAssistanceInformation* IE shall be included in *CU to DU RRC Information* IE in the UE CONTEXT MODIFICATION REQUEST message if the gNB-CU received this IE from the UE; if the *UEAssistanceInformation* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, take it into account when configuring resources for the UE.

The *UEAssistanceInformationEUTRA* IE shall be included in *CU to DU RRC Information* IE in the UE CONTEXT MODIFICATION REQUEST message if the gNB-CU received this IE from the UE; if the *UEAssistanceInformationEUTRA* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, take it into account when configuring LTE sidelink resources for the UE.

The gNB-DU shall report to the gNB-CU, in the UE CONTEXT MODIFICATION RESPONSE message, the result for all the requested or modified DRBs, SRBs, BH RLC Channels, Uu Relay RLC channels, PC5 Relay RLC channels, and SL DRBs in the following way:

- A list of DRBs which are successfully established shall be included in the *DRB Setup List* IE;
- A list of DRBs which failed to be established shall be included in the *DRB Failed to be Setup List* IE;
- A list of DRBs which are successfully modified shall be included in the *DRB Modified List* IE;
- A list of DRBs which failed to be modified shall be included in the *DRB Failed to be Modified List* IE;
- A list of SRBs which failed to be established shall be included in the *SRB Failed to be Setup List* IE.

- A list of successfully established SRBs with logical channel identities for primary path shall be included in the *SRB Setup List IE* only if CA based PDCP duplication or multi-path relay based PDCP duplication is initiated for the concerned SRBs.
- A list of successfully modified SRBs with logical channel identities for primary path shall be included in the *SRB Modified List IE* only if CA based PDCP duplication or multi-path relay based PDCP duplication is initiated for the concerned SRBs.
- A list of BH RLC channels which are successfully established shall be included in the *BH RLC Channel Setup List IE*;
- A list of BH RLC channels which failed to be established shall be included in the *BH RLC Channel Failed to be Setup List IE*;
- A list of BH RLC channels which are successfully modified shall be included in the *BH RLC Channel Modified List IE*;
- A list of BH RLC channels which failed to be modified shall be included in the *BH RLC Channel Failed to be Modified List IE*;
- A list of Uu Relay RLC channels which are successfully established shall be included in the *Uu RLC Channel Setup List IE*;
- A list of Uu Relay RLC channels which failed to be established shall be included in the *Uu RLC Channel Failed to be Setup List IE*;
- A list of Uu Relay RLC channels which are successfully modified shall be included in the *Uu RLC Channel Modified List IE*;
- A list of Uu Relay RLC channels which are failed to be modified shall be included in the *Uu RLC Channel Failed to be Modified List IE*;
- A list of PC5 Relay RLC channels which are successfully established shall be included in the *PC5 RLC Channel Setup List IE*;
- A list of PC5 Relay RLC channels which failed to be established shall be included in the *PC5 RLC Channel Failed to be Setup List IE*;
- A list of PC5 Relay RLC channels which are successfully modified shall be included in the *PC5 RLC Channel Modified List IE*;
- A list of PC5 Relay RLC channels which failed to be modified shall be included in the *PC5 RLC Channel Failed to be Modified List IE*;
- A list of SL DRBs which are successfully established shall be included in the *SL DRB Setup List IE*;
- A list of SL DRBs which failed to be established shall be included in the *SL DRB Failed to be Setup List IE*;
- A list of SL DRBs which are successfully modified shall be included in the *SL DRB Modified List IE*;
- A list of SL DRBs which failed to be modified shall be included in the *SL DRB Failed to be Modified List IE*.

If *Duplication Indication IE* in *SL DRB To Be Setup List IE* is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, generate two PC5 RLC bearer configurations for the indicated SL DRB.

If *Duplication Indication IE* is contained in the *SL DRB To Be Modified List IE*, the gNB-DU shall, if supported, generate two PC5 RLC bearer configurations for the indicated SL DRB, if the value is set to be "true" and duplication is not already configured for the indicated SL DRB.

If *Duplication Indication IE* is contained in the *SL DRB To Be Modified List IE*, the gNB-DU shall, if supported, release the additional PC5 RLC configuration for the indicated SL DRB, if the value is set to be "false".

For each GBR DRB, if the *Alternative QoS Parameters Sets IE* is included in the *GBR QoS Flow Information IE* in the UE CONTEXT MODIFICATION REQUEST message, gNB-DU shall, if supported, behave the same as the NG-RAN node in the PDU Session Resource Setup procedure, specified in TS 38.413 [3].

If the *BAP Control PDU Channel* IE is included in the *BH RLC Channel to be Setup List* IE, the gNB-DU shall, if supported, consider that the configured BH RLC channel can be used to transmit BAP Control PDUs, and use this BH RLC channel as specified in TS 38.340 [30].

If the *BAP Control PDU Channel* IE is included in the *BH RLC Channel to be Modified List* IE, the gNB-DU shall, if supported, consider that the configured BH RLC channel can be used to transmit BAP Control PDUs, and use this BH RLC channel as specified in TS 38.340 [30]. Otherwise, if the *BAP Control PDU Channel* IE is not present for any BH RLC channel, any available BH RLC channel can be used to transmit BAP Control PDUs as specified in TS 38.340 [30].

If the *F1-C Transfer Path* IE is included in UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, take it into account.

When the gNB-DU reports the unsuccessful establishment of a DRB or SRB or SL DRB or a BH RLC channel or a Uu Relay RLC channel or a PC5 Relay RLC channel, the cause value should be precise enough to enable the gNB-CU to know the reason for the unsuccessful establishment.

If the *Resource Coordination Transfer Container* IE is included in the UE CONTEXT MODIFICATION RESPONSE, the gNB-CU shall transparently transfer this information for the purpose of resource coordination as described in TS 36.423 [9], TS 38.423 [28].

If the *DU to CU RRC Information* IE is included in the UE CONTEXT MODIFICATION RESPONSE message, except for the CG-SDT procedure and UE configured with BWP specific ServingCellMO, the gNB-CU shall perform RRC Reconfiguration as described in TS 38.331 [8]. The *CellGroupConfig* IE shall transparently be signaled to the UE as specified in TS 38.331 [8]. In the cases of CG-SDT, and UE configured with BWP specific ServingCellMO, the *CellGroupConfig* IE shall be ignored by the gNB-CU.

If the *ServCellInfoList* IE is included in the *DU to CU RRC Information* IE contained in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall take it into account to generate the content of inter-node message, i.e., *CG-Config* or *CG-ConfigInfo*, as described in TS 38.331 [8].

If the *UE-CapabilityRAT-ContainerList* IE is included in the UE CONTEXT MODIFICATION REQUEST, the gNB-DU shall take this information into account for UE specific configurations.

If the *SCell Failed To Setup List* IE is contained in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall regard the corresponding SCell(s) failed to be set up with an appropriate cause value for each SCell failed to setup.

If the *C-RNTI* IE is included in the UE CONTEXT MODIFICATION RESPONSE, the gNB-CU shall consider that the C-RNTI has been allocated by the gNB-DU for this UE context.

If the *Inactivity Monitoring Request* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, gNB-DU may consider that the gNB-CU has requested the gNB-DU to perform UE inactivity monitoring. If the *Inactivity Monitoring Response* IE is contained in the UE CONTEXT MODIFICATION RESPONSE message and set to "Not-supported", the gNB-CU shall consider that the gNB-DU does not support UE inactivity monitoring for the UE.

The UE Context Modify Procedure is not used to configure SRB0.

If in the UE CONTEXT MODIFICATION REQUEST, the *Notification Control* IE is included in the *DRB to Be Setup List* IE or the *DRB to Be Modified List* IE and it is set to active, the gNB-DU shall, if supported, monitor the QoS of the DRB and notify the gNB-CU if the QoS cannot be fulfilled any longer or if the QoS can be fulfilled again. The *Notification Control* IE can only be applied to GBR bearers.

If the *UL PDU Session Aggregate Maximum Bit Rate* IE is included in the *QoS Flow Level QoS Parameters* IE contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall replace the received UL PDU Session Aggregate Maximum Bit Rate and use it as specified in TS 23.501 [21].

If the *gNB-DU UE Aggregate Maximum Bit Rate Uplink* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall:

- replace the previously provided gNB-DU UE Aggregate Maximum Bit Rate Uplink with the new received gNB-DU UE Aggregate Maximum Bit Rate Uplink;
- use the received gNB-DU UE Aggregate Maximum Bit Rate Uplink for non-GBR Bearers for the concerned UE.



The *gNB-DU UE Aggregate Maximum Bit Rate Uplink* IE shall be sent in the UE CONTEXT MODIFICATION REQUEST if *DRB to Be Setup List* IE is included and the gNB-CU has not previously sent it. The gNB-DU shall store and use the received *gNB-DU UE Aggregate Maximum Bit Rate Uplink* IE.

If the *RLC Status IE* is included in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall assume that RLC has been reestablished at the gNB-DU and may trigger PDCP data recovery.

If the *GNB-DU Configuration Query* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, gNB-DU shall include the *DU To CU RRC Information* IE in the UE CONTEXT MODIFICATION RESPONSE message.

If the *Bearer Type Change* IE is included in *DRB to Be Modified List* IE in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall either reset the lower layers or generate a new LCID for the affected bearer as specified in TS 37.340 [7].

For NE-DC operation, if *NeedforGap* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall generate measurement gap for the SeNB.

If the *QoS Flow Mapping Indication* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, replace any previously received value and take it into account that only the uplink or downlink QoS flow is mapped to the DRB.

If the *Lower Layer presence status change* IE set to "suspend lower layers" is included in the UE CONTEXT MODIFICATION REQUEST, the gNB-DU shall keep all lower layer configuration for UEs, and not transmit or receive data from UE.

If the *Lower Layer presence status change* IE set to "resume lower layers" is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall use the previously stored lower layer configuration for the UE.

If the *Full Configuration* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall generate a *CellGroupConfig* IE using full configuration and include it in the UE CONTEXT MODIFICATION RESPONSE.

If the *Full Configuration* IE is contained in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall consider that the gNB-DU has generated the *CellGroupConfig* IE using full configuration.

For each QoS flow whose DRB has been successfully established or modified and the *QoS Monitoring Request* IE was included in the *QoS Flow Level QoS Parameters* IE contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall store this information, and, if supported, perform delay measurement and QoS monitoring, as specified in TS 23.501 [21].

If the *NR V2X Services Authorized* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, update its V2X services authorization information for the UE accordingly. If the *NR V2X Services Authorized* IE includes one or more IEs set to "not authorized", the gNB-DU shall, if supported, initiate actions to ensure that the UE is no longer accessing the relevant service(s).

If the *LTE V2X Services Authorized* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, update its V2X services authorization information for the UE accordingly. If the *LTE V2X Services Authorized* IE includes one or more IEs set to "not authorized", the gNB-DU shall, if supported, initiate actions to ensure that the UE is no longer accessing the relevant service(s).

If the *LTE UE Sidelink Aggregate Maximum Bit Rate* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported:

- replace the previously provided UE LTE Sidelink Aggregate Maximum Bit Rate, if available in the UE context, with the received value;
- use the received value for the concerned UE's sidelink communication in network scheduled mode for LTE V2X services.

If the *NR UE Sidelink Aggregate Maximum Bit Rate* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported:

- replace the previously provided UE NR Sidelink Aggregate Maximum Bit Rate, if available in the UE context, with the received value;
- use the received value for the concerned UE's sidelink communication in network scheduled mode for NR V2X services.

If the *NR A2X Services Authorized* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, update its A2X services authorization information for the UE accordingly. If the *NR A2X Services Authorized* IE includes one or more IEs set to "not authorized", the gNB-DU shall, if supported, initiate actions to ensure that the UE is no longer accessing the relevant service(s).

If the *LTE A2X Services Authorized* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, update its A2X services authorization information for the UE accordingly. If the *LTE A2X Services Authorized* IE includes one or more IEs set to "not authorized", the gNB-DU shall, if supported, initiate actions to ensure that the UE is no longer accessing the relevant service(s).

If the *LTE UE Sidelink Aggregate Maximum Bit Rate for A2X* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported:

- replace the previously provided UE LTE Sidelink Aggregate Maximum Bit Rate for A2X, if available in the UE context, with the received value;
- use the received value for the concerned UE's sidelink communication in network scheduled mode for LTE A2X services.

If the *NR UE Sidelink Aggregate Maximum Bit Rate for A2X* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported:

- replace the previously provided UE NR Sidelink Aggregate Maximum Bit Rate for A2X, if available in the UE context, with the received value;
- use the received value for the concerned UE's sidelink communication in network scheduled mode for NR A2X services.

If the *PC5 Link Aggregate Maximum Bit Rate* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported:

- replace the previously provided UE PC5 Link Aggregate Bit Rate, if available in the UE context, with the received value;
- use the received value for the concerned UE's sidelink communication in network scheduled mode for NR V2X services as defined in TS 23.287 [40].

If the *TSC Traffic Characteristics* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, take into account the corresponding information received in the *TSC Traffic Characteristics* IE. If the *RAN Feedback Type* IE is included in the *TSC Assistance Information Uplink* IE of the *TSC Traffic Characteristics* IE, the gNB-DU shall, if supported, take this information into account when determining the feedback to provide in the *TSC Traffic Characteristics Feedback* IE in the UE CONTEXT MODIFICATION RESPONSE message.

If the *CPAC MCG Information* IE is included in the UE CONTEXT MODIFICATION REQUEST message and the CPAC Trigger is set to:

- "CPAC-preparation": the gNB-DU shall, if supported, consider that the request concerns a conditional PSCell addition or conditional PSCell change or subsequent CPAC. The gNB-DU takes the included *CG-Config* and/or *CG-ConfigInfo* IE into account, and may provide a corresponding *CellGroupConfig* IE for MCG configuration preparation in the UE CONTEXT MODIFICATION RESPONSE message. The UE CONTEXT MODIFICATION RESPONSE message also includes a *Requested Target Cell ID* IE corresponding to the *PSCell ID* IE in the UE CONTEXT MODIFICATION REQUEST message.
- "CPAC-executed": the gNB-DU shall, if supported, consider that, for the included *PSCell ID* IE corresponding to the selected PSCell, the UE has successfully executed the CPAC preparation. The gNB-DU shall apply the corresponding *CellGroupConfig* IE for MCG configuration.

- "CPAC-cancel": the gNB-DU shall, if supported, consider that the gNB-CU is about to release the prepared MCG configuration(s) corresponding to the PSCell(s) identified by the included NR CGI(s) in the *Candidate PSCells To Be Cancelled List IE*.

If the *Conditional Intra-DU Mobility Information IE* is included in the UE CONTEXT MODIFICATION REQUEST message and the CHO Trigger is set to "CHO-initiation", the gNB-DU shall consider that the request concerns a conditional handover, conditional PSCell addition, conditional PSCell change, or subsequent CPAC for the included *SpCell ID IE* and shall include it as the *Requested Target Cell ID IE* in the UE CONTEXT MODIFICATION RESPONSE message. The gNB-DU shall regard it as a reconfiguration with sync as defined in TS 38.331 [8].

If the *Conditional Intra-DU Mobility Information IE* is included in the UE CONTEXT MODIFICATION REQUEST message and the CHO Trigger is set to "CHO-replace", the gNB-DU shall replace the existing prepared conditional mobility identified by the *gNB-DU UE F1AP ID IE* and the *SpCell ID IE*.

If the *Conditional Intra-DU Mobility Information IE* is included in the UE CONTEXT MODIFICATION REQUEST message and the CHO Trigger is set to "CHO-cancel", the gNB-DU shall consider that the gNB-CU is about to remove any reference to, and release any resources previously reserved for the cells identified by the included NR CGIs in the *Candidate Cells To Be Cancelled List IE*.

If the *S-CPAC Request IE* is included within the *Conditional Intra-DU Mobility Information IE* in the UE CONTEXT MODIFICATION REQUEST message and is set to "initiation", the gNB-DU shall, if supported, consider that the procedure is triggered for S-CPAC preparation.

If the *Transmission Stop Indicator IE* is included within the *DRB to Be Modified Item IE* in the UE CONTEXT MODIFICATION REQUEST message and set to "true", the gNB-DU shall, if supported, stop the data transmission for the DRB. It is up to gNB-DU implementation when to stop the UE scheduling for that DRB.

If the *SCG Indicator IE* is contained in the UE CONTEXT MODIFICATION REQUEST message and it is set to "released", the gNB-DU shall, if supported, deduce that an SCG is removed.

If the *Estimated Arrival Probability IE* is contained in the *Conditional Intra-DU Mobility Information IE* included in the UE CONTEXT MODIFICATION REQUEST message, then the gNB-DU may use the information to allocate necessary resources for the UE.

If the *Location Measurement Information IE* is included in the *CU to DU RRC Information IE* in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, take it into account when configuring measurement gaps for the UE.

If the *F1-C Transfer Path NRDC IE* is included in UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, take it into account.

If for a given E-RAB for EN-DC operation the *ENB DL Transport Layer Address IE* is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, use it as part of its ACL functionality configuration actions, if such ACL functionality is deployed.

If for a given Qos flow for NG-RAN operation the *PDCP Terminating Node DL Transport Layer Address IE* is included in the UE CONTEXT MODIFICATION REQUEST message, then the gNB-DU shall, if supported, use it as part of its ACL functionality configuration actions, if such ACL functionality is deployed.

If the gNB-DU is an IAB-DU, and if the *IAB Conditional RRC Message Delivery Indication IE* is included in the UE CONTEXT MODIFICATION REQUEST message together with the *RRC-Container IE*, and if its value is set to "true", and if the *RRC-Container IE* is for a child IAB-MT of the gNB-DU, the gNB-DU shall, if supported, withhold the RRC message until one of the following conditions is met:

If the gNB-DU belongs to a migrating IAB-node, whose co-located IAB-MT has successfully performed the random-access procedure to the target parent node, and if the migrating IAB-node has one or more routing entries for the target path.

The gNB-DU receives a subsequent F1AP message including an *RRC-Container IE* for the same child node.

If the gNB-DU belongs to a descendant node of the migrating IAB-node, whose co-located IAB-MT has received an *RRCReconfiguration* message including the intra-donor migration configurations, e.g., new TNL address(es) and the new default UL BAP routing ID.

If the gNB-DU belongs to a migrating IAB-node, whose co-located IAB-MT has successfully performed RLF recovery after handover failure, and if the migrating IAB-node has one or more routing entries for the target path.

If the *MDT Polluted Measurement Indicator* IE is included in the UE CONTEXT MODIFICATION REQUEST, the gNB-DU shall take this information into account as specified in TS 38.401 [4].

If the *SCG Activation Request* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU may use it to configure SCG resources as specified in TS 37.340 [7], and if supported, shall include the *SCG Activation Status* IE in the UE CONTEXT MODIFICATION RESPONSE message.

If the *CG-SDT Query Indication* IE is included in the UE CONTEXT MODIFICATION REQUEST message and set to 'true', the gNB-DU shall, if supported, provide the CG-SDT related resource configuration for the bearers indicated as SDT bearers in the *SDT-MAC-PHY-CG-Config* IE within the *DU to CU RRC Information* IE contained in the UE CONTEXT MODIFICATION RESPONSE message to the gNB-CU. If the *SDT-MAC-PHY-CG-Config* IE is also included in the UE CONTEXT MODIFICATION REQUEST message within the *CU to DU RRC Information* IE, the gNB-DU may provide the delta signalling version of the *SDT-MAC-PHY-CG-Config* IE within the *DU to CU RRC Information* IE contained in the UE CONTEXT MODIFICATION RESPONSE message to the gNB-CU.

If the *5G ProSe Authorized* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, update its 5G ProSe services authorization information for the UE accordingly. If the *5G ProSe Authorized* IE includes one or more IEs set to "not authorized", the gNB-DU shall, if supported, initiate actions to ensure that the UE is no longer accessing the relevant service(s).

If the *SDT Bearer Configuration Query Indication* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, provide the RLC bearer configuration in the *SDT Bearer Configuration Info* IE in the UE CONTEXT MODIFICATION RESPONSE message for each bearer indicated as SDT bearer.

If the *5G ProSe UE PC5 Aggregate Maximum Bit Rate* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported:

- replace the previously provided 5G ProSe UE PC5 Aggregate Maximum Bit Rate, if available in the UE context, with the received value;
- use the received value for the concerned UE's sidelink communication in network scheduled mode for 5G ProSe services.

If the *5G ProSe PC5 Link Aggregate Bit Rate* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported:

- replace the previously provided 5G ProSe PC5 Link Aggregate Bit Rate, if available in the UE context, with the received value;
- use the received value for the concerned UE's sidelink communication in network scheduled mode for 5G ProSe services as defined in TS 23.304 [44].

If the *Updated Remote UE Local ID* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, replace the previously provided Remote UE Local ID, if available in the UE context, with the received value.

If the *Uu RLC Channel To Be Setup List* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, act as specified in TS 38.401 [4].

If the *Uu RLC Channel To Be Modified List* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, act as specified in TS 38.401 [4].

If the *Uu RLC Channel To Be Release List* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, release the Uu Relay RLC channels in the list.

If the *PC5 RLC Channel To Be Setup List* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, act as specified in TS 38.401 [4]. gNB-DU generates the PC5 Relay RLC channel configurations for a L2 U2N Remote UE, U2N Relay UE, a L2 U2U Remote UE or a L2 U2U Relay UE. If the F1AP-IDs are associated with a U2N Relay UE, the *PC5 RLC Channel to be Setup Item IEs* IE shall include the *Remote UE Local ID* and correspondingly, the *PC5 RLC Channel Setup Item IEs* IE and the *PC5 RLC Channel Failed to be Setup Item* IE in the UE CONTEXT MODIFICATION RESPONSE message shall include the *Remote UE Local ID* IE.

If the *PC5 RLC Channel To Be Modified List* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, act as specified in TS 38.401 [4]. gNB-DU generates the PC5 Relay RLC channel configurations for a L2 U2N Remote UE, U2N Relay UE, a L2 U2U Remote UE or a L2 U2U Relay UE. If the F1AP-IDs are associated with a U2N Relay UE, the *PC5 RLC Channel to be Modified Item IEs* IE shall include the *Remote UE Local ID* IE and correspondingly, the *PC5 RLC Channel Modified Item IEs* IE and the *PC5 RLC Channel Failed to be Modified Item IEs* IE in the UE CONTEXT MODIFICATION RESPONSE message shall include the *Remote UE Local ID* IE.

If the *PC5 RLC Channel To Be Release List* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, release the PC5 Relay RLC channels in the list. If the F1AP-IDs are associated with a U2N Relay UE, the *PC5 RLC Channel to be Released Item IEs* IE shall include the *Remote UE Local ID* IE.

If the *Path Switch Configuration* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, use it to configure the path switch from direct path to indirect path as specified in TS 38.401 [4] or from indirect path to indirect path as specified in TS 38.331 [8], or to release the direct path during the MP as specified in TS 38.331 [8].

If the *MUSIM-GapConfig* IE is contained in the *CU to DU RRC Information* IE included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, decide to use this IE for MUSIM gap configuration or select another one based on the received *UEAssistanceInformation* IE. If gNB-DU selects a different MUSIM gap configuration from received *UEAssistanceInformation* IE, then it shall include the selected MUSIM gap information to the gNB-CU in the *MUSIM-GapConfig* IE of the *DU to CU RRC Information* IE that is included in the UE CONTEXT MODIFICATION RESPONSE message.

If *MUSIM-GapConfig* IE is not contained in the *CU to DU RRC Information* IE, then gNB-DU shall, if supported, send the selected MUSIM gap configuration based on the received *UEAssistanceInformation* IE, to the gNB-CU in the *MUSIM-GapConfig* IE of the *DU to CU RRC Information* IE that is included in the UE CONTEXT MODIFICATION RESPONSE message. When *MUSIM-GapConfig* IE is received, the gNB-CU should use this value.

If the *gNB-DU UE Slice Maximum Bit Rate List* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported,

- store and replace the previously provided gNB-DU UE Slice Maximum Bit Rate List, if any, with the new received *gNB-DU UE Slice Maximum Bit Rate List*;
- use the received *gNB-DU UE Slice Maximum Bit Rate List* for the uplink traffic policing for each concerned slice as specified in TS 23.501 [21].

If the *Multicast MBS Session Setup List* IE or the *Multicast MBS Session Remove List* IE or both IEs are contained in the UE CONTEXT MODIFICATION REQUEST message the gNB-DU shall, if supported, store and use the information for configuring MBS Session Resources, if applicable.

If the *UE Multicast MRB To Be Setup at Modify List* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, take it into account for configuring MBS Session Resources, if applicable, and shall include the *Multicast F1-U Context Reference CU* IE, if available, in the UE CONTEXT MODIFICATION RESPONSE message. And if the *MBS PTP Retransmission Tunnel Required* IE is included in the *UE Multicast MRB to Be Setup at Modify Item IEs* IE, the gNB-DU shall, if supported trigger the establishment of the MBS PTP Retransmission F1-U tunnel.

If the *MBS PTP Forwarding Tunnel Required Information* IE is included in the *UE Multicast MRB to Be Setup at Modify Item IEs* IE, the gNB-DU shall, if supported trigger the establishment of the MBS PTP Forwarding F1-U tunnel.

If the *Management Based MDT PLMN Modification List* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, overwrite any previously stored Management Based MDT PLMN List information in the UE context and use the received information to determine subsequent selection of the UE for management based MDT defined in TS 32.422 [29].

If the *Dedicated SI Delivery Indication* IE is included in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall, if supported, take it into account for the system information delivery to the UE as described in TS 38.331 [8].

If the *PDU Set QoS Parameters* IE is included in the *QoS Flow Level QoS Parameters* IE contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, store this information and use it as specified in TS 23.501 [21].

If the *ECN Marking or Congestion Information Reporting Request* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, use it accordingly for the specific DRB. If the *ECN Marking or Congestion Information Reporting Status* IE is included in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall, if supported, use it to deduce if ECN marking or congestion information reporting is active or not active.

If the *InterFrequencyConfig-NoGap* IE is included in the *DU to CU RRC Information* IE contained in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall, if supported, use it as described in TS 38.331 [8].

If the *ul-GapFR2-Config* IE is contained in the *DU to CU RRC Information* IE that is included in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall, if supported, use it as described in TS 38.331 [8].

If the *TwoPHRModeMCG* IE or the *TwoPHRModeSCG* IE is contained in the *DU to CU RRC Information* IE that is included in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall, if supported, use this value as described in TS 38.331 [8].

If the *MBSInterestIndication* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, take it into account when configuring resources for the UE.

If the *ncd-SSB-RedCapInitialBWP-SDT* IE is contained in the *DU to CU RRC Information* IE that is included in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall, if supported, use it as described in TS 38.331 [8].

If the *Network Controlled Repeater Authorized* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, update its authorization information for the UE accordingly. If the *Network Controlled Repeater Authorized* IE is set to "not authorized", the gNB-DU shall, if supported, initiate actions to ensure that the UE is no longer accessing as a Network Controlled Repeater.

If the *LTM Indicator* IE set to "true" is contained in the *LTM Information Modify* IE included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, consider that the request concerns LTM for the included *SpCell ID* IE and shall include it as the *Requested Target Cell ID* IE in the UE CONTEXT MODIFICATION RESPONSE message. The gNB-DU shall regard it as a reconfiguration with sync as defined in TS 38.331 [8]. If the gNB-DU accepts the request for LTM for that *SpCell*, the gNB-DU shall generate and include the *CellGroupConfig* IE for the accepted LTM candidate cell in the UE CONTEXT MODIFICATION RESPONSE message.

If the *Request for Lower Layer Configuration* IE set to "true" is contained within the *Reference Configuration* IE in the *LTM Information Modify* IE included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, include the *Reference Configuration Information* IE in the *LTM Configuration* IE in the UE CONTEXT MODIFICATION RESPONSE message to provide lower layer configuration for the gNB-CU to generate the LTM reference configuration.

If the *Reference Configuration Information* IE is contained within the *Reference Configuration* IE in the *LTM Information Modify* IE included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, take it into account for generating the LTM lower layer configuration.

If the *CSI Resource Configuration* IE is contained in the *LTM Information Modify* IE included in the UE CONTEXT MODIFICATION REQUEST message and the *SpCell ID* IE is also included, the gNB-DU shall, if supported, use it to generate the LTM CSI reporting configuration in the *CellGroupConfig* IE for the requested LTM candidate cell identified by the *SpCell ID* IE.

If the *CSI Resource Configuration* IE is contained in the *LTM Information Modify* IE included in the UE CONTEXT MODIFICATION REQUEST message while the *SpCell ID* IE is absent, the gNB-DU shall, if supported, use it to generate the LTM CSI reporting configuration in the *CellGroupConfig* IE for the serving cell.

If the *LTM Configuration ID Mapping List* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, consider this as the mapping information for the LTM candidate cell(s).

If the *Early Sync Information Request* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, include *Early Sync Information* IE of the accepted candidate cell for early TA acquisition

(early UL synchronisation) in the UE CONTEXT MODIFICATION RESPONSE message. If the *Early UL Sync Configuration* IE is included in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall, if supported, consider it as the generated early UL sync information from the accepted candidate cell in the gNB-DU. If the *Early UL Sync Configuration for SUL* IE is included in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall, if supported, consider it as the generated early UL sync information for SUL from the accepted candidate cell in the gNB-DU.

If the *Early Sync Candidate Cell Information List* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, use it as specified in TS 38.401 [4]. If the *UE Based TA Measurement Configuration* IE is contained in the *Early Sync Candidate Cell Information List* IE for some candidate cell, the gNB-DU shall, if supported, take them into account for UE based TA measurement during LTM cell switch as specified in TS 38.331 [8].

If the *Early Sync Serving Cell Information* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, use it as specified in TS 38.401 [4]. If the *UE Based TA Measurement Configuration* IE is contained in the *Early Sync Serving Cell Information* IE, the gNB-DU shall, if supported, take it into account for UE based TA measurement during LTM cell switch as specified in TS 38.331 [8].

If the *LTM CFRA Resource Config List* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, use it for the LTM cell switch command as specified in TS 38.321 [16].

If the *LTM Configuration* IE is included in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall, if supported, consider it as the generated configuration for LTM from the accepted candidate cell in the gNB-DU.

If the *LTM Cells to be Released List* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, release the configured candidate cells in the list.

If the *LTM Reset Information* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, take them into account for L2 reset (i.e., RLC re-establishment) during an intra-DU LTM cell switch as specified in TS38.331 [8].

If the *Complete Candidate Configuration Indicator* IE set to "complete" is contained in the *LTM Configuration* IE included in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall, if supported, consider that the LTM candidate configuration is a complete candidate configuration.

If the *Direct Path Addition* IE is contained in the *Path Addition Information* IE which is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, consider that the request concerns the direct path addition for the included *SpCell ID* IE as specified in TS 38.401 [4] and regard it as a reconfiguration with sync as defined in TS 38.331 [8]. If the *Indirect Path Addition* IE is contained in the *Path Addition Information* IE, the gNB-DU shall, if supported, consider that the request concerns the indirect path addition for the MP Remote UE using PC5 link and use it as specified in TS 38.401 [4]. If the *N3C Indirect Path Addition* IE is contained in the *Path Addition Information* IE, the gNB-DU shall, if supported, consider that the request concerns the indirect path addition for the MP Remote UE using N3C and use it as specified in TS 38.401 [4].

If the *S-NSSAI* IE is included within the *DRB to Be Modified Item* IE in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, store the corresponding information and replace any existing information.

If the *S-CPAC Lower Layer Reference Config Request* IE set to "true" is contained in the *Conditional Intra-DU Mobility Information* IE included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, provide the lower layer configuration in the *Reference Configuration Information* IE in the *S-CPAC Configuration* IE in the UE CONTEXT MODIFICATION RESPONSE message for the gNB-CU to generate the S-CPAC reference configuration.

If the *Complete Candidate Configuration Indicator* IE set to "complete" is contained in the *S-CPAC Configuration* IE included in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall, if supported, consider that the S-CPAC candidate configuration is a complete candidate configuration.

If the *musim-CandidateBandList* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, use it for temporary capability restriction.

If the *DL LBT Failure Information Request* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, consider that the gNB-CU requests collection of DL LBT failure information for the analysis of the MRO events of the UE specified in TS 38.300 [6], , and act as specified in TS 38.401 [4].

If the *Ranging and Sidelink Positioning Service Information* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, update its service information for the UE accordingly. If the *Ranging and Sidelink Positioning Authorized* IE within the *Ranging and Sidelink Positioning Service Information* IE is set to "not authorized", the gNB-DU shall, if supported, initiate actions to ensure that the UE is no longer accessing the Ranging and Sidelink Positioning service.

#### Interaction with UE Inactivity Notification procedure

If the *SDT Volume Threshold* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, use the information during an SDT transaction to inform the gNB-CU via the UE INACTIVITY NOTIFICATION message as specified in TS 38.401 [4].

#### Interaction with UE Context Setup or UE Context Modification (gNB-CU initiated) procedures

If the UE CONTEXT MODIFICATION REQUEST message is sent for a UE context set up for S-CPAC and contains the *Transmission Action Indicator* IE set to "stop", the gNB-DU shall, if supported, reset the UE context for the included *SpCell ID* IE, prepare for subsequent CPAC. The gNB-DU shall include the *SpCell ID* IE as the *Requested Target Cell ID* IE in the UE CONTEXT MODIFICATION RESPONSE message.

### 8.3.4.3 Unsuccessful Operation

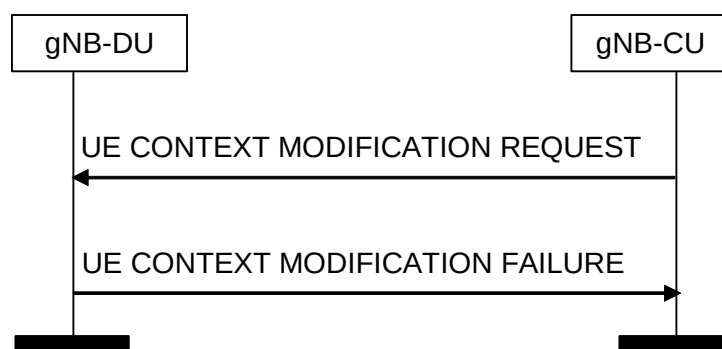


**Figure 8.3.4.3-1: UE Context Modification procedure. Unsuccessful operation**

In case none of the requested modifications of the UE context can be successfully performed, the gNB-DU shall respond with the UE CONTEXT MODIFICATION FAILURE message with an appropriate cause value. If the *Conditional Intra-DU Mobility Information* IE was included in the UE CONTEXT MODIFICATION REQUEST message and set to "CHO-initiation", the gNB-DU shall include the received *SpCell ID* IE as the *Requested Target Cell ID* IE in the UE CONTEXT MODIFICATION FAILURE message.

If the gNB-DU is not able to accept the *SpCell ID* IE in UE CONTEXT MODIFICATION REQUEST message, it shall reply with the UE CONTEXT MODIFICATION FAILURE message.

If the *Conditional Intra-DU Mobility Information* IE was included and set to "CHO-initiation" or "CHO-replace", but the *SpCell ID* IE was not included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall respond with the UE CONTEXT MODIFICATION FAILURE message with an appropriate cause value.

If the *LTM Information Modify* IE was included, but the *SpCell ID* IE and the *CSI Resource Configuration* IE were not included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall respond with the UE CONTEXT MODIFICATION FAILURE message with an appropriate cause value.

If the gNB-DU is not able to accept the UE CONTEXT MODIFICATION REQUEST message for mobility because an LTM command has been triggered to the UE, it shall reply with the UE CONTEXT MODIFICATION FAILURE message with an appropriate cause value.

### 8.3.4.4 Abnormal Conditions

If the gNB-DU receives a UE CONTEXT MODIFICATION REQUEST message containing a *E-UTRAN QoS* IE for a GBR QoS DRB but where the *GBR QoS Information* IE is not present, the gNB-DU shall report the establishment of the corresponding DRB as failed in the *DRB Failed to Setup List* IE of the UE CONTEXT MODIFICATION RESPONSE message with an appropriate cause value.



If the gNB-DU receives a UE CONTEXT MODIFICATION REQUEST message containing a *DRB QoS IE* for a GBR QoS DRB but where the *GBR QoS Flow Information IE* is not present, the gNB-DU shall report the establishment of the corresponding DRBs as failed in the *DRB Failed to Setup List IE* of the UE CONTEXT MODIFICATION RESPONSE message with an appropriate cause value.

If the *Delay Critical IE* is included in the *Dynamic 5QI Descriptor IE* within the *DRB QoS IE* in the UE CONTEXT MODIFICATION REQUEST message and is set to the value "delay critical" but the *Maximum Data Burst Volume IE* is not present, the gNB-DU shall report the establishment of the corresponding DRB as failed in the *DRB Failed to Setup List IE* of the of the UE CONTEXT MODIFICATION RESPONSE message with an appropriate cause value.

If one or more candidate cells in the *Candidate Cells To Be Cancelled List IE* included in the UE CONTEXT MODIFICATION REQUEST message were not prepared using the same UE-associated signaling connection, the gNB-DU shall ignore those non-associated candidate cells.

If more than one of the following IEs, i.e., the *Uplink TxDirectCurrentList Information IE* or the *Uplink TxDirectCurrentTwoCarrierList Information IE* or the *Uplink TxDirectCurrentMoreCarrierList Information IE* is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall consider it as a logical error.

If one or more LTM cells in the *LTM Cells To Be Released List IE* included in the UE CONTEXT MODIFICATION REQUEST message were not prepared using the same UE-associated signaling connection, the gNB-DU shall ignore those non-associated LTM cells.

## 8.3.5 UE Context Modification Required (gNB-DU initiated)

### 8.3.5.1 General

The purpose of the UE Context Modification Required procedure is to modify the established UE Context, e.g., modifying and releasing radio bearer resources, or sidelink radio bearer resources or candidate cells in conditional handover, conditional PSCell addition, conditional PSCell change, or subsequent CPAC. The procedure uses UE-associated signalling.

### 8.3.5.2 Successful Operation

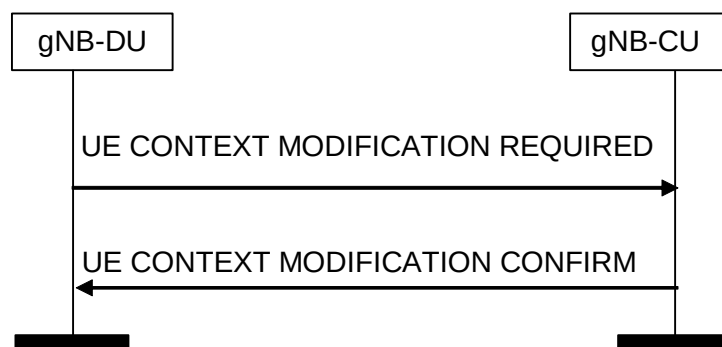


**Figure 8.3.5.2-1: UE Context Modification Required procedure. Successful operation**

The F1AP UE CONTEXT MODIFICATION REQUIRED message is initiated by the gNB-DU.

The gNB-CU reports the successful update of the UE context in the UE CONTEXT MODIFICATION CONFIRM message.

For a given bearer for which PDCP CA duplication or multi-path relay based duplication was already configured, if two *DL UP TNL Information IEs* are included in UE CONTEXT MODIFICATION REQUIRED message for a DRB, the gNB-CU shall include two *UL UP TNL Information IEs* in UE CONTEXT MODIFICATION CONFIRM message. The gNB-CU and gNB-DU use the *UL UP TNL Information IEs* and *DL UP TNL Information IEs* to support packet duplication for intra-gNB-DU CA and multi-path relay as defined in TS 38.470 [2], and the first *UP TNL Information IE* is still for the primary path.

For a given bearer for which PDCP CA duplication or multi-path relay based duplication was already configured, if one or two *Additional PDCP Duplication UP TNL Information IEs* are included in the UE CONTEXT MODIFICATION REQUIRED message for a DRB, the gNB-CU shall, if supported, include one or two *Additional PDCP Duplication UP*

*TNL Information* IEs in the UE CONTEXT MODIFICATION CONFIRM message. The gNB-CU and gNB-DU use the *Additional PDCP Duplication UP TNL Information* IEs to support packet duplication for intra-gNB-DU CA and multi-path relay as defined in TS 38.470 [2].

If the *BH Information* IE is included in the *UL UP TNL Information to be setup List* IE or the *Additional PDCP Duplication TNL List* IE for a DRB, the gNB-DU shall, if supported, use the indicated BAP Routing ID and BH RLC channel for transmission of the corresponding GTP-U packets to the IAB-donor, as specified in TS 38.340 [30].

If the *Resource Coordination Transfer Container* IE is included in the UE CONTEXT MODIFICATION REQUIRED, the gNB-CU shall transparently transfer this information for the purpose of resource coordination as described in TS 36.423 [9], TS 38.423 [28].

For EN-DC operation, if the gNB-CU includes the *Resource Coordination Transfer Information* IE in the UE CONTEXT MODIFICATION CONFIRM message, the gNB-DU shall, if supported, use it for the purpose of resource coordination. If the gNB-CU received the MeNB Resource Coordination Information as defined in TS 36.423 [9], after completion of UE Context Modification Required procedures, the gNB-CU shall transparently transfer it to the gNB-DU via the *Resource Coordination Transfer Container* IE in the UE CONTEXT MODIFICATION CONFIRM message. The gNB-DU shall use the information received in the *Resource Coordination Transfer Container* IE for reception of MeNB Resource Coordination Information at the gNB acting as secondary node as described in TS 36.423 [9]. If the *Resource Coordination E-UTRA Cell Information* IE is included in the *Resource Coordination Transfer Information* IE, the gNB-DU shall store the information replacing previously received information for the same E-UTRA cell, and use the stored information for the purpose of resource coordination. If the *Ignore PRACH Configuration* IE is present and set to "true" the *E-UTRA PRACH Configuration* IE in the UE CONTEXT MODIFICATION CONFIRM message shall be ignored.

For NGEN-DC or NE-DC operation, if the gNB-CU includes the *Resource Coordination Transfer Information* IE in the UE CONTEXT MODIFICATION CONFIRM message, the gNB-DU shall, if supported, use it for the purpose of resource coordination. If the gNB-CU received the MR-DC Resource Coordination Information as defined in TS 38.423 [28], after completion of UE Context Modification Required procedures, the gNB-CU shall transparently transfer it to the gNB-DU via the *Resource Coordination Transfer Container* IE in the UE CONTEXT MODIFICATION CONFIRM message. The gNB-DU shall use the information received in the *Resource Coordination Transfer Container* IE for reception of MR-DC Resource Coordination Information at the gNB as described in TS 38.423 [28].

If the *DU to CU RRC Information* IE is included in the UE CONTEXT MODIFICATION REQUIRED message, the gNB-CU shall perform RRC Reconfiguration as described in TS 38.331 [8]. The *CellGroupConfig* IE shall transparently be signaled to the UE as specified in TS 38.331 [8].

If the *ServCellInfoList* IE is included in the *DU to CU RRC Information* IE contained in the UE CONTEXT MODIFICATION REQUIRED message, the gNB-CU shall take it into account to generate the content of inter-node message, i.e., *CG-Config* or *CG-ConfigInfo*, as described in TS 38.331 [8].

If the UE CONTEXT MODIFICATION CONFIRM message includes the *Execute Duplication* IE, the gNB-DU shall perform CA based duplication or multi-path relay based duplication, if configured, for the SRB for the included *RRC-Container* IE.

If the UE CONTEXT MODIFICATION REQUIRED message contains the *RLC Status* IE, the gNB-CU shall assume that RLC has been reestablished at the gNB-DU and may trigger PDCP data recovery.

If the *Candidate Cells To Be Cancelled List* IE is included in the UE CONTEXT MODIFICATION REQUIRED message, the gNB-CU shall consider that only the resources reserved for the candidate cells identified by the included NR CGIs and associated to the UE-associated signaling identified by the *gNB-CU UE F1AP ID* IE and the *gNB-CU UE F1AP ID* IE are about to be released by the gNB-DU.

If the *PC5 RLC Channel Required to be Modified List* IE or the *PC5 RLC Channel Required to be Released List* IE is included in the UE CONTEXT MODIFICATION REQUIRED message and the F1AP-IDs is associated with a U2N Relay UE, the *PC5 RLC Channel Required to be Modified List* IE or the *PC5 RLC Channel Required to be Released List* shall include the *Remote UE Local ID* and correspondingly, the *PC5 RLC Channel Modified Item IEs* in the UE CONTEXT MODIFICATION CONFIRM message shall include the *Remote UE Local ID* IE.

If the *UE Multicast MRB Required to Be Modified List* IE is included in the UE CONTEXT MODIFICATION REQUIRED message

- containing for an MRB the *MRB type reconfiguration* IE set to "true" the gNB-CU shall take the *MRB Reconfigured RLC mode* IE into account to reconfigure the UE and to decide whether to request a PDCP status

report as specified in TS 38.300 [6] and include the *MBS PTP Retransmission Tunnel Required* IE in the *UE Multicast MRB Confirmed to Be Modified Item IEs* IE.

- containing for an MRB the *Multicast F1-U Context Reference CU* IE the gNB-CU shall, if supported, replace previously provided information by the newly received and take it into account when retrieving MRB progress information.

If the *LTM Cells To Be Released List* IE is included in the UE CONTEXT MODIFICATION REQUIRED message, the gNB-CU shall, if supported, consider that the configured candidate cells in the list are about to be released by the gNB-DU.

#### Interaction with the Multicast Distribution Setup procedure:

If the UE CONTEXT MODIFICATION CONFIRM message contains for an MRB the *MBS PTP Retransmission Tunnel Required* IE in the *UE Multicast MRB Confirmed to Be Modified Item IEs* IE the gNB-DU shall, if supported, trigger the Multicast Distribution Setup procedure to setup requested F1-U resources, if applicable.

### 8.3.5.2A Unsuccessful Operation

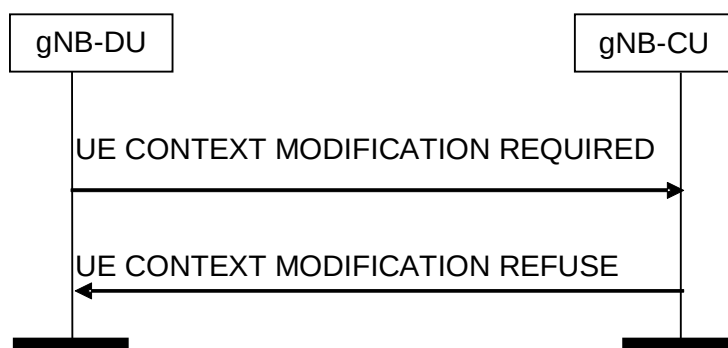


**Figure 8.3.5.2A-1: UE Context Modification Required procedure. Unsuccessful operation.**

In case none of the requested modifications of the UE context can be successfully performed, the gNB-CU shall respond with the UE CONTEXT MODIFICATION REFUSE message with an appropriate cause value.

### 8.3.5.3 Abnormal Conditions

If one or more candidate cells in the *Candidate Cells To Be Cancelled List* IE included in the UE CONTEXT MODIFICATION REQUIRED message were not prepared using the same UE-associated signaling connection, the gNB-CU shall ignore those non-associated candidate cells.

If one or more LTM cells in the *LTM Cells To Be Released List* IE included in the UE CONTEXT MODIFICATION REQUIRED message were not prepared using the same UE-associated signaling connection, the gNB-CU shall ignore those non-associated LTM cells.

## 8.3.6 UE Inactivity Notification

### 8.3.6.1 General

This procedure is initiated by the gNB-DU to indicate the UE activity event.

The procedure is also used to request the termination of SDT session.

The procedure uses UE-associated signalling.

### 8.3.6.2 Successful Operation



**Figure 8.3.6.2-1: UE Inactivity Notification procedure.**

The gNB-DU initiates the procedure by sending the UE INACTIVITY NOTIFICATION message to the gNB-CU.

If the *DRB ID* IE is included in the *DRB Activity Item* IE in the UE INACTIVITY NOTIFICATION message, the *DRB Activity* IE shall also be included

If the gNB-CU receives the *SDT Termination Request* IE in the UE INACTIVITY NOTIFICATION message, the gNB-CU shall, if supported, consider that the termination of the ongoing SDT transaction is requested from the gNB-DU for this UE and act as specified in TS 38.300 [6].

### 8.3.6.3 Abnormal Conditions

Not applicable.

## 8.3.7 Notify

### 8.3.7.1 General

The purpose of the Notify procedure is to enable the gNB-DU to inform the gNB-CU that the QoS of an already established GBR DRB cannot be fulfilled any longer or that it can be fulfilled again. The procedure uses UE-associated signalling.

### 8.3.7.2 Successful Operation

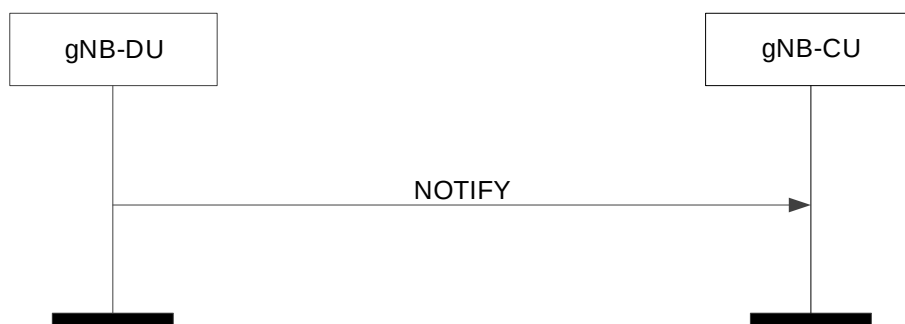


**Figure 8.3.7.2-1: Notify procedure. Successful operation.**

The gNB-DU initiates the procedure by sending a NOTIFY message.

The NOTIFY message shall contain the list of the GBR DRBs associated with notification control for which the QoS is not fulfilled anymore or for which the QoS is fulfilled again by the gNB-DU. The gNB-DU may also indicate an alternative QoS parameters set which it can currently fulfil in the *Current QoS Parameters Set Index* IE. The gNB-DU may also include the TSC feedback information in the *TSC Traffic Characteristics Feedback* IE.

Upon reception of the NOTIFY message, the gNB-CU may identify which are the affected PDU sessions and QoS flows. The gNB-CU may inform the 5GC that the QoS for these PDU sessions or QoS flows is not fulfilled any longer or it is fulfilled again.

### 8.3.7.3 Abnormal Conditions

Not applicable.

## 8.3.8 Access Success

### 8.3.8.1 General

The purpose of the Access Success procedure is to enable the gNB-DU to inform the gNB-CU of which cell the UE has successfully accessed during conditional handover, conditional PSCell addition, conditional PSCell change, LTM, or subsequent CPAC. The procedure uses UE-associated signalling.

### 8.3.8.2 Successful Operation



**Figure 8.3.8.2-1: Access Success procedure. Successful operation.**

The gNB-DU initiates the procedure by sending a ACCESS SUCCESS message.

Upon reception of the ACCESS SUCCESS message, the gNB-CU shall consider that the UE successfully accessed the cell indicated by the included *NR CGI* IE in this gNB-DU and consider all the other CHO or conditional PSCell addition or conditional PSCell change preparations accepted for this UE under the same UE-associated signaling connection in this gNB-DU as cancelled. In case of subsequent mobility, the other preparations accepted for this UE under the same UE-associated signaling connection in this gNB-DU are kept.

#### Interaction with other procedure:

The gNB-CU may initiate UE Context Release procedure toward the other signalling connections or other candidate gNB-DUs for this UE, if any.

### 8.3.8.3 Abnormal Conditions

If the ACCESS SUCCESS message refers to a context that does not exist, the gNB-CU shall ignore the message.

## 8.3.9 DU-CU Cell Switch Notification

### 8.3.9.1 General

The purpose of the DU-CU Cell Switch Notification procedure is to enable the gNB-DU to inform the gNB-CU about the initiation of the cell switch command to the UE. This procedure is also used to transfer the selected TCI state from the gNB-DU to the gNB-CU. The procedure uses UE-associated signalling.

### 8.3.9.2 Successful Operation

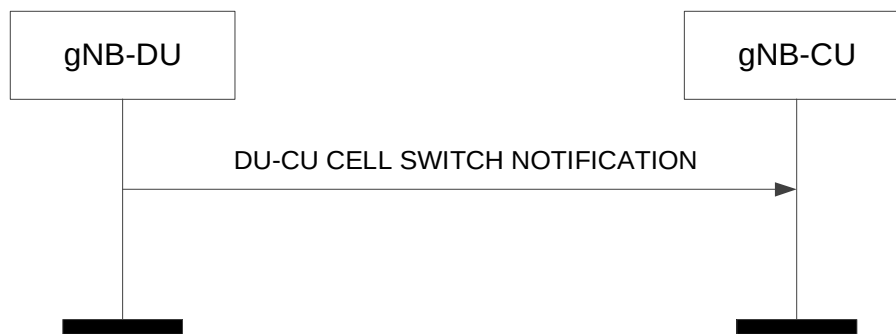


**Figure 8.3.9.2-1: DU-CU Cell Switch Notification procedure. Successful operation.**

The gNB-DU initiates the procedure by sending a DU-CU CELL SWITCH NOTIFICATION message.

Upon reception of the DU-CU CELL SWITCH NOTIFICATION message, the gNB-CU shall, if supported, consider that a cell switch command was sent to the UE where the target cell is indicated by the included *Cell ID* IE.

#### Interaction with CU-DU Cell Switch Notification procedure:

If the *LTM Cell Switch Information* IE is included in the DU-CU CELL SWITCH NOTIFICATION message, the gNB-CU shall, if supported, forward it to the target gNB-DU in the CU-DU CELL SWITCH NOTIFICATION message.

If the *TA Information List* IE is included in the DU-CU CELL SWITCH NOTIFICATION message, the gNB-CU shall, if supported, forward it to the target gNB-DU in the CU-DU CELL SWITCH NOTIFICATION message to transfer the TA value(s).

### 8.3.9.3 Unsuccessful Operation

Not applicable.

### 8.3.9.4 Abnormal Conditions

Not applicable.

## 8.3.10 CU-DU Cell Switch Notification

### 8.3.10.1 General

The purpose of the CU-DU Cell Switch Notification procedure is to enable the gNB-CU to inform the gNB-DU about the initiation of the cell switch command to the UE. This procedure is also used to transfer the selected TCI state from the gNB-CU to the gNB-DU. The procedure uses UE-associated signalling.

### 8.3.10.2 Successful Operation

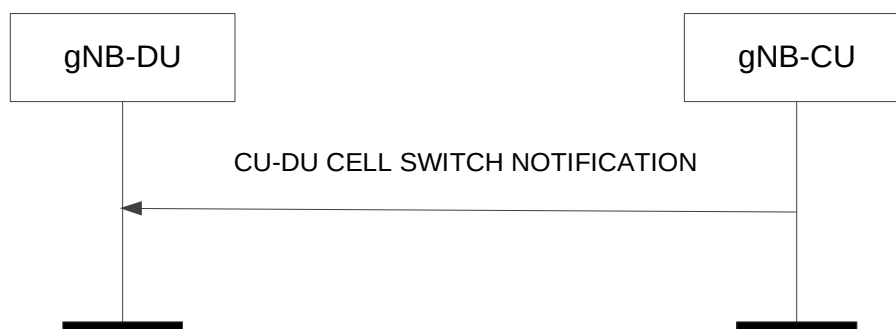


**Figure 8.3.10.2-1: CU-DU Cell Switch Notification procedure. Successful operation.**

The gNB-CU initiates the procedure by sending a CU-DU CELL SWITCH NOTIFICATION message.

Upon reception of the CU-DU CELL SWITCH NOTIFICATION message, the gNB-DU shall, if supported, consider that a cell switch command was sent to the UE where the target cell is indicated by the included *Cell ID* IE.

If the *LTM Cell Switch Information* IE is included in the CU-DU CELL SWITCH NOTIFICATION message, the gNB-DU shall, if supported, use it as specified in TS 38.401 [4].

If the *TA Information List* IE is included in the CU-DU CELL SWITCH NOTIFICATION message, the gNB-DU shall, if supported, use it as specified in TS 38.401 [4]. If the *Tag ID Pointer* IE is also included, the gNB-DU shall, if supported, consider it to determine the TAG corresponding to the received TA value.

### 8.3.10.3 Unsuccessful Operation

Not applicable.

### 8.3.10.4 Abnormal Conditions

Not applicable.

## 8.3.11 CU-DU Mobility Initiation

### 8.3.11.1 General

The purpose of the CU-DU Mobility Initiation procedure is to trigger cell switch command and/or early synchronization for the UE. The procedure uses UE-associated signalling.

### 8.3.11.2 Successful Operation



**Figure 8.3.11.2-1: CU-DU Mobility Initiation procedure. Successful operation.**

The procedure is initiated with the CU-DU MOBILITY INITIATION REQUEST message sent from the gNB-CU to the gNB-DU. Upon receipt of this message,

- if the CU-DU MOBILITY INITIATION REQUEST message indicates Mobility Trigger, the gNB-DU shall trigger LTM procedure(s) accordingly.
- if the CU-DU MOBILITY INITIATION REQUEST message indicates Assistance Information, the gNB-DU shall take this information into account for triggering LTM procedure(s).

### 8.3.11.3 Unsuccessful Operation

Not applicable.

### 8.3.11.4 Abnormal Conditions

If the *Triggering Indication* IE bitmap is set to "0" (all bits are set to "0") in the CU-DU MOBILITY INITIATION REQUEST message, the gNB-DU shall initiate an ERROR INDICATION message with an appropriate cause value.

## 8.4 RRC Message Transfer procedures

### 8.4.1 Initial UL RRC Message Transfer

#### 8.4.1.1 General

The purpose of the Initial UL RRC Message Transfer procedure is to transfer the initial RRC message to the gNB-CU. The procedure uses non-UE-associated signaling.

#### 8.4.1.2 Successful operation



**Figure 8.4.1.2-1: Initial UL RRC Message Transfer procedure.**

The gNB-DU initiates the procedure by sending an INITIAL UL RRC MESSAGE TRANSFER. The establishment of the UE-associated logical F1-connection shall be initiated as part of the procedure.

If neither the *DU to CU RRC Container IE* nor the *Sidelink Configuration Container IE* in the *Sidelink Relay Configuration IE* is included in the INITIAL UL RRC MESSAGE TRANSFER, the gNB-CU should reject the UE under the assumption that the gNB-DU is not able to serve such UE. If the gNB-DU is able to serve the UE, the gNB-DU shall include the *DU to CU RRC Container IE* or the *Sidelink Configuration Container IE* in the *Sidelink Relay Configuration IE* and the gNB-CU shall configure the UE as specified in TS 38.331 [8]. The gNB-DU shall not include the *ReconfigurationWithSync* field in the *CellGroupConfig IE* as defined in TS 38.331 [8] of the *DU to CU RRC Container IE*.

If the *SUL Access Indication IE* is included in the INITIAL UL RRC MESSAGE TRANSFER, the gNB-CU shall consider that the UE has performed access on SUL carrier.

If the *RAN UE ID IE* is contained in the INITIAL UL RRC MESSAGE TRANSFER message, the gNB-CU shall, if supported, store it and use it as specified in TS 38.401 [4].

If the *RRC-Container-RRCSetupComplete IE* is included in the INITIAL UL RRC MESSAGE TRANSFER, the gNB-CU shall take it into account as specified in TS 38.401 [4].

If the *NR RedCap UE Indication IE* is included in the INITIAL UL RRC MESSAGE TRANSFER message, the gNB-CU shall, if supported, consider that the accessing UE is a RedCap UE.

If the *NR eRedCap UE Indication IE* is included in the INITIAL UL RRC MESSAGE TRANSFER message, the gNB-CU shall, if supported, consider that the accessing UE is an eRedCap UE.

If the *SDT Information IE* is included in the INITIAL UL RRC MESSAGE TRANSFER, the gNB-CU shall, if supported, consider that the UE is accessing for SDT as defined in TS 38.300 [6], and may use the information contained in the *SDT Assistant Information IE*, if any, for context retrieval.

If the *Sidelink Relay Configuration IE* is included in the INITIAL UL RRC MESSAGE TRANSFER, the gNB-CU shall, if supported, consider that the UE is a NR ProSe Layer-2 U2N Remote UE identified by the *Remote UE Local ID IE*, and it is connected to the U2N Relay UE indicated by the *gNB-DU UE F1AP ID of Relay UE IE*.

#### 8.4.1.3 Abnormal Conditions

Not applicable.



## 8.4.2 DL RRC Message Transfer

### 8.4.2.1 General

The purpose of the DL RRC Message Transfer procedure is to transfer an RRC message. The procedure uses UE-associated signalling.

### 8.4.2.2 Successful operation



**Figure 8.4.2.2-1: DL RRC Message Transfer procedure**

The gNB-CU initiates the procedure by sending a DL RRC MESSAGE TRANSFER message. If a UE-associated logical F1-connection exists, the DL RRC MESSAGE TRANSFER message shall contain the *gNB-DU UE F1AP ID* IE, which should be used by gNB-DU to lookup the stored UE context. If no UE-associated logical F1-connection exists, the UE-associated logical F1-connection shall be established at reception of the DL RRC MESSAGE TRANSFER message.

If the *Index to RAT/Frequency Selection Priority* IE is included in the DL RRC MESSAGE TRANSFER, the gNB-DU may use it for RRM purposes. If the *Additional RRM Policy Index* IE is included in the DL RRC MESSAGE TRANSFER, the gNB-DU may use it for RRM purposes.

The DL RRC MESSAGE TRANSFER message shall include, if available, the *old gNB-DU UE F1AP ID* IE so that the gNB-DU can retrieve the existing UE context in RRC connection reestablishment procedure, as defined in TS 38.401 [4].

The DL RRC MESSAGE TRANSFER message shall include, if SRB duplication is activated, the *Execute Duplication* IE, so that the gNB-DU can perform CA based duplication or multi-path relay based duplication for the SRB.

If the gNB-DU identifies the UE-associated logical F1-connection by the *gNB-DU UE F1AP ID* IE in the DL RRC MESSAGE TRANSFER message and the *old gNB-DU UE F1AP ID* IE is included, it shall release the old gNB-DU UE F1AP ID and the related configurations associated with the old gNB-DU UE F1AP ID.

If the *UE Context not retrievable* IE set to "true" is included in the DL RRC MESSAGE TRANSFER, the DL RRC MESSAGE TRANSFER may contain the *Redirected RRC message* IE and use it as specified in TS 38.401 [4].

If the *UE Context not retrievable* IE set to "true" is included in the DL RRC MESSAGE TRANSFER, the DL RRC MESSAGE TRANSFER may contain either the *PLMN Assistance Info for Network Sharing* IE or the *PLMN Index NR Assistance Info for Network Sharing* IE, if available at the gNB-CU and may use it as specified in TS 38.401 [4].

If the DL RRC MESSAGE TRANSFER message contains the *New gNB-CU UE F1AP ID* IE, the gNB-DU shall, if supported, replace the value received in the *gNB-CU UE F1AP ID* IE by the value of the *New gNB-CU UE F1AP ID* and use it for further signalling.

If the DL RRC MESSAGE TRANSFER contains the *SRB Mapping Info* IE, the gNB-DU shall, if supported, use it for the Remote UE's SRB0 or SRB1 transfer.

#### **Interactions with UE Context Release Request procedure:**

If the *UE Context not retrievable* IE set to "true" is included in the DL RRC MESSAGE TRANSFER, the gNB-DU may trigger the UE Context Release Request procedure, as specified in TS 38.401 [4].

### 8.4.2.3 Abnormal Conditions

Not applicable.

## 8.4.3 UL RRC Message Transfer

### 8.4.3.1 General

The purpose of the UL RRC Message Transfer procedure is to transfer an RRC message as an UL PDCP-PDU to the gNB-CU. The procedure uses UE-associated signalling.

### 8.4.3.2 Successful operation



**Figure 8.4.3.2-1: UL RRC Message Transfer procedure**

The gNB-DU initiates the procedure by sending a UL RRC MESSAGE TRANSFER message. When the gNB-DU has received from the radio interface an RRC message to which a UE-associated logical F1-connection for the UE exists, the gNB-DU shall send the UL RRC MESSAGE TRANSFER message to the gNB-CU including the RRC message as a *RRC-Container* IE.

If the *Selected PLMN ID* IE is contained in the UL RRC MESSAGE TRANSFER message, the gNB-CU may use it as specified in TS 38.401 [4].

If the UL RRC MESSAGE TRANSFER message contains the *New gNB-DU UE F1AP ID* IE, the gNB-CU shall, if supported, replace the value received in the *gNB-DU UE F1AP ID* IE by the value of the *New gNB-DU UE F1AP ID* and use it for further signalling.

### 8.4.3.3 Abnormal Conditions

Not applicable.

## 8.4.4 RRC Delivery Report

### 8.4.4.1 General

The purpose of the RRC Delivery Report procedure is to transfer to the gNB-CU information about successful delivery of DL PDCP-PDUs including RRC messages. The procedure uses UE-associated signalling.

#### 8.4.4.2 Successful operation



**Figure 8.4.4.2-1: RRC Delivery Report procedure.**

The gNB-DU initiates the procedure by sending an RRC DELIVERY REPORT message. When the gNB-DU has successfully delivered an RRC message to the UE for which the gNB-CU has requested a delivery report, the gNB-DU shall send the RRC DELIVERY REPORT message to the gNB-CU containing the *RRC Delivery Status* IE and the *SRB ID* IE.

#### 8.4.4.3 Abnormal Conditions

Not applicable.

### 8.5 Warning Message Transmission Procedures

#### 8.5.1 Write-Replace Warning

##### 8.5.1.1 General

The purpose of Write-Replace Warning procedure is to start or overwrite the broadcasting of warning messages. The procedure uses non UE-associated signalling.

##### 8.5.1.2 Successful Operation

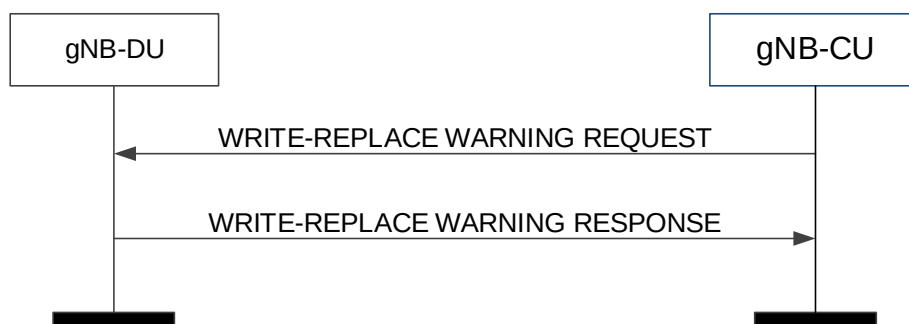


**Figure 8.5.1.2-1: Write-Replace Warning procedure: successful operation**

The gNB-CU initiates the procedure by sending a WRITE-REPLACE WARNING REQUEST message to the gNB-DU.

Upon receipt of the WRITE-REPLACE WARNING REQUEST message, the gNB-DU shall prioritise its resources to process the warning message.

The gNB-DU acknowledges the WRITE-REPLACE WARNING REQUEST message by sending a WRITE-REPLACE WARNING RESPONSE message to the gNB-CU.

Upon receipt of the WRITE-REPLACE WARNING REQUEST message, the gNB-DU shall include the *Dedicated SI Delivery Needed UE List* IE in the WRITE-REPLACE WARNING RESPONSE message for UEs that are unable to receive system information from broadcast.

If *Dedicated SI Delivery Needed UE List* IE is contained in the WRITE-REPLACE WARNING RESPONSE message, the gNB-CU should take it into account when informing the UE of the updated system information via the dedicated RRC message.

Upon reception of the *Notification Information* IE in the *PWS System Information* IE in the WRITE-REPLACE WARNING REQUEST message, the gNB-DU shall use this information to avoid that duplications trigger new broadcast or replace existing broadcast.

If the gNB-DU receives a WRITE-REPLACE WARNING REQUEST message with the *Notification Information* IE in the *PWS System Information* IE which are different from those of ongoing broadcast warning messages, and if the *SIB Type* IE is set to "8", the gNB-DU shall broadcast the received warning message concurrently with other ongoing messages.

If the gNB-DU receives a WRITE-REPLACE WARNING REQUEST message with the *Notification Information* IE in the *PWS System Information* IE which are different from those of ongoing broadcast warning messages, and if the *SIB Type* IE is set to the value other than '8', the gNB-DU shall use the newly received one to replace the ongoing broadcast warning message with the same value of *SIB Type* IE.

If the *SIB Type* IE in the *PWS System Information* IE in the WRITE-REPLACE WARNING REQUEST message is set to "8" and if a value "0" is received in the *Number of Broadcast Requested* IE and if the *Repetition Period* IE is different from "0", the gNB-DU shall broadcast the received warning message indefinitely.

If *Additional SIB Message List* IE is included in *PWS System Information* IE, the gNB-DU shall store all SIB message(s) in *PWS System Information* IE, and consider that the first segment of public warning message is included in *SIB message* IE, and the remaining segments are listed in *Additional SIB Message List* IE in segmentation sequence order.

### 8.5.1.3 Unsuccessful Operation

Not applicable.

### 8.5.1.4 Abnormal Conditions

If the gNB-DU receives a WRITE-REPLACE WARNING REQUEST message which does not include the *Notification Information* IE in the *PWS System Information* IE, the gNB-DU shall consider it as a logical error.

## 8.5.2 PWS Cancel

### 8.5.2.1 General

The purpose of the PWS Cancel procedure is to cancel an already ongoing broadcast of a warning message. The procedure uses non UE-associated signalling.

### 8.5.2.2 Successful Operation

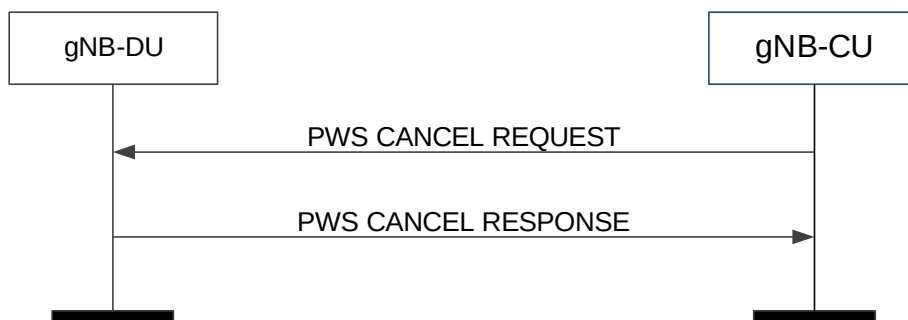


Figure 8.5.2.2-1: PWS Cancel procedure: successful operation

The gNB-CU initiates the procedure by sending a PWS CANCEL REQUEST message to the gNB-DU.

The gNB-DU shall acknowledge the PWS CANCEL REQUEST message by sending the PWS CANCEL RESPONSE message.

If the *Cancel-All Warning Messages Indicator* IE is present in the PWS CANCEL REQUEST message, then the gNB-DU shall stop broadcasting and discard all warning messages for the area as indicated in the *Cell Broadcast To Be Cancelled List* IE or in all the cells of the gNB-DU if the *Cell Broadcast To Be Cancelled List* IE is not included. The gNB-DU shall acknowledge the PWS CANCEL REQUEST message by sending the PWS CANCEL RESPONSE message, and shall, if there is area to report where an ongoing broadcast was stopped successfully, include the *Cell Broadcast Cancelled List* IE with the *Number of Broadcasts* IE set to 0.

If the *Cell Broadcast To Be Cancelled List* IE is not included in the PWS CANCEL REQUEST message, the gNB-DU shall stop broadcasting and discard the warning message identified by the *Message Identifier* IE and the *Serial Number* IE in the *Notification Information* IE in all of the cells in the gNB-DU.

If the *Notification Information* IE is included in the PWS CANCEL REQUEST, the gNB-DU shall cancel broadcast of the public warning message identified by the *Notification Information* IE.

If an area included in the *Cell Broadcast To Be Cancelled List* IE in the PWS CANCEL REQUEST message does not appear in the *Cell Broadcast Cancelled List* IE in the PWS CANCEL RESPONSE, the gNB-CU shall consider that the gNB-DU had no ongoing broadcast to stop for the public warning message identified, if present, by the *Notification Information* IE in that area.

If the *Cell Broadcast Cancelled List* IE is not included in the PWS CANCEL RESPONSE message, the gNB-CU shall consider that the gNB-DU had no ongoing broadcast to stop for the public warning message identified, if present, by the *Notification Information* IE.

### 8.5.2.3 Unsuccessful Operation

If the gNB-DU receives a PWS CANCEL REQUEST message which contains neither the *Cancel-all Warning Messages Indicator* IE nor the *Notification Information* IE, the gNB-DU shall consider it as a logical error.

### 8.5.2.4 Abnormal Conditions

Not applicable.

## 8.5.3 PWS Restart Indication

### 8.5.3.1 General

The purpose of PWS Restart Indication procedure is to inform the gNB-CU that PWS information for some or all cells of the gNB-DU are available for reloading from the CBC if needed. The procedure uses non UE-associated signalling.

### 8.5.3.2 Successful Operation



**Figure 8.5.3.2-1: PWS restart indication**

The gNB-DU initiates the procedure by sending a PWS RESTART INDICATION message to the gNB-CU.

### 8.5.3.3 Abnormal Conditions

Not applicable.

## 8.5.4 PWS Failure Indication

### 8.5.4.1 General

The purpose of the PWS Failure Indication procedure is to inform the gNB-CU that ongoing PWS operation for one or more cells of the gNB-DU has failed. The procedure uses non UE-associated signalling.

### 8.5.4.2 Successful Operation

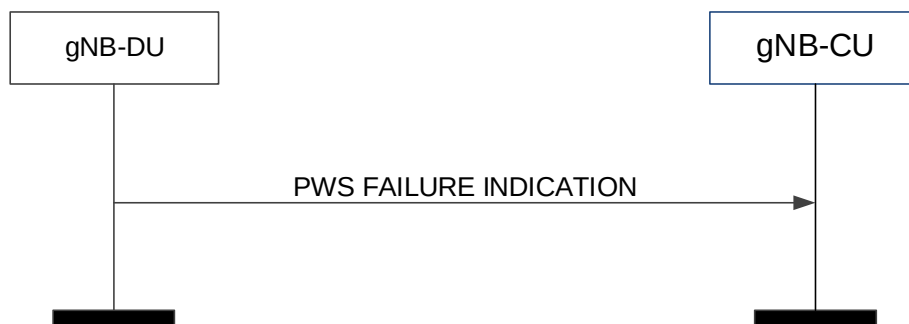


**Figure 8.5.4.2-1: PWS failure indication**

The gNB-DU initiates the procedure by sending a PWS FAILURE INDICATION message to the gNB-CU.

### 8.5.4.3 Abnormal Conditions

Not applicable.

## 8.6 System Information Procedures

### 8.6.1 System Information Delivery

#### 8.6.1.1 General

The purpose of the System Information Delivery procedure is to command the gNB-DU to broadcast the requested one or several *SystemInformation* messages including the Other SI as requested by the gNB-CU. The procedure uses non-UE associated signalling.

### 8.6.1.2 Successful Operation

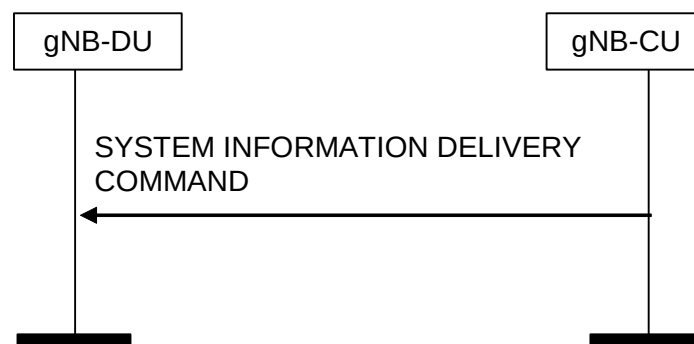


**Figure 8.6.1.2-1: System Information Delivery procedure. Successful operation.**

The gNB-CU initiates the procedure by sending a SYSTEM INFORMATION DELIVERY COMMAND message to the gNB-DU.

Upon reception of the SYSTEM INFORMATION DELIVERY COMMAND message, the gNB-DU shall broadcast the requested one or several *SystemInformation* messages, including the Other SI, indicated by the *SIType List* IE, and if the UE corresponding to the *confirmed UE ID* IE is not in RRC connected state, delete the UE context, if any.

#### Interactions with gNB-DU Configuration Update procedure:

Upon reception of SYSTEM INFORMATION DELIVERY COMMAND message, the gNB-DU Configuration Update procedure may be performed, and as part of such procedure the gNB-DU shall include the *Dedicated SI Delivery Needed UE List* IE in GNB-DU CONFIGURATION UPDATE message for UEs that are unable to receive system information from broadcast.

### 8.6.1.3 Abnormal Conditions

Not applicable.

## 8.7 Paging procedures

### 8.7.1 Paging

#### 8.7.1.1 General

The purpose of the Paging procedure is used to provide the paging information to enable the gNB-DU to page a UE. The procedure uses non-UE associated signalling.

#### 8.7.1.2 Successful Operation



**Figure 8.7.1.2-1: Paging procedure. Successful operation.**

The gNB-CU initiates the procedure by sending a PAGING message.

The *Paging DRX* IE may be included in the PAGING message, and if present the gNB-DU may use it to determine the final paging cycle for the UE.

The *Paging Priority* IE may be included in the PAGING message, and if present the gNB-DU may use it according to TS 23.501 [21].

At the reception of the PAGING message, the gNB-DU shall perform paging of the UE in cells which belong to cells as indicated in the *Paging Cell List* IE.

The *Paging Origin* IE may be included in the PAGING message, and if present the gNB-DU shall transfer it to the UE.

The *RAN UE Paging DRX* IE may be included in the PAGING message, and if present the gNB-DU may use it according to TS 38.304 [24].

The *CN UE Paging DRX* IE may be included in the PAGING message, and if present the gNB-DU may use it according to TS 38.304 [24].

The *NR Paging eDRX Information* IE may be included in the PAGING message, and if present the gNB-DU may use it according to TS 38.304 [24].

The *NR Paging eDRX Information for RRC INACTIVE* IE may be included in the PAGING message, and if present the gNB-DU shall, if supported, use it according to TS 38.304 [24].

The *Paging Cause* IE may be included in the PAGING message. If present the gNB-DU shall, if supported, send it to UE according to TS 38.331 [8].

The *PEIPS Assistance Information* IE may be included in the PAGING message, and if present the gNB-DU shall, if supported, use it for paging subgrouping of the UE, as specified in TS 38.300 [6].

The *RedCap Indication* IE may be included in the *UE Paging Capability* IE in the PAGING message, and if present the gNB-DU shall, if supported, use it for paging of the RedCap UE or the eRedCap UE.

The *Last Used Cell Indication* IE may be included in the *Paging Cell Item IEs* IE of the PAGING message, and if present the gNB-DU shall, if supported, consider the cell identified by the *NR CGI* IE as the last used cell of the paged UE, and use it as specified in TS 38.331 [8].

The *Recommended SSBs List* IE may be included in the *Paging Cell Item IEs* IE of the PAGING message, and if present the gNB-DU shall, if supported, use it to send the paging message over the indicated SSB beams.

The *PEI Subgrouping Support Indication* IE may be included in the *Paging Cell Item IEs* IE in the PAGING message, and if present the gNB-DU shall, if supported, consider that the cell identified by the *NR CGI* IE is supported by the UE to receive the paging early indication as described in TS 38.300 [6] and TS 38.304 [24].

The *UE Paging Capability* IE may be included in the PAGING message, and if present the gNB-DU shall, if supported, take it into account when paging the UE.

The *Extended UE Identity Index Value* IE may be included in the PAGING message, and if present the gNB-DU shall, if supported, use it according to TS 38.304 [24].

The *Hashed UE Identity Index Value* IE may be included in the PAGING message, and if present the gNB-DU shall, if supported, use it according to TS 38.304 [24].

The *MT-SDT Information* IE may be included in the PAGING message. If present the gNB-DU shall, if supported, use it for MT-SDT paging as specified in TS 38.331 [8].

The *NR Paging Long eDRX Information for RRC INACTIVE* IE may be included in the PAGING message, and if present, the gNB-DU shall, if supported, use it according to TS 38.304 [24].

### 8.7.1.3 Abnormal Conditions

Not applicable.

## 8.8 Trace Procedures

### 8.8.1 Trace Start

#### 8.8.1.1 General

The purpose of the Trace Start procedure is to allow the gNB-CU to request the gNB-DU to initiate a trace session for a UE. The procedure uses UE-associated signalling.



### 8.8.1.2 Successful Operation



**Figure 8.8.1.2-1: Trace start procedure: Successful Operation.**

The gNB-CU initiates the procedure by sending a TRACE START message. Upon reception of the TRACE START message, the gNB-DU shall initiate the requested trace session for the requested UE, as described in TS 32.422 [29]. In particular, the gNB-DU shall, if supported:

- if the *Trace Activation* IE includes the *MDT Activation* IE set to "Immediate MDT and Trace" initiate the requested trace session and MDT session as described in TS 32.422 [29];
- if the *Trace Activation* IE includes the *MDT Activation* IE set to "Immediate MDT Only" initiate the requested MDT session as described in TS 32.422 [29] and the gNB-DU shall ignore *Interfaces To Trace* IE, and *Trace Depth* IE;

### 8.8.1.3 Abnormal Conditions

Void.

## 8.8.2 Deactivate Trace

### 8.8.2.1 General

The purpose of the Deactivate Trace procedure is to allow the gNB-CU to request the gNB-DU to stop the trace session for the indicated trace reference. The procedure uses UE-associated signalling.

### 8.8.2.2 Successful Operation



**Figure 8.8.2.2-1: Deactivate trace procedure: Successful Operation**

The gNB-CU initiates the procedure by sending a DEACTIVATE TRACE message. Upon reception of the DEACTIVATE TRACE message, the gNB-DU shall stop the trace session for the indicated trace reference contained in the *Trace ID* IE, as described in TS 32.422 [29].

### 8.8.2.3 Abnormal Conditions

Void.

## 8.8.3 Cell Traffic Trace

### 8.8.3.1 General

The purpose of the Cell Traffic Trace procedure is to send the allocated Trace Recording Session Reference and the Trace Reference to the gNB-CU. The procedure uses UE-associated signalling.

### 8.8.3.2 Successful Operation



**Figure 8.8.3.2-1: Cell Traffic Trace procedure. Successful operation.**

The procedure is initiated with a CELL TRAFFIC TRACE message sent from the gNB-DU to the gNB-CU.

If the *Privacy Indicator* IE is included in the message, the gNB-CU shall store the information so that it can be transferred towards the AMF.

### 8.8.3.3 Abnormal Conditions

Void.

## 8.9 Radio Information Transfer procedures

### 8.9.1 DU-CU Radio Information Transfer

#### 8.9.1.1 General

The purpose of the DU-CU Radio Information Transfer procedure is to transfer radio-related information from the gNB-DU to the gNB-CU. The procedure uses non-UE-associated signalling.

#### 8.9.1.2 Successful operation



**Figure 8.9.1.2-1: DU-CU Radio Information Transfer procedure.**

The gNB-DU initiates the procedure by sending the DU-CU RADIO INFORMATION TRANSFER message to the gNB-CU.

The gNB-CU considers that the *RIM-RS Detection Status* IE indicates the RIM-RS detection status of the cell identified by *Aggressor Cell ID* IE.

### 8.9.1.3 Abnormal Conditions

Not applicable.

## 8.9.2 CU-DU Radio Information Transfer

### 8.9.2.1 General

The purpose of the CU-DU Radio Information Transfer procedure is to transfer radio-related information from the gNB-CU to the gNB-DU. The procedure uses non-UE-associated signalling.

### 8.9.2.2 Successful operation



**Figure 8.9.2.2-1: CU-DU Radio Information Transfer procedure.**

The gNB-CU initiates the procedure by sending the CU-DU RADIO INFORMATION TRANSFER message to the gNB-DU. The gNB-DU considers that the *RIM-RS Detection Status* IE indicates the detection status of RIM-RS associated with *Victim gNB Set ID* IE.

### 8.9.2.3 Abnormal Conditions

Not applicable.

## 8.10 IAB Procedures

### 8.10.0 General

In this version of the specification, the IAB procedures are used to configure IAB-donor-DU or IAB-DU.

NOTE: The IAB procedures are applicable for IAB-nodes and IAB-donor-DU, where the term "gNB-DU" applies to IAB-DU and IAB-donor-DU, and the term "gNB-CU" applies to IAB-donor-CU, unless otherwise specified.

### 8.10.1 BAP Mapping Configuration

#### 8.10.1.1 General

The BAP Mapping Configuration Procedure is initiated by the gNB-CU to configure the DL/UL routing information and/or traffic mapping information needed for the gNB-DU. The procedure uses non-UE associated signalling.

NOTE: Implementation shall ensure the avoidance of potential race conditions, i.e. it shall ensure that conflicting traffic mapping configurations are not concurrently performed using the non-UE-associated BAP Mapping Configuration procedure and the UE-associated UE Context Management procedures.

### 8.10.1.2 Successful Operation

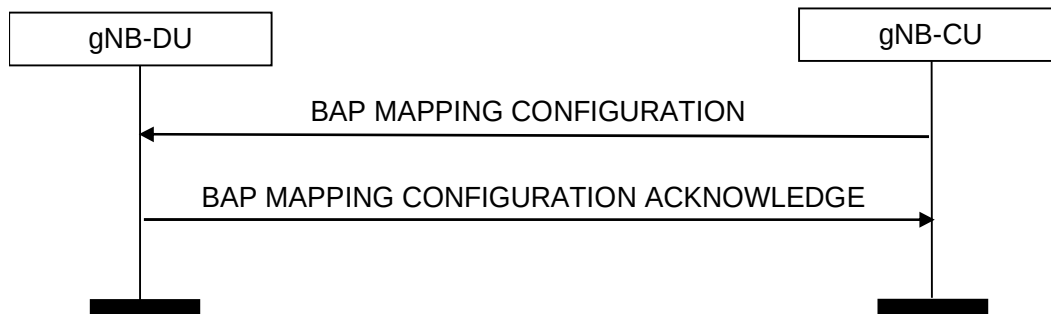


**Figure 8.10.1.2-1: BAP Mapping Configuration procedure: Successful Operation**

The gNB-CU initiates the procedure by sending BAP MAPPING CONFIGURATION message to the gNB-DU. The gNB-DU replies to the gNB-CU with BAP MAPPING CONFIGURATION ACKNOWLEDGE.

If *BH Routing Information Added List* IE is included in the BAP MAPPING CONFIGURATION message, the gNB-DU shall, if supported, store the BH routing information from this IE and use it for DL/UL traffic forwarding as specified in TS 38.340 [30]. If *BH Routing Information Added List* IE contains information for an existing BAP Routing ID, the gNB-DU shall, if supported, replace the previously stored routing information for this BAP Routing ID with the corresponding information in the *BH Routing Information Added List* IE.

If *BH Routing Information Removed List* IE is included in the BAP MAPPING CONFIGURATION message, the gNB-DU shall, if supported, remove the BH routing information according to such IE.

If the *Traffic Mapping Information* IE is included in the BAP MAPPING CONFIGURATION message, the gNB-DU shall, if supported, process the *Traffic Mapping Information* IE as follows:

- if the *IP to layer2 Traffic Mapping Info* IE is included, the gNB-DU shall store the mapping information contained in the *IP to layer2 Traffic Mapping Info To Add* IE, if present, and remove the previously stored mapping information as indicated by the *IP to layer2 Traffic Mapping Info To Remove* IE, if present. The gNB-DU shall use the mapping information stored for the mapping of IP traffic to layer 2, as specified in TS 38.340 [30].
- if the *BAP layer BH RLC channel Mapping Info* IE is included, the gNB-DU shall store the mapping information contained in the *BAP layer BH RLC channel Mapping Info To Add* IE, if present, and remove the previously stored mapping information as indicated by the *BAP layer BH RLC channel Mapping Info To Remove* IE, if present. The gNB-DU shall use the mapping information stored when forwarding traffic on BAP sublayer, as specified in TS 38.340 [30].

If the *Buffer Size Threshold* IE is included in the BAP MAPPING CONFIGURATION message, the gNB-DU shall, if supported, use it to determine the DL congestion based on the flow control feedback from child IAB-nodes as specified in TS 38.340 [30].

If *BAP Header Rewriting Added List* IE is included in the BAP MAPPING CONFIGURATION message, the gNB-DU shall, if supported, store the BAP header rewriting configuration from this IE, and use it as specified in TS 38.340 [30]. If *BAP Header Rewriting Added List* IE contains information for an existing ingress BAP Routing ID, the gNB-DU shall, if supported, replace the previously stored BAP header rewriting configuration for this ingress BAP Routing ID with the corresponding information in the *BAP Header Rewriting Added List* IE.

If *BAP Header Rewriting Removed List* IE is included in the BAP MAPPING CONFIGURATION message, the gNB-DU shall, if supported, remove the BAP header rewriting configuration according to such IE.

If the *Re-routing Enable Indicator* IE is included in the BAP MAPPING CONFIGURATION message, and the value is set as “false”, the gNB-DU shall, if supported, disable the inter-donor-DU re-routing. If the *Re-routing Enable Indicator* IE is included in the BAP MAPPING CONFIGURATION message, and the value is set as “true”, the gNB-DU shall, if supported, enable the inter-donor-DU re-routing, as specified in TS 38.340 [30].

### 8.10.1.A Unsuccessful Operation

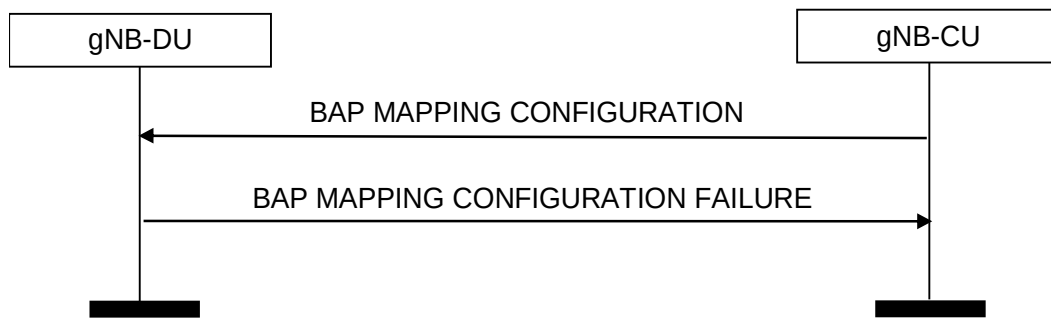


**Figure 8.10.1.3-1: BAP Mapping Configuration procedure: Unsuccessful Operation**

If the gNB-DU cannot accept the configuration, it shall respond with a BAP MAPPING CONFIGURATION FAILURE and appropriate cause value.

If the BAP MAPPING CONFIGURATION FAILURE message includes the *Time To Wait* IE, the gNB-CU shall wait at least for the indicated time before reinitiating the BAP MAPPING CONFIGURATION message towards the same gNB-DU.

### 8.10.1.3 Abnormal Conditions

Not applicable.

## 8.10.2 gNB-DU Resource Configuration

### 8.10.2.1 General

The gNB-DU Resource Configuration procedure is initiated by the gNB-CU in order to configure the resource usage for a gNB-DU. The procedure uses non-UE associated signalling.

In this version of the specification, this procedure is used to configure IAB resources.

### 8.10.2.2 Successful Operation

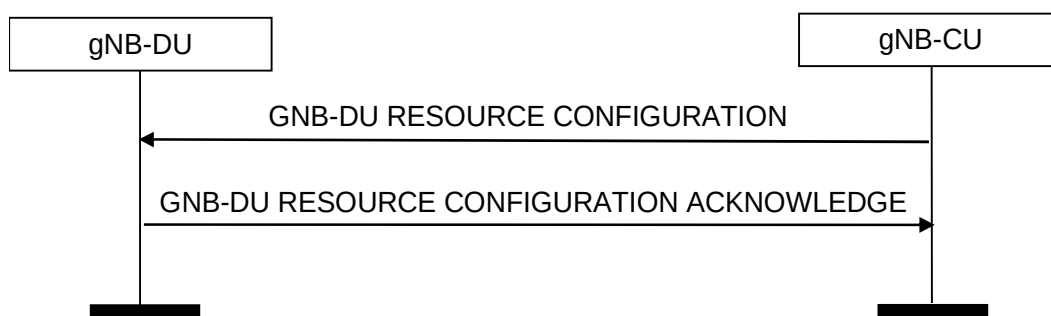


**Figure 8.10.2.2-1: gNB-DU Resource Configuration procedure: Successful Operation**

The gNB-CU initiates the procedure by sending the GNB-DU RESOURCE CONFIGURATION message to gNB-DU. The gNB-DU replies to the gNB-CU with the GNB-DU RESOURCE CONFIGURATION ACKNOWLEDGE message.

For each cell in the *Activated Cells to Be Updated List* IE of the GNB-DU RESOURCE CONFIGURATION message, the gNB-DU shall store the resource configuration contained in the *IAB-DU Cell Resource Configuration-Mode-Info* IE and use it when performing scheduling in compliance with TS 38.213 [31].

If the *Child-Node List* IE is included in the GNB-DU RESOURCE CONFIGURATION message, for each child-node indicated by the *gNB-CU UE F1AP ID* IE and *gNB-DU UE F1AP ID* IE, and for each cell served by this child node

indicated by the *NR CGI* IE in the *Child-Node Cells List* IE, the gNB-DU shall store the received information and use this information for scheduling, in compliance with TS 38.213 [31], clause 14.

If the *Neighbour-Node Cells List* IE is included in the GNB-DU RESOURCE CONFIGURATION message, for each neighbour-node cell indicated by the *NR CGI* IE in the *Neighbour-Node Cells List* IE, the gNB-DU shall store the received information and use this information for cross-link interference management and/or semi-static resource coordination. If the *Peer Parent-Node Indicator* IE is included in the GNB-DU RESOURCE CONFIGURATION message and the value is set as “true”, the gNB-DU shall, consider the cell indicated by the *NR CGI* IE is served by the peer parent node of the IAB-node indicated by the *gNB-CU UE F1AP ID* IE and the *gNB-DU UE F1AP ID* IE.

If the *Serving Cells List* IE is included in the GNB-DU RESOURCE CONFIGURATION message, the gNB-DU shall store the received information and use this information for scheduling, in compliance with TS 38.213 [31], clause 14.

### 8.10.2.B Unsuccessful Operation

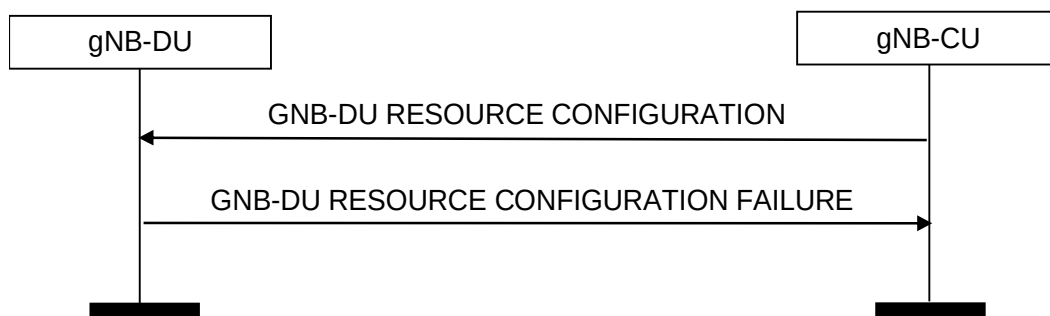


**Figure 8.10.2.3-1: gNB-DU Resource Configuration procedure: Unsuccessful Operation**

If the gNB-DU cannot accept the configuration, it shall respond with a GNB-DU RESOURCE CONFIGURATION FAILURE and appropriate cause value.

If the GNB-DU RESOURCE CONFIGURATION FAILURE message includes the *Time To Wait* IE, the gNB-CU shall wait at least for the indicated time before reinitiating the GNB-DU RESOURCE CONFIGURATION message towards the same gNB-DU.

### 8.10.2.3 Abnormal Conditions

Not applicable.

## 8.10.3 IAB TNL Address Allocation

### 8.10.3.1 General

The purpose of the IAB TNL Address Allocation procedure is to allocate TNL addresses to be used by the IAB-node(s). This procedure uses non-UE associated signalling.

**NOTE:** This procedure is applicable for IAB-donor-DU, where the term "gNB-DU" applies to IAB-donor-DU, and the term "gNB-CU" applies to IAB-donor-CU.

### 8.10.3.2 Successful Operation

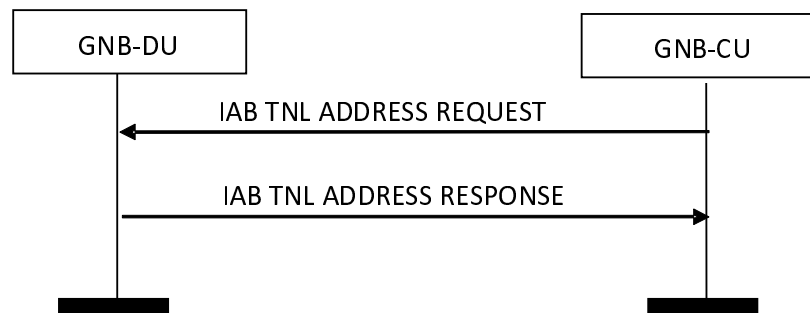


**Figure 8.10.3.2-1: IAB TNL Address Allocation procedure: Successful Operation**

The gNB-CU initiates the procedure by sending the IAB TNL ADDRESS REQUEST message to the gNB-DU.

If the IAB TNL ADDRESS REQUEST message contains the *IAB IPv4 Addresses Requested* IE, the gNB-DU shall allocate the individual TNL address(es) accordingly and include these IPv4 address(es) in the IAB TNL ADDRESS RESPONSE message.

If the IAB TNL ADDRESS REQUEST message contains the *IAB IPv6 Request Type* IE, the gNB-DU shall allocate the individual IPv6 address(es) or IPv6 address prefix(es) accordingly and include these IPv6 address(es) or IPv6 address prefix(es) in the IAB TNL ADDRESS RESPONSE message.

If the IAB TNL ADDRESS REQUEST message contains the *IAB TNL Addresses To Remove List* IE, the gNB-DU shall consider that the TNL address(es) and/or TNL address prefix(es) therein are no longer used by the IAB-node(s). In addition, if the IAB TNL ADDRESS REQUEST message only contains the *IAB TNL Addresses to Remove List* IE, the gNB-CU shall ignore the *IAB Allocated TNL Address List* IE in the IAB TNL ADDRESS RESPONSE message.

If the IAB TNL ADDRESS RESPONSE message contains the *IAB TNL Address Usage IE* in the *IAB Allocated TNL Address Item* IE, the gNB-CU shall consider the indicated TNL address usage when allocating a TNL address to an IAB-node. Otherwise, the gNB-CU shall consider that the TNL address can be used for all traffic when allocating the TNL address to an IAB-node.

If the *IAB TNL Address Exception* IE is included in the IAB TNL ADDRESS REQUEST message and the gNB-DU is an IAB-donor-DU, the gNB-DU shall, if supported, consider the IP address(es) therein as exempt from TNL address filtering, and forward the packets with the address(es) indicated by this IE, as specified in TS 38.401 [4].

### 8.10.3.C Unsuccessful Operation

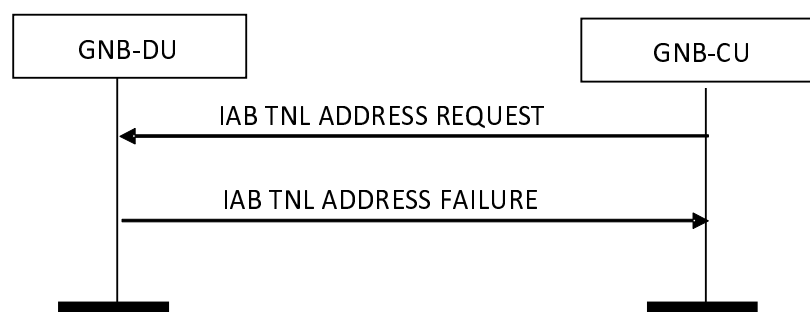


**Figure 8.10.3.3-1: IAB TNL Address Allocation procedure: Unsuccessful Operation**

If the gNB-DU cannot accept the request, it shall respond with an IAB TNL ADDRESS FAILURE and appropriate cause value.

If the IAB TNL ADDRESS FAILURE message includes the *Time To Wait* IE, the gNB-CU shall wait at least for the indicated time before reinitiating the IAB TNL ADDRESS REQUEST message towards the same gNB-DU.

### 8.10.3.3 Abnormal Conditions

Not applicable.

## 8.10.4 IAB UP Configuration Update

### 8.10.4.1 General

The purpose of the IAB UP Configuration Update procedure is to update the UP parameters including UL mapping configuration and the UL/DL UP TNL information between IAB-donor-CU and IAB-node. This procedure uses non-UE associated signalling.

NOTE: This procedure is applicable for IAB-nodes, where the term "gNB-DU" applies to IAB-DU, and the term "gNB-CU" applies to IAB-donor-CU.

NOTE: Implementation shall ensure the avoidance of potential race conditions, i.e. it shall ensure that the update of UP configuration (e.g. the UL/DL UP TNL information, UL mapping information) is not concurrently performed using the non-UE-associated IAB UP Configuration Update procedure and the UE-associated procedures for UE Context Management.

### 8.10.4.2 Successful Operation

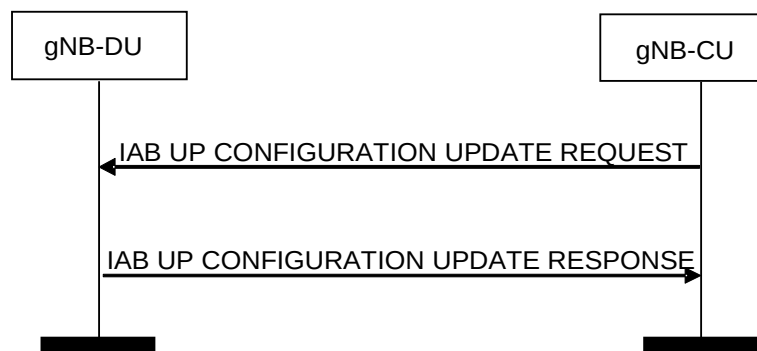


**Figure 8.10.4.2-1: IAB UP Configuration Update procedure: Successful Operation**

The gNB-CU initiates the procedure by sending the IAB UP CONFIGURATION UPDATE REQUEST message to the gNB-DU. The gNB-DU replies to the gNB-CU with the IAB UP CONFIGURATION UPDATE RESPONSE message.

If the *UL UP TNL Information to Update List* IE is included in the IAB UP CONFIGURATION UPDATE REQUEST message, the gNB-DU shall perform the mapping according to the new received *BH Information* IE for each F1-U GTP tunnel indicated by the *UL UP TNL Information* IE. If the *New UL UP TNL Information* IE is included in *UL UP TNL Information to Update List* IE, the gNB-DU shall use it to replace the information of UL F1-U GTP tunnel indicated by the *UL UP TNL Information* IE.

If the *UL UP TNL Address to Update List* IE is included in the IAB UP CONFIGURATION UPDATE REQUEST message, the gNB-DU shall replace the old TNL address with the new TNL address for all the maintained UL F1-U GTP tunnels corresponding to the old TNL address.

If the *DL UP TNL Address to Update List* IE is included in the IAB UP CONFIGURATION UPDATE RESPONSE message, the gNB-CU shall replace the old TNL address with the new TNL address for all the maintained DL F1-U GTP tunnels corresponding to the old TNL address.



### 8.10.4.3 Unsuccessful Operation

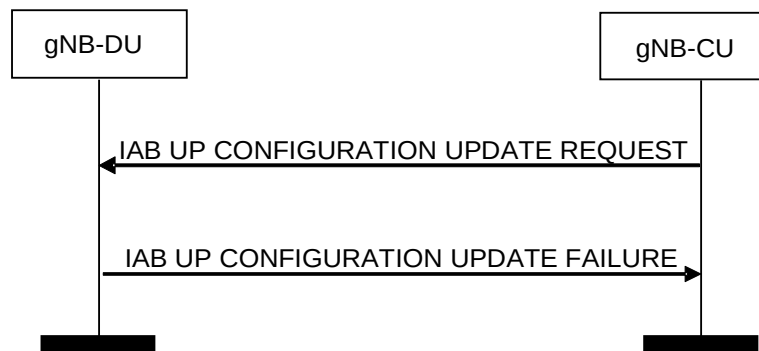


**Figure 8.10.4.3-1: IAB UP Configuration Update procedure: Unsuccessful Operation**

If the gNB-DU receives an IAB UP CONFIGURATION UPDATE REQUEST message and cannot perform any update accordingly, it shall consider the update procedure as failed and respond with an IAB UP CONFIGURATION UPDATE FAILURE message and an appropriate cause value.

If the IAB UP CONFIGURATION UPDATE FAILURE message includes the *Time To Wait* IE, the gNB-CU shall wait at least for the indicated time before reinitiating the IAB UP CONFIGURATION UPDATE REQUEST message towards the same gNB-DU.

### 8.10.4.4 Abnormal Conditions

Not applicable.

## 8.10.5 Mobile IAB F1 Setup Triggering

### 8.10.5.1 General

The purpose of the Mobile IAB F1 Setup Triggering procedure is to trigger F1 interface establishment between a target logical gNB-DU and a target F1-terminating IAB-donor-CU. The target logical gNB-DU is co-located with the gNB-DU that receives the triggering message. This procedure uses non-UE associated signalling.

**NOTE:** This procedure is applicable for mobile IAB-nodes, where the term "gNB-DU" applies to a mobile IAB-DU, and the term "gNB-CU" applies to a source F1-terminating IAB-donor-CU during mobile IAB-DU migration.

### 8.10.5.2 Successful Operation

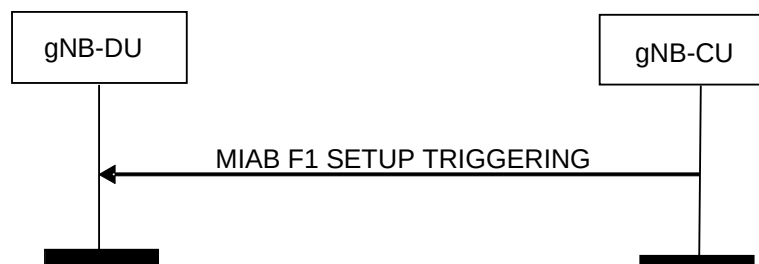


**Figure 8.10.5.2-1: Mobile IAB F1 Setup Triggering: Successful Operation**

The gNB-CU initiates the procedure by sending the MIAB F1 SETUP TRIGGERING message to the gNB-DU.

When the gNB-DU receives the MIAB F1 SETUP TRIGGERING message, the gNB-DU's co-located target logical gNB-DU shall, if supported, initiate the TNL connection establishment and F1 setup to a target F1-terminating IAB-donor-CU indicated by the *Target gNB ID* IE included in the MIAB F1 SETUP TRIGGERING message.

If the MIAB F1 SETUP TRIGGERING message received by the gNB-DU contains the *Target gNB IP address* IE, the gNB-DU's co-located target logical gNB-DU shall, if supported, store the IP address and use it for establishing the TNL connection towards a target F1-terminating IAB-donor-CU.

If the MIAB F1 SETUP TRIGGERING message received by the gNB-DU contains the *Target SeGW IP address* IE, the gNB-DU's co-located target logical gNB-DU shall, if supported, store the IP address and use it for establishing the security connection to protect the F1 interface towards the target F1-terminating IAB-donor-CU.

### 8.10.5.3 Abnormal Conditions

Not applicable.

## 8.10.6 Mobile IAB F1 Setup Outcome Notification

### 8.10.6.1 General

The purpose of the Mobile IAB F1 Setup Outcome Notification procedure is to report the outcome of the F1 interface setup between a target logical gNB-DU and a target F1-terminating IAB-donor-CU. The target logical gNB-DU is co-located with the gNB-DU that sends the notification message. This procedure uses non-UE associated signalling.

**NOTE:** This procedure is applicable for mobile IAB-nodes, where the term "gNB-DU" applies to mobile IAB-DU, and the term "gNB-CU" applies to source F1-terminating IAB-donor-CU during mobile IAB-DU migration.

### 8.10.6.2 Successful Operation

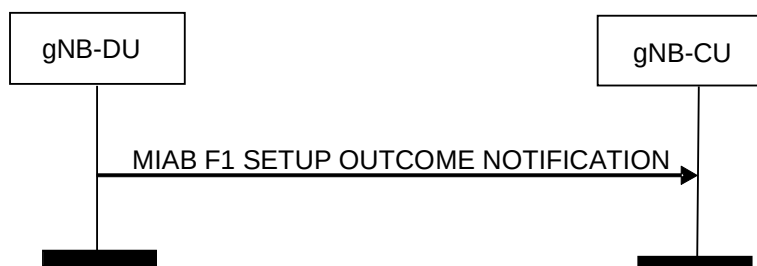


**Figure 8.10.6.2-1: Mobile IAB F1 Setup Outcome Notification: Successful Operation**

The gNB-DU initiates the procedure by sending the MIAB F1 SETUP OUTCOME NOTIFICATION message to the gNB-CU.

Upon the reception of the MIAB F1 SETUP OUTCOME NOTIFICATION message, the gNB-CU shall, if supported, consider the F1 setup outcome of the target logical gNB-DU co-located with the gNB-DU, for further mobile IAB-DU migration as specified in TS 38.401 [4].

If the *Activated Cells Mapping List* is included in the MIAB F1 SETUP OUTCOME NOTIFICATION message, the gNB-CU shall, if supported, take it into account for subsequent handover of the connected UEs from this gNB-DU to its co-located target logical gNB-DU.

If the *Target F1 Terminating IAB-Donor gNB ID* is included in the MIAB F1 SETUP OUTCOME NOTIFICATION message, the gNB-CU shall, if supported, take it into account for subsequent handover of the connected UEs from this gNB-DU to its co-located target logical gNB-DU.

### 8.10.6.3 Abnormal Conditions

Not applicable.

## 8.11 Self Optimisation Support procedures

### 8.11.1 Access and Mobility Indication

#### 8.11.1.1 General

This procedure is initiated by gNB-CU to send the Access and Mobility related Information to gNB-DU.

The procedure uses non-UE-associated signalling.

#### 8.11.1.2 Successful Operation



**Figure 8.11.1.2-1: Access and Mobility Indication procedure. Successful operation**

The Access and Mobility Indication procedure is initiated by ACCESS AND MOBILITY INDICATION message sent from gNB-CU to gNB-DU.

If the ACCESS AND MOBILITY INDICATION message contains the *RA Report List* IE the gNB-DU shall take it into account for optimisation of RACH access procedures.

If the ACCESS AND MOBILITY INDICATION message contains the *RLF Report Information List* IE the gNB-DU shall take it into account for optimisation of mobility parameters.

If the ACCESS AND MOBILITY INDICATION message contains the *Successful HO Report Information List* IE the gNB-DU may take it into account for optimisation of mobility parameters.

If the ACCESS AND MOBILITY INDICATION message contains the *Successful PSCell Change Report Information List* IE, the gNB-DU may take it into account for optimisation of PSCell change/addition related parameters.

#### 8.11.1.3 Abnormal Conditions

Not applicable.

### 8.11.2 DU-CU Access and Mobility Indication

#### 8.11.2.1 General

This procedure is initiated by the gNB-DU to send the Access and Mobility related Information to the gNB-CU.

The procedure uses non-UE-associated signalling.

### 8.11.2.2 Successful Operation



**Figure 8.11.2.2-1: DU-CU Access and Mobility Indication procedure. Successful operation**

The DU-CU Access and Mobility Indication procedure is initiated by DU-CU ACCESS AND MOBILITY INDICATION message sent from the gNB-DU to the gNB-CU.

If the DU-CU ACCESS AND MOBILITY INDICATION message contains the *DL LBT Failure Information List* IE, the gNB-CU shall take it into account for optimisation of mobility parameters.

### 8.11.2.3 Abnormal Conditions

Not applicable.

## 8.12 Reference Time Information Reporting procedures

### 8.12.1 Reference Time Information Reporting Control

#### 8.12.1.1 General

The purpose of the Reference Time Information Reporting Control procedure is to command the gNB-DU to send the requested accurate reference time information to the gNB-CU. The procedure uses non-UE associated signalling.

#### 8.12.1.2 Successful Operation

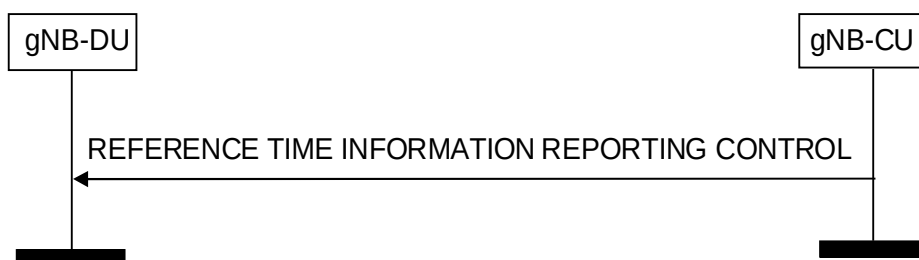


**Figure 8.12.1.2-1: Reference Time Information Reporting Control**

The gNB-CU initiates the procedure by sending REFERENCE TIME INFORMATION REPORTING CONTROL message to the gNB-DU. Upon reception of the REFERENCE TIME INFORMATION REPORTING CONTROL message, the gNB-DU shall, if supported, perform the requested reference time information reporting action.

The *Reporting Request Type* IE indicates to the gNB-DU whether:

- to report on demand;
- to report periodic, with a frequency as specified by the *Report Periodicity Value* IE;
- to stop periodic reporting.

### 8.12.1.3 Abnormal Conditions

Not applicable.

## 8.12.2 Reference Time Information Report

### 8.12.2.1 General

The purpose of the Reference Time Information Report procedure is to report the accurate reference time information from the gNB-DU to the gNB-CU. The procedure uses non-UE associated signalling.

### 8.12.2.2 Successful Operation

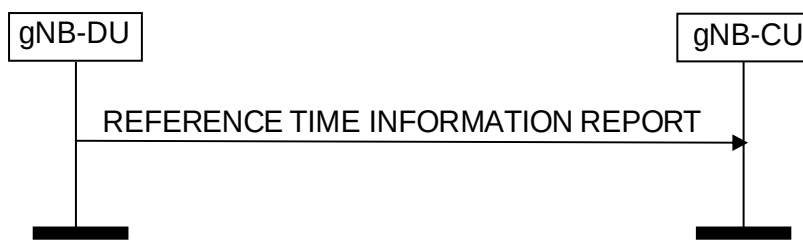


**Figure 8.12.2-1: Reference Time Information Report**

The gNB-DU initiates the procedure by sending a REFERENCE TIME INFORMATION REPORT message to the gNB-CU. The REFERENCE TIME INFORMATION REPORT message may be used as a response to the REFERENCE TIME INFORMATION REPORTING CONTROL message.

### 8.12.2.3 Abnormal Conditions

Not applicable.

## 8.13 Positioning Procedures

### 8.13.1 Positioning Assistance Information Control

#### 8.13.1.1 General

The purpose of the Positioning Assistance Information Control procedure is to allow the gNB-CU to signal positioning assistance information to the gNB-DU for positioning assistance information broadcasting. The procedure uses non-UE-associated signalling.

#### 8.13.1.2 Successful Operation

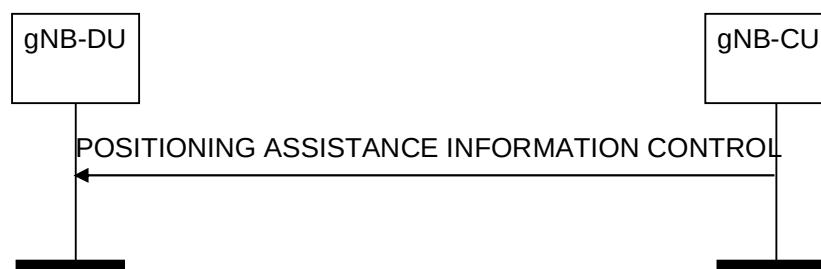


**Figure 8.13.1.2-1: Positioning Assistance Information Control procedure**

The gNB-CU initiates the procedure by sending a POSITIONING ASSISTANCE INFORMATION CONTROL message.

If the *Positioning Assistance Information* IE is included in the POSITIONING ASSISTANCE INFORMATION CONTROL message, the gNB-DU shall replace any previously received positioning assistance information with the newly received information, and use the newly received information to configure positioning assistance information broadcasting as specified in TS 38.455 [37].

If the *Broadcast* IE is included in the POSITIONING ASSISTANCE INFORMATION CONTROL message and set to "start", the gNB-DU may start broadcasting the positioning assistance information. If the *Broadcast* IE is included in the POSITIONING ASSISTANCE INFORMATION CONTROL message and set to "stop", the gNB-DU may stop broadcasting the positioning assistance information.

If the *Positioning Broadcast Cells* IE is included in the POSITIONING ASSISTANCE INFORMATION CONTROL message, the gNB-DU shall, if supported, consider that the procedure is applicable only to the indicated cells in this IE.

#### Interaction with the Positioning Assistance Information Feedback procedure:

If the *Routing ID* IE is included in the POSITIONING ASSISTANCE INFORMATION CONTROL message, the gNB-DU shall, if supported, store this information and include it in any future POSITIONING ASSISTANCE INFORMATION FEEDBACK messages associated to the requested positioning assistance information broadcasting.

### 8.13.1.3 Abnormal Conditions

If the *Broadcast* IE is set to "start", and the *Positioning Assistance Information* IE is not included, the gNB-DU shall consider the procedure as failed.

If the *Broadcast* IE is not included in the POSITIONING ASSISTANCE INFORMATION CONTROL message, the gNB-DU shall consider the procedure as failed.

## 8.13.2 Positioning Assistance Information Feedback

### 8.13.2.1 General

The purpose of the Positioning Assistance Information Feedback procedure is to allow the gNB-DU to give feedback to the gNB-CU on positioning assistance information broadcasting. The procedure uses non-UE-associated signalling.

### 8.13.2.2 Successful Operation

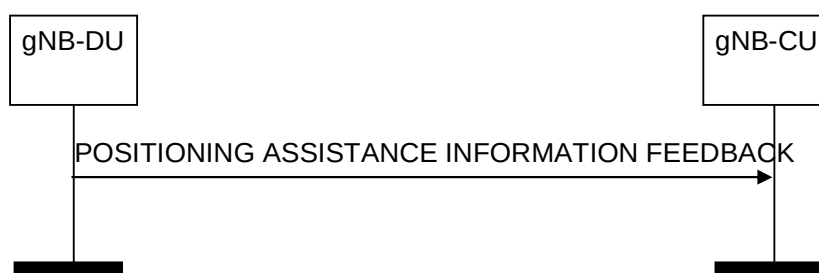


**Figure 8.13.2.2-1: Positioning Assistance Information Feedback procedure**

The gNB-DU initiates the procedure by sending a POSITIONING ASSISTANCE INFORMATION FEEDBACK message. If the *Positioning Assistance Information Failure List* IE is included in the POSITIONING ASSISTANCE INFORMATION FEEDBACK message, the gNB-CU shall consider that positioning assistance information broadcasting could not be configured for the relevant information.

If the *Positioning Broadcast Cells* IE is included in the POSITIONING ASSISTANCE INFORMATION FEEDBACK message, the gNB-CU shall consider that the feedback provided is applicable to the cells in this IE.

If the *Routing ID* IE is included in the POSITIONING ASSISTANCE INFORMATION FEEDBACK message, the gNB-CU may use this information to identify the positioning assistance information broadcasting for which feedback is provided.

### 8.13.2.3 Abnormal Conditions

Void.

## 8.13.3 Positioning Measurement

### 8.13.3.1 General

The purpose of the Positioning Measurement procedure is to allow the gNB-CU to request one or more TRPs in the gNB-DU to perform and report positioning measurements. The procedure uses non-UE-associated signalling.

### 8.13.3.2 Successful Operation

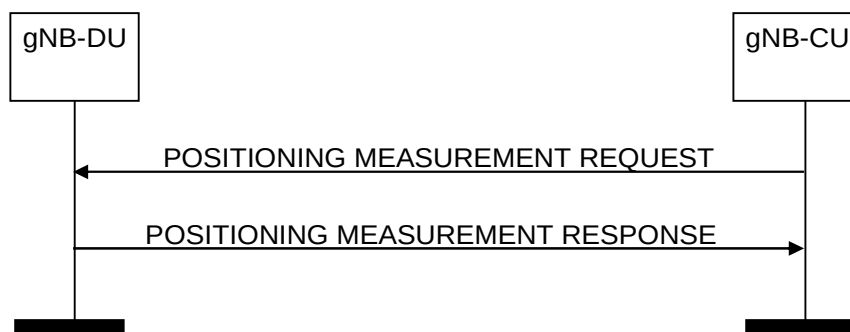


**Figure 8.13.3.2-1: Positioning Measurement procedure: successful operation**

The gNB-CU initiates the procedure by sending a **POSITIONING MEASUREMENT REQUEST** message to the gNB-DU, indicating in the *TRP Measurement Request List* IE the TRP(s) from which measurements are requested. The gNB-DU node shall use the included information to configure positioning measurements by the indicated TRP(s). If at least one of the requested measurements has been successful for at least one of the TRPs, the gNB-DU shall reply with the **POSITIONING MEASUREMENT RESPONSE** message including the *Positioning Measurement Response List* IE.

If the *Positioning Report Characteristics* IE is set to "OnDemand", the gNB-DU shall return the corresponding measurement results in the *Positioning Measurement Result List* IE in the **POSITIONING MEASUREMENT RESPONSE** message, and the gNB-CU shall consider that this reporting has been terminated by the gNB-DU.

If the *Measurement Beam Information Request* IE is included in the **POSITIONING MEASUREMENT REQUEST** message, the gNB-DU node shall, if supported, include the *Measurement Beam Information* IE in the *Positioning Measurement Result* IE of the **POSITIONING MEASUREMENT RESPONSE** message.

If the *Measurement Quality* IE is included in the *Measurement Result* IE in the **POSITIONING MEASUREMENT RESPONSE** message, the gNB-CU may use it for further signalling. If the *Measurement Quality* IE includes the *Zenith Quality* IE, the gNB-CU may use it for further signalling.

If the *System Frame Number* IE and/or the *Slot Number* IE are included in the **POSITIONING MEASUREMENT REQUEST** message, the gNB-DU node shall, if supported, consider that the respective information indicates the activation time of SRS transmission.

If the *Measurement Characteristics Request Indicator* IE is included in the **POSITIONING MEASUREMENT REQUEST** message, the gNB-DU shall, if supported, take the requested measurement characteristics into account when configuring measurements, and include the requested information, if available, in the **POSITIONING MEASUREMENT RESPONSE** message.

If the *Number of TRP Rx TEGs* IE is included in the **POSITIONING MEASUREMENT REQUEST** message, the gNB-DU shall, if supported, use it to measure the same SRS resource with different TRP Rx TEGs for the indicated TRP, and report the corresponding UL-RTOA and/or gNB Rx-Tx time difference measurements.

If the *Number of TRP RxTx TEGs* IE is included in the **POSITIONING MEASUREMENT REQUEST** message, the gNB-DU shall, if supported, use it to measure the same SRS resource with different TRP RxTx TEGs with the same TRP Tx TEG for the indicated TRP, and report the corresponding gNB Rx-Tx time difference measurements.

If the *Measurement Time Occasion* IE is included in the POSITIONING MEASUREMENT REQUEST message, the gNB-DU may take it into account as the number of SRS measurement time occasions for a measurement instance.

If the *Time Window Information Measurement List* IE is included in the POSITIONING MEASUREMENT REQUEST message, the gNB-DU shall, if supported, consider this as the time window(s) within which to perform the positioning measurements, as specified in TS 38.305 [42].

#### Interaction with the Positioning Measurement Report procedure:

If the *Positioning Report Characteristics* IE is set to "Periodic", the gNB-DU shall initiate the corresponding measurements, and it shall reply with the POSITIONING MEASUREMENT RESPONSE message without including any measurement results in the message. The gNB-DU shall then periodically initiate the Positioning Measurement Report procedure for the corresponding measurements, with the requested reporting periodicity.

If the *Report Characteristics* IE is set to "OnDemand" and the *Response Time* IE is included in the POSITIONING MEASUREMENT REQUEST message, the gNB-DU shall, if supported, return the corresponding measurement results in the POSITIONING MEASUREMENT RESPONSE message within the indicated time.

If the *Positioning Report Characteristics* IE is set to "Periodic" and the *Positioning Measurement Amount* IE is included in the POSITIONING MEASUREMENT REQUEST message, the gNB-DU shall, if supported, take it into account for sending the POSITIONING MEASUREMENT REPORT message.

### 8.13.3.3 Unsuccessful Operation

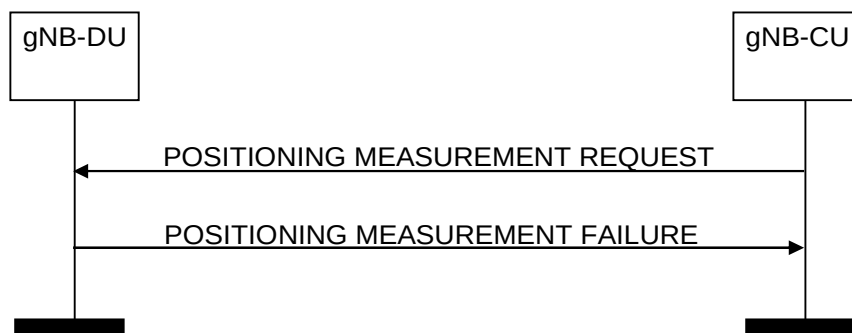


**Figure 8.13.3.3-1: Positioning Measurement procedure: unsuccessful operation**

If the gNB-DU is unable to configure any of the requested positioning measurements for any of the TRPs in the *TRP Measurement Request List* IE of the POSITIONING MEASUREMENT REQUEST message, it shall respond with a POSITIONING MEASUREMENT FAILURE message.

### 8.13.3.4 Abnormal Conditions

If the gNB-DU receives a POSITIONING MEASUREMENT REQUEST message containing an LMF Measurement ID corresponding to an ongoing positioning measurement, it shall consider the procedure as failed and initiate local error handling.

## 8.13.4 Positioning Measurement Report

### 8.13.4.1 General

The purpose of the Positioning Measurement Report procedure is for the gNB-DU to report positioning measurements to the gNB-CU. The procedure uses non-UE-associated signalling.



#### 8.13.4.2 Successful Operation



**Figure 8.13.4.2-1: Positioning Measurement Report procedure: successful operation**

The gNB-DU initiates the procedure by sending a POSITIONING MEASUREMENT REPORT message. The POSITIONING MEASUREMENT REPORT message contains the positioning measurement results according to the associated measurement configuration.

#### 8.13.4.3 Unsuccessful Operation

Not applicable.

#### 8.13.4.4 Abnormal Conditions

Not applicable.

### 8.13.5 Positioning Measurement Abort

#### 8.13.5.1 General

The purpose of the Positioning Measurement Abort procedure is to enable the gNB-CU to abort an on-going measurement. The procedure uses non-UE-associated signalling.

#### 8.13.5.2 Successful Operation

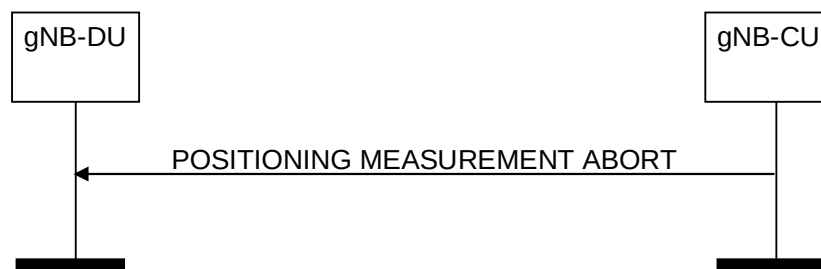


**Figure 8.13.5.2-1: Positioning Measurement Abort procedure: successful operation**

The gNB-CU initiates the procedure by generating a POSITIONING MEASUREMENT ABORT message. Upon receiving this message, the gNB-DU shall terminate the on-going measurement identified by the *RAN Measurement ID* IE and may release any resources previously allocated for the same measurement.

#### 8.13.5.3 Unsuccessful Operation

Not applicable.

#### 8.13.5.4 Abnormal Conditions

If the gNB-DU cannot identify the previously requested measurement to be aborted, it shall ignore the POSITIONING MEASUREMENT ABORT message.

## 8.13.6 Positioning Measurement Failure Indication

### 8.13.6.1 General

The purpose of the Positioning Measurement Failure Indication procedure is for the gNB-DU to notify the gNB-CU that the positioning measurements previously requested with the Positioning Measurement procedure can no longer be reported. The procedure uses non-UE-associated signalling.

### 8.13.6.2 Successful Operation

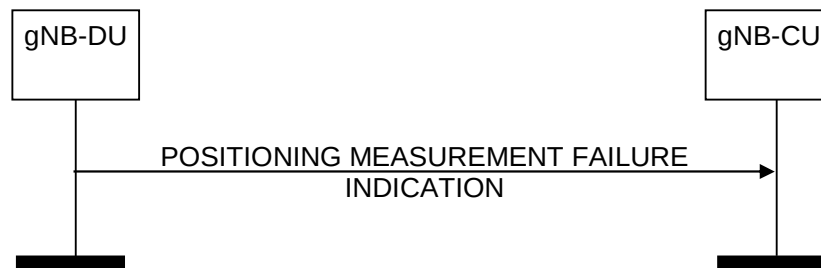


**Figure 8.13.6.2-1: Positioning Measurement Failure Indication procedure: successful operation**

The gNB-DU initiates the procedure by sending a POSITIONING MEASUREMENT FAILURE INDICATION message. Upon reception of the POSITIONING MEASUREMENT FAILURE INDICATION message, the gNB-CU shall consider that the indicated positioning measurements have been terminated by the gNB-DU.

### 8.13.6.3 Unsuccessful Operation

Not applicable.

### 8.13.6.4 Abnormal Conditions

Not applicable.

## 8.13.7 Positioning Measurement Update

### 8.13.7.1 General

The purpose of the Positioning Measurement Update procedure is to modify one or more periodic positioning measurements performed by the gNB-DU. The procedure uses non-UE-associated signalling.

### 8.13.7.2 Successful Operation

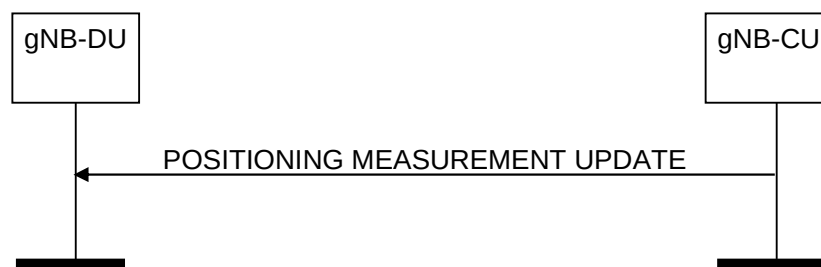


**Figure 8.13.7.2-1: Positioning Measurement Update procedure: successful operation**

The gNB-CU initiates the procedure by generating a POSITIONING MEASUREMENT UPDATE message. Upon receiving the message, the gNB-DU shall overwrite the previously received measurement configuration for the corresponding measurements.

If the *Number of TRP Rx TEGs* IE is included in the *TRP Measurement Update List* IE in the POSITIONING MEASUREMENT UPDATE message, the gNB-DU shall clear any previously stored information and store the newly received information.

If the *Number of TRP RxTx TEGs* IE is included in the *TRP Measurement Update List* IE in the POSITIONING MEASUREMENT UPDATE message, the gNB-DU shall clear any previously stored information and store the newly received information.

If the *Measurement Characteristics Request Indicator* IE is included in the POSITIONING MEASUREMENT UPDATE message, the gNB-DU shall clear any previously stored information and store the newly received information.

If the *Measurement Time Occasion* IE is included in the POSITIONING MEASUREMENT UPDATE message, the gNB-DU shall clear any previously stored information and store the newly received information.

### 8.13.7.3 Unsuccessful Operation

Not applicable.

### 8.13.7.4 Abnormal Conditions

If the gNB-DU cannot identify the given positioning measurements, it shall regard the procedure as failed and initiate local error handling.

## 8.13.8 TRP Information Exchange

### 8.13.8.1 General

The purpose of the TRP Information Exchange procedure is to allow the gNB-CU to request the gNB-DU to provide detailed information for TRPs hosted by the gNB-DU. The procedure uses non-UE-associated signalling.

### 8.13.8.2 Successful Operation

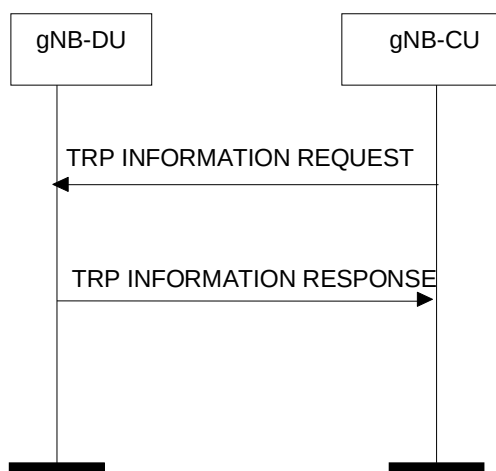


**Figure 8.13.8.2-1: TRP Information Exchange procedure, successful operation**

The gNB-CU initiates the procedure by sending a TRP INFORMATION REQUEST message. The gNB-DU responds with a TRP INFORMATION RESPONSE message that contains the requested TRP information.

If the *TRP List* IE is included in the TRP INFORMATION REQUEST message, the gNB-DU should include in the TRP INFORMATION RESPONSE message, the requested information for all TRPs included in the *TRP List* IE.

If the *TRP List* IE is not included in the TRP INFORMATION REQUEST message, the gNB-DU should include the requested information for all TRPs hosted by the gNB-DU in the TRP INFORMATION RESPONSE message.

If the *PRS Muting* IE is included in the *PRS Configuration* IE in the TRP INFORMATION RESPONSE message, the gNB-CU may use it for further signaling.

If the *QCL Info* IE is included in the *PRS Configuration* IE in the TRP INFORMATION RESPONSE message, the gNB-CU may use it for further signaling.

If the *Aggregated PRS Resource Set List* IE is included in the *PRS Configuration* IE in the TRP INFORMATION RESPONSE message, the gNB-CU may use it for further signaling.

If the *DL-PRS Resource Coordinates* IE is included in the *Geographical Coordinates* IE in the *TRP Information* IE in the TRP INFORMATION RESPONSE message, the gNB-CU may use it for further signaling.

If the *Mobile IAB-MT UE ID* IE is included in the *TRP Information* IE in the TRP INFORMATION RESPONSE message, the gNB-CU may use it for further signaling.

If the *TRP Information Type Item* IE is set to 'mobile TRP location info', the gNB-DU shall, if supported, derive the location of the Mobile TRP as specified in TS 23.273 [49] and include the *Mobile TRP Location Information* IE in the TRP INFORMATION RESPONSE message.

### 8.13.8.3 Unsuccessful Operation

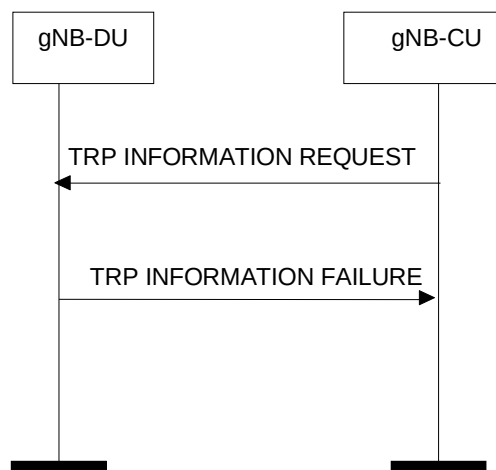


**Figure 8.13.8.3-1: TRP Information Exchange procedure, unsuccessful operation**

If the gNB-DU cannot provide any of the requested information, the gNB-DU shall respond with a TRP INFORMATION FAILURE message.

## 8.13.9 Positioning Information Exchange

### 8.13.9.1 General

The Positioning Information Exchange procedure is initiated by the gNB-CU to indicate to the gNB-DU the need to configure the UE to transmit SRS signals and to retrieve the SRS configuration from the gNB-DU. The procedure uses UE-associated signalling.

### 8.13.9.2 Successful Operation

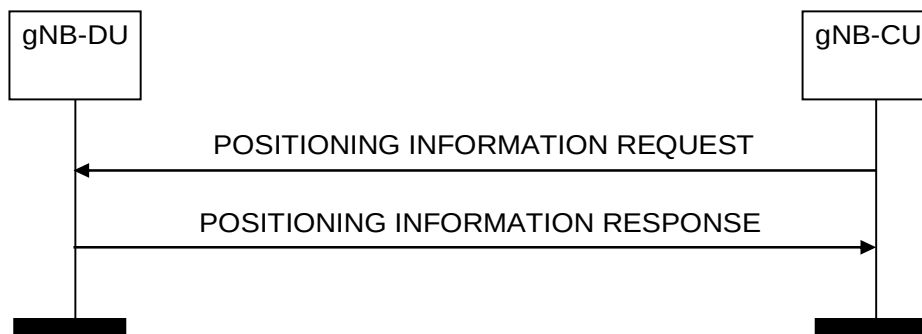


**Figure 8.13.9.2-1: Positioning Information Exchange procedure, successful operation**

The gNB-CU initiates the procedure by sending a POSITIONING INFORMATION REQUEST message to the gNB-DU.

If the *Requested SRS Transmission Characteristics* IE is included in the POSITIONING INFORMATION REQUEST message, the gNB-DU may take this information into account when configuring SRS transmissions for the UE, and it shall include the *SRS Configuration* IE and the *SFN Initialisation Time* IE in the POSITIONING INFORMATION RESPONSE message. If the *SRS Positioning INACTIVE Query Indication* IE is also included in the POSITIONING INFORMATION REQUEST message and set to 'true', the gNB-DU shall, if supported, include the *SRS-PosRRC-InactiveConfig* IE in the POSITIONING INFORMATION RESPONSE message.

If the *Spatial Relation Information per SRS Resource* IE and the *Periodicity List* IE are both included in the *Requested SRS Transmission Characteristics* IE, the gNB-DU shall consider that the *Spatial Relation per SRS Resource Item* IE and the *Periodicity List Item* IE have one-to-one mapping relation.

If the *UE Reporting Information* IE is included in the POSITIONING INFORMATION REQUEST message, the gNB-DU may take this information into account for allocating proper CG-SDT resources when positioning a UE.

If the *Time Window Information for SRS* IE is included in the POSITIONING INFORMATION REQUEST message, the gNB-DU shall, if supported, configure the UE to start transmitting its UL SRS transmission at the indicated time instance.

If the *Positioning Validity Area Cell List* IE and *Validity Area specific SRS Information* IE within the *Requested SRS Transmission Characteristics* IE are included in the POSITIONING INFORMATION REQUEST message, the gNB-DU shall, if supported, take this information into account for configuring SRS transmissions for the UE in the indicated validity area, and shall include the *SRS-PosRRC-InactiveValidityAreaConfig* IE, the *SFN Initialisation Time* IE and the *Positioning Validity Area Cell List* IE in the POSITIONING INFORMATION RESPONSE message.

If the *Requested SRS Preconfiguration Characteristics List* IE is included in the POSITIONING INFORMATION REQUEST message, the gNB-DU shall, if supported, take this information into account when preconfiguring area specific SRS configurations for the UE, and include the *SRS Preconfiguration List* IE in the POSITIONING INFORMATION RESPONSE message.

#### **Interaction with the UE Context Modification Required (gNB-DU initiated) procedure:**

The UE Context Modification Required (gNB-DU initiated) procedure may be performed before the POSITIONING INFORMATION RESPONSE message.

### 8.13.9.3 Unsuccessful Operation

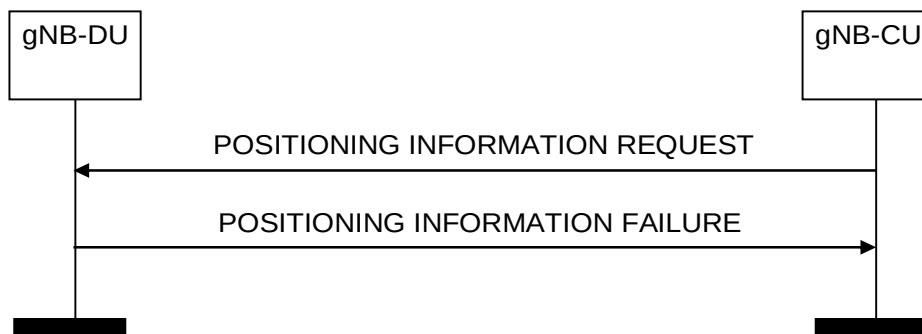


**Figure 8.13.9.3-1: Positioning Information Exchange procedure, unsuccessful operation**

If the *Requested SRS Transmission Characteristics* IE is included in the POSITIONING INFORMATION REQUEST message and the gNB-DU is unable to configure any SRS transmissions for the UE, the gNB-DU shall respond with a POSITIONING INFORMATION FAILURE message with an appropriate cause value.

If the gNB-DU is unable to provide any of the requested information, the gNB-DU shall respond with a POSITIONING INFORMATION FAILURE message with an appropriate cause value.

## 8.13.10 Positioning Activation

### 8.13.10.1 General

The Positioning Activation procedure is initiated by the gNB-CU to request the gNB-DU to activate semi-persistent or trigger aperiodic UL SRS transmission by the UE. The procedure uses UE-associated signalling.

### 8.13.10.2 Successful Operation

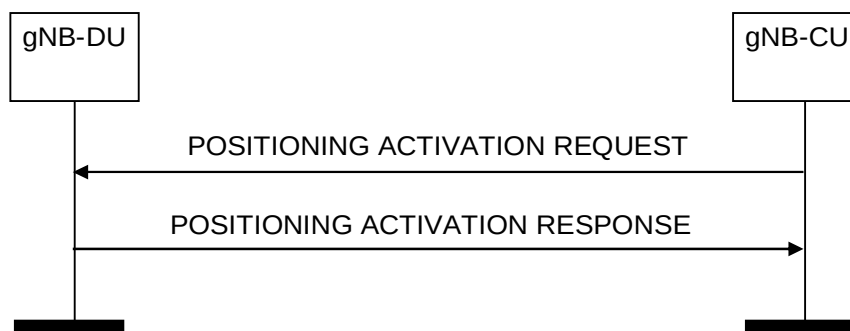


**Figure 8.13.10.2-1: Positioning Activation procedure, successful operation**

The gNB-CU initiates the procedure by sending a POSITIONING ACTIVATION REQUEST message to the gNB-DU.

For semi-persistent UL SRS, the POSITIONING ACTIVATION REQUEST message includes an indication of the UL SRS resource set to be activated, and may include the spatial relation for the semi-persistent UL SRS resource to be activated. For aperiodic UL SRS, if the *SRS Resource Trigger* IE is included in the POSITIONING ACTIVATION REQUEST message, the gNB-DU shall take the value of this IE into account when triggering aperiodic SRS transmission by the UE.

If the *Activation Time* IE is included in the POSITIONING ACTIVATION REQUEST message, the gNB-DU shall take the indicated value as the requested time for activation of the UE's SRS transmission.

Following successful activation of UL SRS transmission in the UE, the gNB-DU shall respond with a POSITIONING ACTIVATION RESPONSE message. If the POSITIONING ACTIVATION RESPONSE message includes the *System Frame Number* and/or the *Slot Number* IEs, the gNB-CU shall consider that the respective information indicates the activation time of SRS transmission by the UE.

If the *Aggregated Positioning SRS resource Set List* IE is included in POSITIONING ACTIVATION REQUEST message and SRS bandwidth aggregation is configured in the UE, the gNB-DU shall, if supported, activate the indicated SRS resource set(s) in the UE.

### 8.13.10.3 Unsuccessful Operation

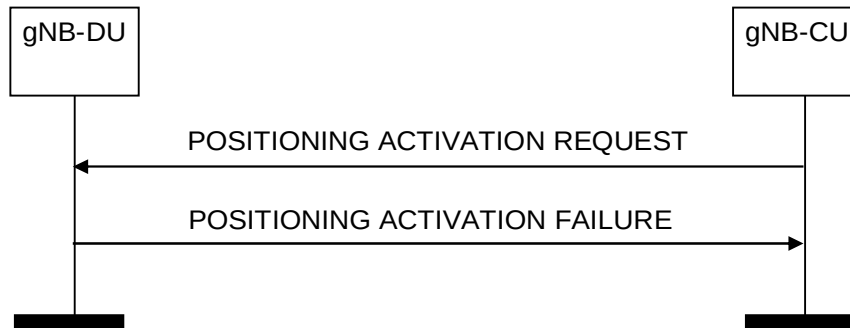


**Figure 8.13.10.3-1: Positioning Activation procedure, unsuccessful operation**

If the gNB-DU is unable to activate UL SRS transmission in the UE, it shall respond with a POSITIONING ACTIVATION FAILURE message.

If the gNB-DU is unable to trigger the aperiodic SRS transmission with the indicated *SRS Resource Trigger* IE, it shall respond with a POSITIONING ACTIVATION FAILURE message with an appropriate cause value

### 8.13.10.4 Abnormal Conditions

Void.

## 8.13.11 Positioning Deactivation

### 8.13.11.1 General

The Positioning Deactivation procedure is initiated by the gNB-CU to indicate to the gNB-DU node that UL SRS transmission should be deactivated in the UE. The procedure uses UE-associated signalling.

### 8.13.11.2 Successful Operation



**Figure 8.13.11.2-1: Positioning Deactivation procedure, successful operation**

The gNB-CU initiates the procedure by sending a POSITIONING DEACTIVATION message to the gNB-DU, including an indication of the UL SRS resource set(s) to be deactivated or release all the related resources.

### 8.13.11.3 Unsuccessful Operation

Not Applicable.

#### 8.13.11.4 Abnormal Conditions

Void.

### 8.13.12 E-CID Measurement Initiation

#### 8.13.12.1 General

The purpose of E-CID Measurement Initiation procedure is to allow the gNB-CU to request the gNB-DU to report E-CID measurements used by LMF to compute the location of the UE. The procedure uses UE-associated signalling.

#### 8.13.12.2 Successful Operation

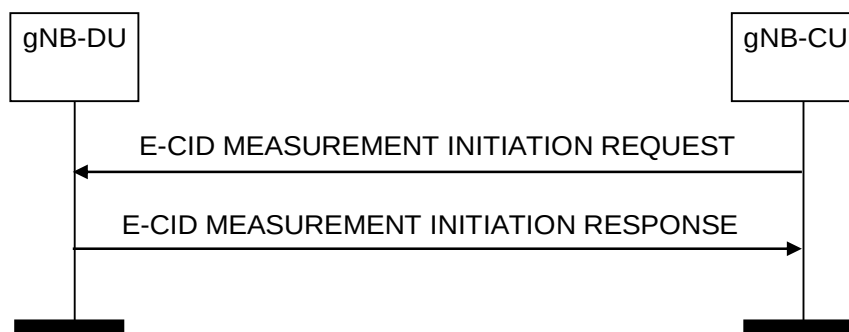


**Figure 8.13.12.2-1: E-CID Measurement Initiation procedure, successful operation**

The gNB-CU initiates the procedure by sending an E-CID MEASUREMENT INITIATION REQUEST message. If the gNB-DU is able to initiate the requested E-CID measurements, it shall reply with the E-CID MEASUREMENT INITIATION RESPONSE message.

If the *E-CID Report Characteristics* IE is set to "OnDemand", the gNB-DU shall return the result of the measurement in the E-CID MEASUREMENT INITIATION RESPONSE message including, if available, the *Geographical Coordinates* IE in the *E-CID Measurement Result* IE and the *Cell Portion ID* IE, and the gNB-CU shall consider that the E-CID measurements for the UE have been terminated by the gNB-DU. The *Measured Results List* IE shall be included in the *E-CID Measurement Result* IE of the E-CID MEASUREMENT INITIATION RESPONSE message when measurement quantities other than "Default" have been requested.

#### Interaction with the E-CID Measurement Report procedure:

If the *E-CID Report Characteristics* IE is set to "Periodic", the gNB-DU shall initiate the requested measurements and shall reply with the E-CID MEASUREMENT INITIATION RESPONSE message without including either the *E-CID Measurement Result* IE or the *Cell Portion ID* IE in this message. The gNB-DU shall then periodically initiate the E-CID Measurement Report procedure for the measurements, with the requested reporting periodicity.

#### 8.13.12.3 Unsuccessful Operation

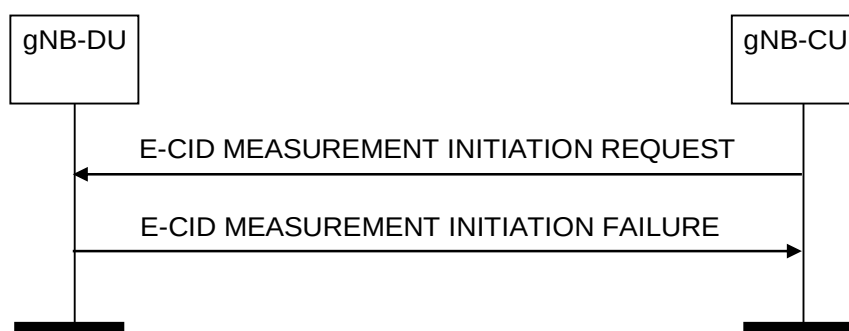


**Figure 8.13.12.3-1: E-CID Measurement Initiation procedure, unsuccessful operation**



If the gNB-DU is not able to initiate at least one of the requested E-CID measurements, the gNB-DU shall respond with an E-CID MEASUREMENT INITIATION FAILURE message.

### 8.13.13 E-CID Measurement Failure Indication

#### 8.13.13.1 General

The purpose of the E-CID Measurement Failure Indication procedure is for the gNB-DU to notify the gNB-CU that the E-CID measurements previously requested with the E-CID Measurement Initiation procedure can no longer be reported. The procedure uses UE-associated signalling.

#### 8.13.13.2 Successful Operation



**Figure 8.13.13.2-1: E-CID Measurement Failure Indication, successful operation**

The gNB-DU initiates the procedure by sending an E-CID MEASUREMENT FAILURE INDICATION message. Upon reception of the E-CID MEASUREMENT FAILURE INDICATION message, the gNB-CU shall consider that the E-CID measurements for the UE have been terminated by the gNB-DU.

#### 8.13.13.3 Unsuccessful Operation

Not applicable.

### 8.13.14 E-CID Measurement Report

#### 8.13.14.1 General

The purpose of E-CID Measurement Report procedure is for the gNB-DU to provide the E-CID measurements for the UE to the gNB-CU. The procedure uses UE-associated signalling.

#### 8.13.14.2 Successful Operation

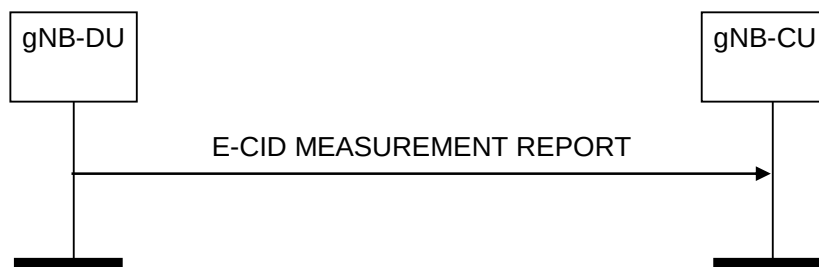


**Figure 8.13.14.2-1: E-CID Measurement Report procedure, successful operation**

The gNB-DU initiates the procedure by sending an E-CID MEASUREMENT REPORT message. The E-CID MEASUREMENT REPORT message contains the E-CID measurement results according to the measurement configuration in the respective E-CID MEASUREMENT INITIATION REQUEST message.

The *Measured Results List* IE shall be included in the *E-CID Measurement Result* IE of the E-CID MEASUREMENT REPORT message when measurement quantities other than "Default" have been requested.

If available, the gNB-DU shall include the *Geographical Coordinates* IE in the *E-CID Measurement Result* IE in the E-CID MEASUREMENT REPORT message.

If available, the gNB-DU shall include the *Cell Portion ID* IE in the E-CID MEASUREMENT REPORT message.

If available, the gNB-DU shall include the *Mobile Access Point Location Information* IE in the E-CID MEASUREMENT REPORT message.

#### 8.13.14.3 Unsuccessful Operation

Not applicable.

### 8.13.15 E-CID Measurement Termination

#### 8.13.15.1 General

The purpose of E-CID Measurement Termination procedure is to terminate periodical E-CID measurements for the UE performed by the gNB-DU. The procedure uses UE-associated signalling.

#### 8.13.15.2 Successful Operation



**Figure 8.13.15.2-1: E-CID Measurement Termination procedure, successful operation**

The gNB-CU initiates the procedure by generating an E-CID MEASUREMENT TERMINATION COMMAND message.

#### 8.13.15.3 Unsuccessful Operation

Not applicable.

### 8.13.16 Positioning Information Update

#### 8.13.16.1 General

The Positioning Information Update procedure is initiated by the gNB-DU to indicate to the gNB-CU that a change has occurred in the SRS configuration. The procedure uses UE-associated signalling.

### 8.13.16.2 Successful Operation

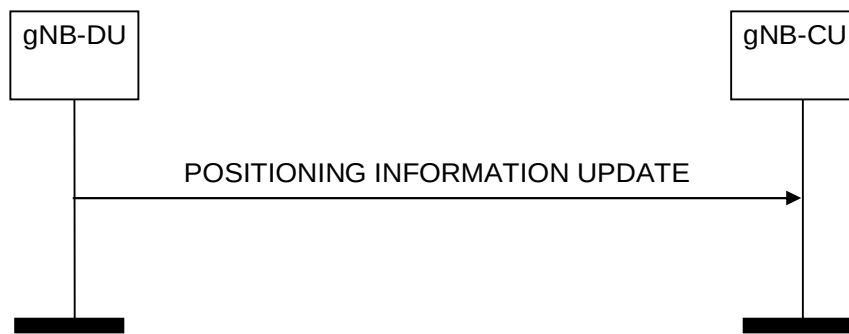


**Figure 8.13.16.2-1: Positioning Information Update procedure, successful operation**

The gNB-DU initiates the procedure by sending a POSITIONING INFORMATION UPDATE message to the gNB-CU.

If the *SRS Configuration* IE is included in the POSITIONING INFORMATION UPDATE message, the gNB-CU shall consider this information as the updated SRS Configuration for the UE. If the *SFN Initialisation Time* IE is included in the POSITIONING INFORMATION UPDATE message, the gNB-CU shall consider this information as the SFN Initialisation Time associated to the SRS Configuration.

### 8.13.16.3 Unsuccessful Operation

Not Applicable.

### 8.13.16.4 Abnormal Conditions

Void.

## 8.13.17 PRS Configuration Exchange

### 8.13.17.1 General

The PRS Configuration Exchange procedure is initiated by the gNB-CU to request the gNB-DU to configure or update (i.e., turn off) the PRS transmissions.

The procedure uses non-UE-associated signalling.

### 8.13.17.2 Successful Operation

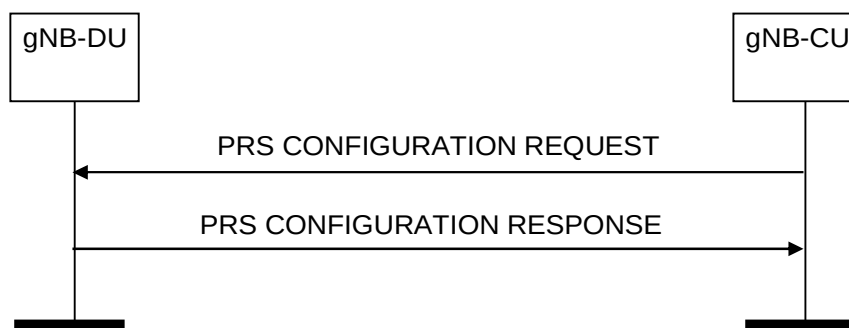


**Figure 8.13.17.2-1: PRS Configuration Exchange procedure, successful operation**

The gNB-CU initiates the procedure by sending a PRS CONFIGURATION REQUEST message to the gNB-DU.

If the *PRS Configuration Request Type* IE is set to “configure”, the gNB-DU should use the information in the *Requested DL PRS Transmission Characteristics* IE to configure DL-PRS transmission by the indicated TRP(s).

If the *PRS Configuration Request Type* IE is set to “off”, the gNB-DU should, if supported, use the information in the *PRS Transmission Off Information* IE to turn off the DL-PRS transmission for the indicated TRP(s), PRS Resource Set(s), or PRS Resource(s).

If DL-PRS transmission is successfully configured or updated for at least one of the TRPs, the gNB-DU shall respond with the PRS CONFIGURATION RESPONSE message.

### 8.13.17.3 Unsuccessful Operation

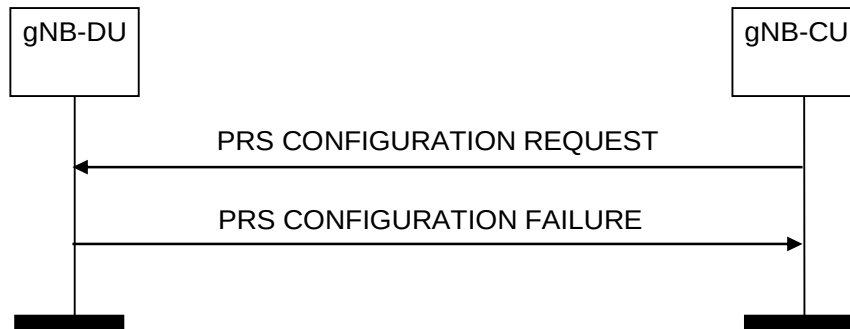


**Figure 8.13.17.3-1: PRS Configuration Exchange procedure, unsuccessful operation**

If the gNB-DU cannot configure or update DL-PRS transmission for any of the TRPs in the *PRS TRP List* IE of the PRS CONFIGURATION REQUEST message, it shall respond with a PRS CONFIGURATION FAILURE message with an appropriate cause value.

### 8.13.17.4 Abnormal Conditions

Void.

## 8.13.18 Measurement Preconfiguration

### 8.13.18.1 General

The Measurement Preconfiguration procedure allows the gNB-CU to provide necessary information to the serving gNB-DU and request the gNB-DU to preconfigure measurement gap and/or PRS processing window of the UE.

### 8.13.18.2 Successful Operation

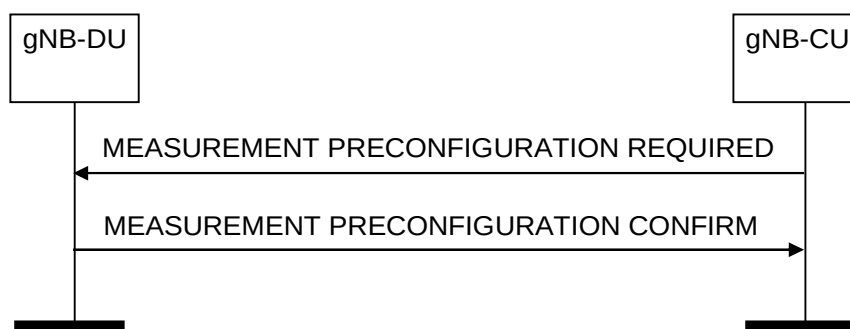


**Figure 8.13.18.2-1: Measurement Preconfiguration procedure, successful operation**

The gNB-CU initiates the procedure by sending a MEASUREMENT PRECONFIGURATION REQUIRED message.

If the gNB-DU is able to configure measurement gap or PRS processing window, it shall reply with the MEASUREMENT PRECONFIGURATION CONFIRM message.

If the *PosMeasGapPreConfigList* IE is included in the MEASUREMENT PRECONFIGURATION CONFIRM message, the gNB-CU shall, if supported, take the preconfigured measurement gaps information into account.

### 8.13.18.3 Unsuccessful Operation

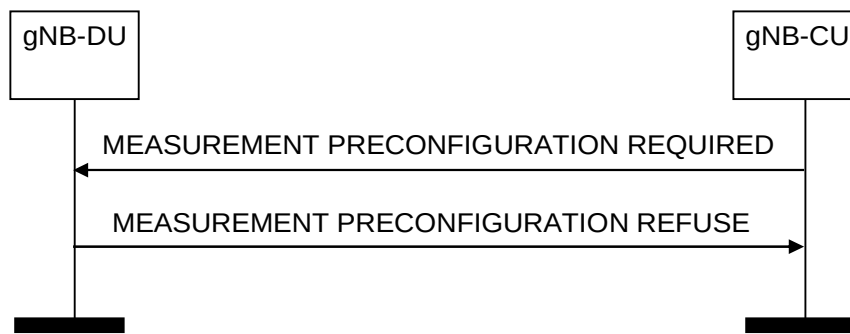


**Figure 8.13.18.3-1: Measurement Preconfiguration procedure, unsuccessful operation**

If the gNB-DU cannot configure any of the measurement gap or PRS processing window, the gNB-DU shall respond with a MEASUREMENT PRECONFIGURATION REFUSE message.

## 8.13.19 Measurement Activation

### 8.13.19.1 General

The Measurement Activation procedure is initiated by the gNB-CU to request the gNB-DU to activate or deactivate the preconfigured measurement gap or PRS processing window for the UE.

### 8.13.19.2 Successful Operation



**Figure 8.13.19.2-1: Measurement Activation procedure, successful operation**

The gNB-CU initiates the procedure by sending a MEASUREMENT ACTIVATION message.

If the *PRS Measurement Info List* IE is included in the MEASUREMENT ACTIVATION message, the gNB-DU may take it into account when activating pre-configured measurement gap in the UE.

### 8.13.19.3 Unsuccessful Operation

Not Applicable.

## 8.13.20 Positioning System Information Delivery

### 8.13.20.1 General

The purpose of the Positioning System Information Delivery procedure is to command the gNB-DU to broadcast the requested one or several Positioning SI messages indicated by the gNB-CU. The procedure uses non-UE associated signalling.

### 8.13.20.2 Successful Operation

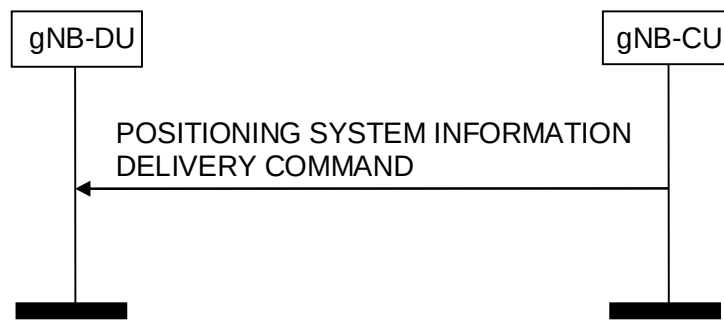


**Figure 8.13.20.2-1: Positioning System Information Delivery procedure. Successful operation.**

The gNB-CU initiates the procedure by sending a POSITIONING SYSTEM INFORMATION DELIVERY COMMAND message to the gNB-DU.

Upon reception of the POSITIONING SYSTEM INFORMATION DELIVERY COMMAND message, the gNB-DU shall broadcast the requested one or several Positioning SI messages, indicated by the *PosSITypeList* IE, and if the UE corresponding to the *Confirmed UE ID* IE is not in the RRC connected state, delete the UE context, if any.

#### Interactions with gNB-DU Configuration Update procedure:

Upon reception of POSITIONING SYSTEM INFORMATION DELIVERY COMMAND message, the gNB-DU Configuration Update procedure may be performed, and as part of such procedure the gNB-DU shall include the *Dedicated SI Delivery Needed UE List* IE in GNB-DU CONFIGURATION UPDATE message for UEs that are unable to receive system information from broadcast.

### 8.13.20.3 Abnormal Conditions

Not applicable.

## 8.13.21 SRS Information Reservation Notification

### 8.13.21.1 General

The purpose of the SRS Information Reservation Notification procedure is to allow the gNB-CU to request the gNB-DU to reserve or release SRS resources in the positioning validity area.

### 8.13.21.2 Successful Operation



**Figure 8.13.21.2-1: SRS Information Reservation Notification procedure, successful operation**

The gNB-CU initiates the procedure by sending a SRS INFORMATION RESERVATION NOTIFICATION message to the gNB-DU

If the *SRS Reservation Type* IE is set to "reserve", the gNB-DU shall reserve the indicated (preconfigured) SRS information in the cells indicated by the *Positioning Validity Area Cell List* IE. If the *SRS Reservation Type* IE is set to

"release", the gNB-DU shall release the indicated (preconfigured) SRS information in the cells indicated by the *Positioning Validity Area Cell List IE*.

### 8.13.21.3 Unsuccessful Operation

Not Applicable.

### 8.13.21.4 Abnormal Conditions

Void.

## 8.14 NR MBS Procedures

### 8.14.1 Broadcast Context Setup

#### 8.14.1.1 General

The purpose of the Broadcast Context Setup procedure is to establish an MBS Session context for a broadcast session in the gNB-DU.

The procedure uses MBS-associated signalling.

#### 8.14.1.2 Successful Operation

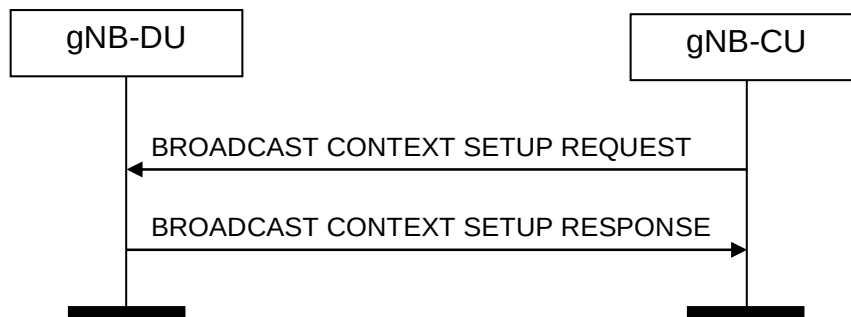


**Figure 8.14.1.2-1: Broadcast Context Setup procedure: Successful Operation**

The gNB-CU initiates the procedure by sending BROADCAST CONTEXT SETUP REQUEST message to the gNB-DU. If the gNB-DU succeeds to establish the broadcast MBS Session context, it replies to the gNB-CU with BROADCAST CONTEXT SETUP RESPONSE.

If the *MBS Service Area IE* is included in the BROADCAST CONTEXT SETUP REQUEST message, the gNB-DU shall take this information into account for shared F1-U tunnel assignment.

The gNB-DU shall report to the gNB-CU, in the BROADCAST CONTEXT SETUP RESPONSE message, the result of all the requested Broadcast MRBs in the following way:

- A list of MRBs which have been successfully established shall be included in the *Broadcast MRB Setup List IE*;
- A list of MRBs which failed to be established shall be included in the *Broadcast MRB Failed To Be Setup List IE*;

If the *Broadcast MRB Failed To Setup List IE* is contained in the BROADCAST CONTEXT SETUP RESPONSE message, the gNB-CU shall regard the Broadcast MRB(s) failed to be setup with an appropriate cause value for each Broadcast MRB failed to setup.

If

- either the *MBS Service Area IE* was included in the BROADCAST CONTEXT SETUP REQUEST message,

- or the the *MBS Service Area* IE was not included in the BROADCAST CONTEXT SETUP REQUEST message and the gNB-DU was not able to establish MBS Session Resources in all cells served by the gNB-DU,

the *Broadcast Area Scope* IE shall be included in the BROADCAST CONTEXT SETUP RESPONSE message to indicate the cells where MBS Session resources have been successfully established in the gNB-DU.

If the *Supported UE Type List* IE is included in the BROADCAST CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, store and use the information for configuring MBS session resources.

If the *Associated Session ID* IE is contained in the BROADCAST CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, take this information into account to determine whether MBS session resource sharing is possible, as specified in TS 38.401 [4]. If the gNB-DU decides to not establish F1-U tunnel towards the gNB-CU it shall include the *F1-U tunnel Not Established* IE set to "true" in the BROADCAST CONTEXT SETUP RESPONSE message.

If the *RAN Sharing Assistance Information* IE is included in the BROADCAST CONTEXT SETUP REQUEST message, the gNB-DU may store and use it for deciding whether to setup shared F1-U tunnel resources.

#### 8.14.1.3 Unsuccessful Operation

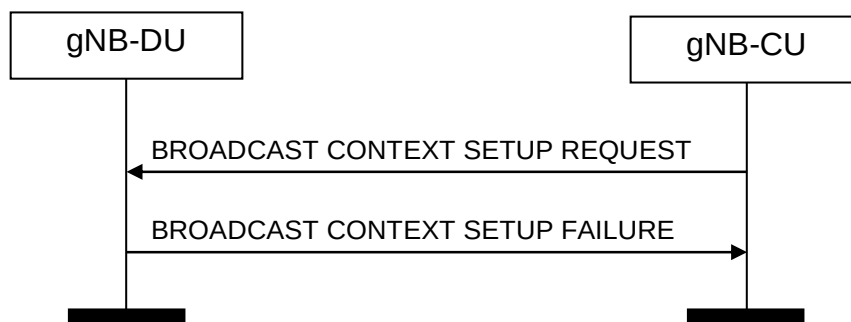


**Figure 8.14.1.3-1: Broadcast Context Setup procedure: unsuccessful Operation**

If the gNB-DU is not able to establish the requested MBS session context for all the MRBs in any of its cells it shall consider the procedure as failed and reply with the BROADCAST CONTEXT SETUP FAILURE message.

#### 8.14.1.4 Abnormal Conditions

Not applicable.

### 8.14.2 Broadcast Context Release

#### 8.14.2.1 General

The purpose of the Broadcast Context Release procedure is to enable the gNB-CU to order the release of an established MBS Session context for a broadcast session in the gNB-DU.

The procedure uses MBS-associated signalling.



### 8.14.2.2 Successful Operation

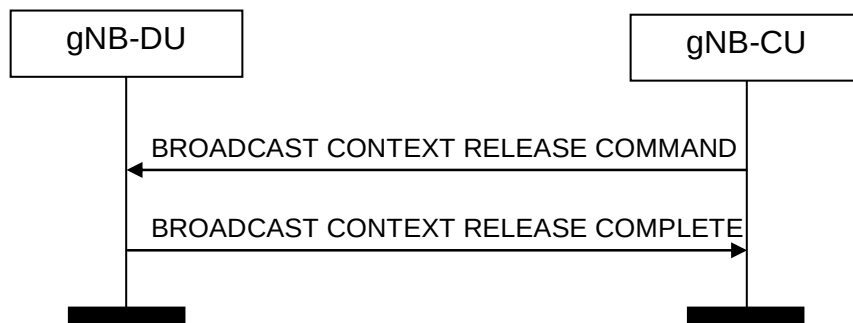


**Figure 8.14.2.2-1: Broadcast Context Release procedure. Successful operation**

The gNB-CU initiates the procedure by sending the BROADCAST CONTEXT RELEASE COMMAND message to the gNB-DU.

Upon reception of the BROADCAST CONTEXT RELEASE COMMAND message, the gNB-DU shall release all signalling and user data transport resources associated with the context and reply with the BROADCAST CONTEXT RELEASE COMPLETE message.

### 8.14.2.3 Unsuccessful Operation

Not applicable.

### 8.14.2.4 Abnormal Conditions

Not applicable.

## 8.14.3 Broadcast Context Release Request

### 8.14.3.1 General

The purpose of the Broadcast Context Release Request procedure is to request the gNB-CU to trigger the Broadcast Context Release procedure.

The procedure uses MBS-associated signalling.

### 8.14.3.2 Successful Operation



**Figure 8.14.3.2-1: Broadcast Context Release Request procedure. Successful operation**

The gNB-DU initiates the procedure by sending the BROADCAST CONTEXT RELEASE REQUEST message to the gNB-CU.

**Interaction with the Broadcast Context Release procedure:**

Upon reception of the BROADCAST CONTEXT RELEASE REQUEST message, the gNB-CU should trigger the Broadcast Context Release procedure.

#### 8.14.3.3 Unsuccessful Operation

Not applicable.

#### 8.14.3.4 Abnormal Conditions

Not applicable.

### 8.14.4 Broadcast Context Modification

#### 8.14.4.1 General

The purpose of the Broadcast Context Modification procedure is to modify an established MBS Session context for a broadcast session in the gNB-DU.

The procedure uses MBS-associated signalling.

#### 8.14.4.2 Successful Operation

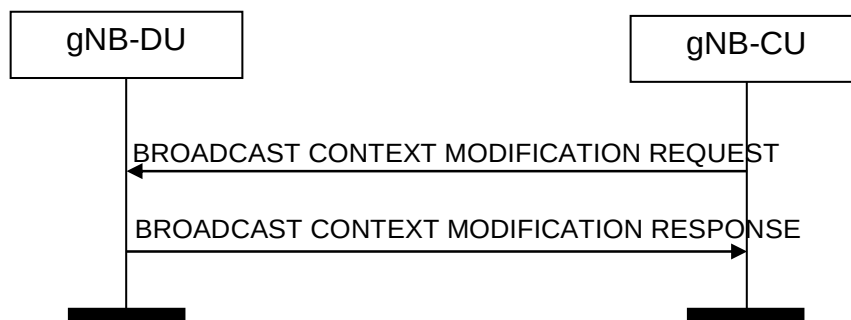


**Figure 8.14.4.2-1: Broadcast Context Modification procedure. Successful operation**

The BROADCAST CONTEXT MODIFICATION REQUEST message is initiated by the gNB-CU.

Upon reception of the BROADCAST CONTEXT MODIFICATION REQUEST message, the gNB-DU shall perform the modifications, and, if successful, report the update in the BROADCAST CONTEXT MODIFICATION RESPONSE message.

If the *Broadcast MRB To Be Setup List* IE is contained in the BROADCAST CONTEXT MODIFICATION REQUEST message, the gNB-DU shall setup the corresponding resources for the requested MRB(s), and report to the gNB-CU, in the BROADCAST CONTEXT MODIFICATION RESPONSE message, the result of all the requested Broadcast MRBs in the following way:

- A list of MRBs which have been successfully established shall be included in the *Broadcast MRB Setup List* IE;
- A list of MRBs which failed to be established shall be included in the *Broadcast MRB Failed To Be Setup List* IE;

If the *Broadcast MRB Failed To Be Setup List* IE is contained in the BROADCAST CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall regard the setup of the indicated MRB(s) as failed and indicate the reason for the failure with an appropriate cause value for each MRB failed to be setup.

If the *Broadcast MRB To Be Modified List* IE is contained in the BROADCAST CONTEXT MODIFICATION REQUEST message, the gNB-DU shall update the corresponding context and resources for the requested MRB(s), and report to the gNB-DU, in the BROADCAST CONTEXT MODIFICATION RESPONSE message, the modification result of all the requested Broadcast MRBs in the following way:

- A list of MRBs which have been successfully modified shall be included in the *Broadcast MRB Modified List* IE;
- A list of MRBs which failed to be modified shall be included in the *Broadcast MRB Failed To Be Modified List* IE;

If the *Broadcast MRB Failed To Be Modified List* IE is contained in the BROADCAST CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall regard the Broadcast MRB(s) failed to be modified with an appropriate cause value for each Broadcast MRB failed to modify.

If the *MBS Service Area* IE is included in the BROADCAST CONTEXT MODIFICATION REQUEST message, the gNB-DU shall

- release MBS Session Resources within cells not contained in the *MBS Service Area* IE, if any;
- establish MBS Session Resources within cells which have not been contained in MBS Service Area information previously received;
- replace MBS Service Area information previously received with information received in the *MBS Service Area* IE included in the BROADCAST CONTEXT MODIFICATION REQUEST message;
- include the *Broadcast Area Scope* IE in the BROADCAST CONTEXT MODIFICATION RESPONSE message to indicate the cells where MBS Session resources are currently established in the gNB-DU.

If the the *MBS Service Area* IE was not included in the BROADCAST CONTEXT MODIFICATION REQUEST message and the gNB-DU has released MBS Session Resources within at least one cell or has established MBS Session Resources within at least one cell the gNB-DU shall include the *Broadcast Area Scope* IE in the BROADCAST CONTEXT MODIFICATION RESPONSE message to indicate the cells where MBS Session resources are currently established in the gNB-DU.

If the *Supported UE Type List* IE is included in the BROADCAST CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, store and use the information for configuring MBS session resources.

#### 8.14.4.3 Unsuccessful Operation

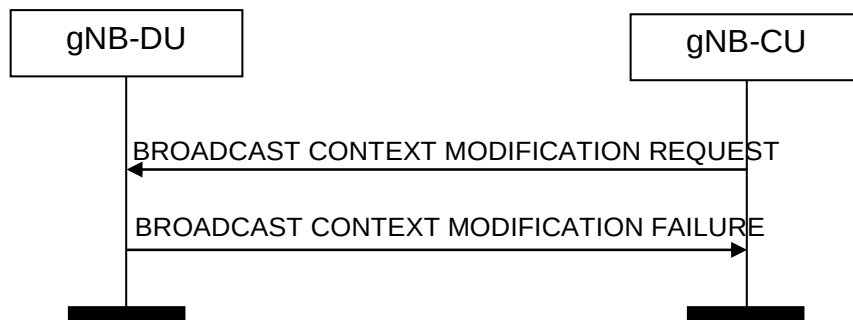


**Figure 8.14.4.3-1: Broadcast Context Modification procedure. Unsuccessful operation**

In case none of the requested modifications of the broadcast context can be successfully performed, the gNB-DU shall respond with the BROADCAST CONTEXT MODIFICATION FAILURE message with an appropriate cause value.

#### 8.14.4.4 Abnormal Conditions

Not applicable.

## 8.14.5 Multicast Group Paging

### 8.14.5.1 General

The purpose of the Multicast Group Paging procedure is used to provide the paging information to enable the gNB-DU to multicast group page UEs which have joined an MBS Session and notify them about its activation. The procedure uses non-UE associated signalling.

### 8.14.5.2 Successful Operation

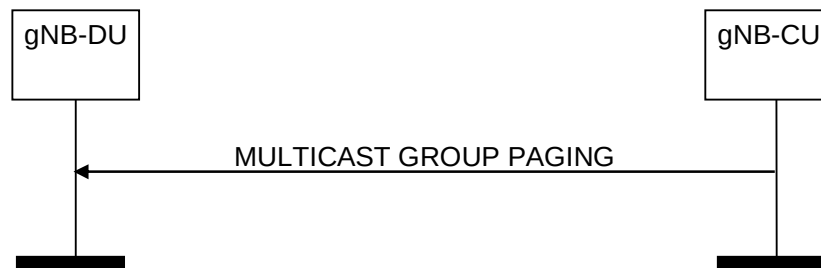


**Figure 8.14.5.2-1: Multicast Group Paging**

The gNB-CU initiates the Multicast Group Paging procedure by sending the MULTICAST GROUP PAGING message to the gNB-DU.

At the reception of the MULTICAST GROUP PAGING message, the gNB-DU shall perform paging of the MBS Session identified by the *MBS Session ID* IE.

If the *Paging DRX* IE is included in the MULTICAST GROUP PAGING message gNB-DU shall use it according to TS 38.304 [24].

If the *UE Identity List for Paging* IE is included in the MULTICAST GROUP PAGING message, the gNB-DU shall, if supported, use it according to TS 38.304 [24]. If absent, the gNB-DU shall perform multicast group paging of the MBS session in all paging occasions within at least one default paging cycle, as specified in TS 38.304 [24].

At the reception of the MULTICAST GROUP PAGING message, the gNB-DU shall perform paging of the MBS Session in all the served cells of the PLMN indicated in the *MBS Session ID* IE except if the *MC Paging Cell List* IE is included in which case the gNB-DU shall, if supported, perform multicast group paging of the MBS session in the indicated cells only.

### 8.14.5.3 Abnormal Conditions

Void.

## 8.14.6 Multicast Context Setup

### 8.14.6.1 General

The purpose of the Multicast Context Setup procedure is to establish an MBS Session context in the gNB-DU for a multicast session.

The procedure uses MBS-associated signalling.

### 8.14.6.2 Successful Operation

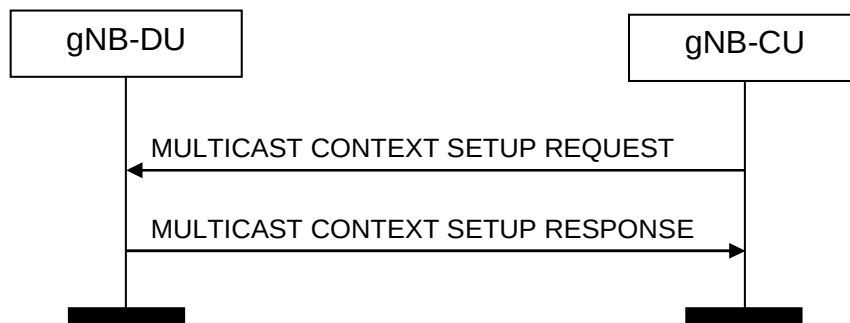


**Figure 8.14.6.2-1: Multicast Context Setup procedure: Successful Operation**

The gNB-CU initiates the procedure by sending MULTICAST CONTEXT SETUP REQUEST message to the gNB-DU. If the gNB-DU succeeds to establish the multicast MBS Session context, it replies to the gNB-CU with MULTICAST CONTEXT SETUP RESPONSE.

If the *MBS Service Area* IE is included in the MULTICAST CONTEXT SETUP REQUEST message, the gNB-DU shall take this information into account for shared F1-U tunnel assignment.

The gNB-DU shall report to the gNB-CU, in the MULTICAST CONTEXT SETUP RESPONSE message, the result of all the requested Multicast MRBs in the following way:

- A list of MRBs which have been successfully established shall be included in the *Multicast MRB Setup List* IE;
- A list of MRBs which failed to be established shall be included in the *Multicast MRB Failed To Be Setup List* IE;

If the *Multicast MRB Failed To Setup List* IE is contained in the MULTICAST CONTEXT SETUP RESPONSE message, the gNB-CU shall regard the Multicast MRB(s) failed to be setup with an appropriate cause value for each Multicast MRB failed to setup.

If the MULTICAST CONTEXT SETUP REQUEST message contains the *MBS Multicast Configuration Request* IE in the *Multicast CU to DU RRC Information* IE set to "query" and

- if the gNB-DU is able to provide information about the requested resources, the gNB-DU shall, if supported, include the *MBS Multicast Configuration* IE in the *MBS Multicast Configuration Response Information* IE in the *Multicast DU to CU RRC Information* IE,
- else if the gNB-DU is not able to provide information about the requested resources, the gNB-DU shall, if supported, include the *MBS Multicast Configuration not available* IE in the *MBS Multicast Configuration Response Information* IE in the *Multicast DU to CU RRC Information* IE set to "not available".

#### **Interaction with the Multicast Distribution Context Setup procedure:**

Upon reception of the MULTICAST CONTEXT SETUP REQUEST procedure, the gNB-DU shall trigger either per cell or per MBS Area Session ID or for the whole gNB-DU the Multicast Distribution Context Setup procedure to establish per cell or per MBS Area Session ID or the the whole gNB DU per accepted MRB a shared F1-U tunnel.

### 8.14.6.3 Unsuccessful Operation

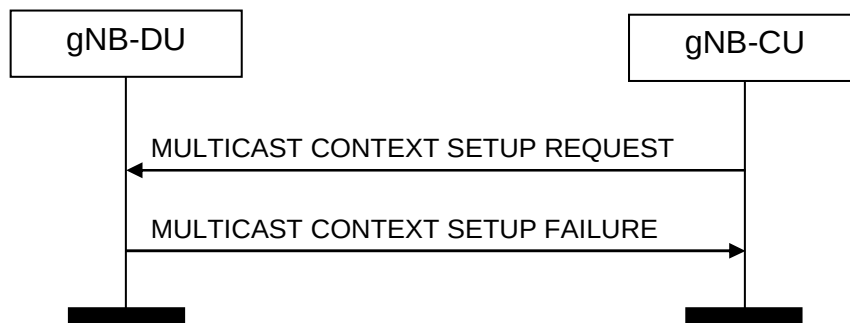


**Figure 8.14.6.3-1: Multicast Context Setup procedure: unsuccessful Operation**

If the gNB-DU is not able to establish the MBS session context it shall consider the procedure as failed and reply with the MULTICAST CONTEXT SETUP FAILURE message.

### 8.14.6.4 Abnormal Conditions

Not applicable.

## 8.14.7 Multicast Context Release

### 8.14.7.1 General

The purpose of the Multicast Context Release procedure is to enable the gNB-CU to order the release of an established MBS session context in the gNB-DU for a multicast session.

The procedure uses MBS-associated signalling.

### 8.14.7.2 Successful Operation

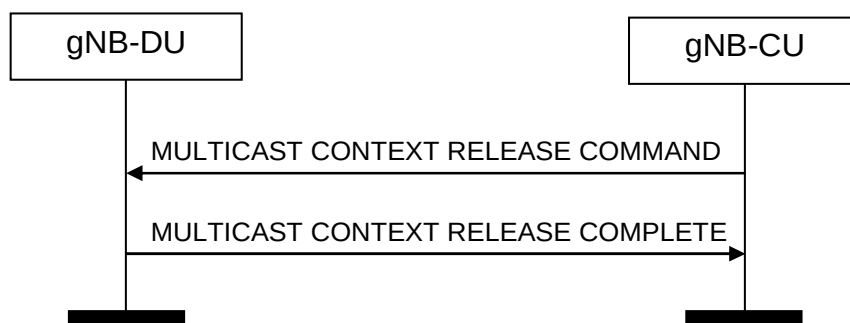


**Figure 8.14.7.2-1: Multicast Context Release procedure. Successful operation**

The gNB-CU initiates the procedure by sending the MULTICAST CONTEXT RELEASE COMMAND message to the gNB-DU.

Upon reception of the MULTICAST CONTEXT RELEASE COMMAND message, the gNB-DU shall release all signalling and user data transport resources associated with the context and reply with the MULTICAST CONTEXT RELEASE COMPLETE message.

### 8.14.7.3 Unsuccessful Operation

Not applicable.

#### 8.14.7.4 Abnormal Conditions

Not applicable.

### 8.14.8 Multicast Context Release Request

#### 8.14.8.1 General

The purpose of the Multicast Context Release Request procedure is to request the gNB-CU to trigger the Multicast Context Release procedure.

The procedure uses MBS-associated signalling.

#### 8.14.8.2 Successful Operation



**Figure 8.14.8.2-1: Multicast Context Release Request procedure. Successful operation**

The gNB-DU initiates the procedure by sending the MULTICAST CONTEXT RELEASE REQUEST message to the gNB-CU.

#### Interaction with the Multicast Context Release procedure:

Upon reception of the MULTICAST CONTEXT RELEASE REQUEST message, the gNB-CU should trigger the Multicast Context Release procedure.

#### 8.14.8.3 Unsuccessful Operation

Not applicable.

#### 8.14.8.4 Abnormal Conditions

Not applicable.

### 8.14.9 Multicast Context Modification

#### 8.14.9.1 General

The purpose of the Multicast Context Modification procedure is to modify an established MBS session context in the gNB-DU for a multicast session.

The procedure uses MBS-associated signalling.

## 8.14.9.2 Successful Operation

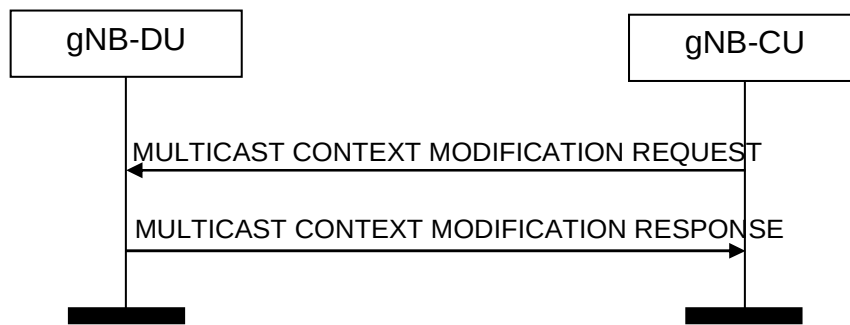


**Figure 8.14.9.2-1: Multicast Context Modification procedure. Successful operation**

The MULTICAST CONTEXT MODIFICATION REQUEST message is initiated by the gNB-CU.

Upon reception of the MULTICAST CONTEXT MODIFICATION REQUEST message, the gNB-DU shall perform the modifications, and, if successful, report the update in the MULTICAST CONTEXT MODIFICATION RESPONSE message.

If the *Multicast MRB To Be Setup List* IE is contained in the MULTICAST CONTEXT MODIFICATION REQUEST message, the gNB-DU shall setup the corresponding resources for the requested MRB(s), and report to the gNB-CU, in the MULTICAST CONTEXT MODIFICATION RESPONSE message, the result of all the requested Multicast MRBs in the following way:

- A list of MRBs which have been successfully established shall be included in the *Multicast MRB Setup List* IE;
- A list of MRBs which failed to be established shall be included in the *Multicast MRB Failed To Be Setup List* IE;

If the *Multicast MRB Failed To Be Setup List* IE is contained in the MULTICAST CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall regard the setup of the indicated MRB(s) as failed and indicated the resource for the failure with an appropriate cause value for each MRB failed to be setup.

If the *Multicast MRB To Be Modified List* IE is contained in the MULTICAST CONTEXT MODIFICATION REQUEST message, the gNB-DU shall update the corresponding context and resources for the requested MRB(s), and report to the gNB-CU, in the MULTICAST CONTEXT MODIFICATION RESPONSE message, the modification result of all the requested Multicast MRBs in the following way:

- A list of MRBs which have been successfully modified shall be included in the *Multicast MRB Modified List* IE;
- A list of MRBs which failed to be modified shall be included in the *Multicast MRB Failed To Be Modified List* IE;

If the *Multicast MRB Failed To Be Modified List* IE is contained in the MULTICAST CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall regard the Multicast MRB(s) failed to be modified with an appropriate cause value for each Multicast MRB failed to modify.

If the MULTICAST CONTEXT MODIFICATION REQUEST message contains the *MBS Multicast Configuration Request* IE in the *Multicast CU to DU RRC Information* IE set to "query" and

- if the gNB-DU is able to provide information about the requested resources, the gNB-DU shall, if supported, include the *MBS Multicast Configuration* IE in the *MBS Multicast Configuration Response Information* IE in the *Multicast DU to CU RRC Information* IE,
- else if the gNB-DU is not able to provide information about the requested resources, the gNB-DU shall, if supported, include the *MBS Multicast Configuration not available* IE in the *MBS Multicast Configuration Response Information* IE in the *Multicast DU to CU RRC Information* IE set to "not available".



### 8.14.9.3 Unsuccessful Operation

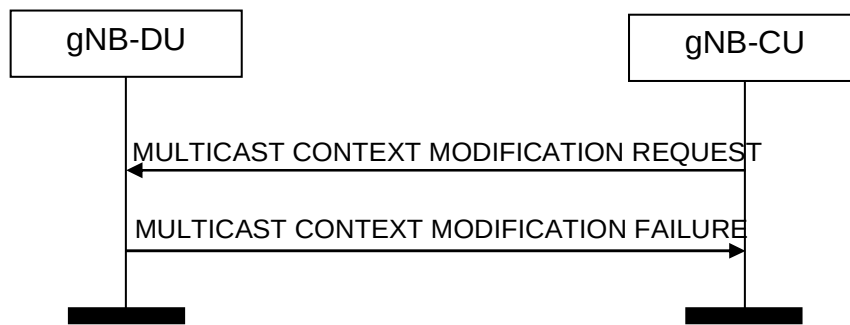


**Figure 8.14.9.3-1: Multicast Context Modification procedure. Unsuccessful operation**

In case none of the requested modifications of the multicast context can be successfully performed, the gNB-DU shall respond with the MULTICAST CONTEXT MODIFICATION FAILURE message with an appropriate cause value.

### 8.14.9.4 Abnormal Conditions

Not applicable.

## 8.14.10 Multicast Distribution Setup

### 8.14.10.1 General

The purpose of the Multicast Distribution Setup procedure is to establish F1-U bearers for the multicast MBS session. The procedure uses MBS-associated signalling.

### 8.14.10.2 Successful Operation

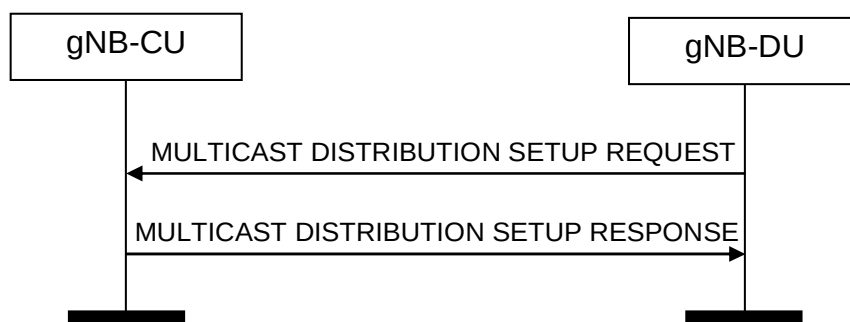


**Figure 8.14.10.2-1: Multicast Distribution Setup procedure: Successful Operation**

The gNB-DU initiates the procedure by sending MULTICAST DISTRIBUTION SETUP REQUEST message to the gNB-CU. If the gNB-CU succeeds to establish the multicast context, it replies to the gNB-DU with MULTICAST DISTRIBUTION SETUP RESPONSE.

The MULTICAST DISTRIBUTION SETUP REQUEST message shall contain F1-U TNL information for the MRBs accepted for the MBS Session by the gNB-DU and indicate in the *MBS Multicast F1-U Context Descriptor* IE, if the shared F1-U tunnel(s) for the MRB(s) are established on a per NR CGI or per MBS Area Session ID basis or for a ptp MRB leg.

Upon reception of the MULTICAST DISTRIBUTION SETUP REQUEST message the gNB-CU shall allocate F1-U resources and reply accordingly to the gNB-DU in the MULTICAST DISTRIBUTION SETUP RESPONSE message.

If the *MC F1-U Context usage* IE in the *MBS Multicast F1-U Context Descriptor* IE is set to "ptp forwarding" the gNB-CU shall, if supported, use the *MRB Progress Information* IE to determine at which PDCP SN to start transmitting multicast data to the gNB-DU.

#### 8.14.10.3 Unsuccessful Operation

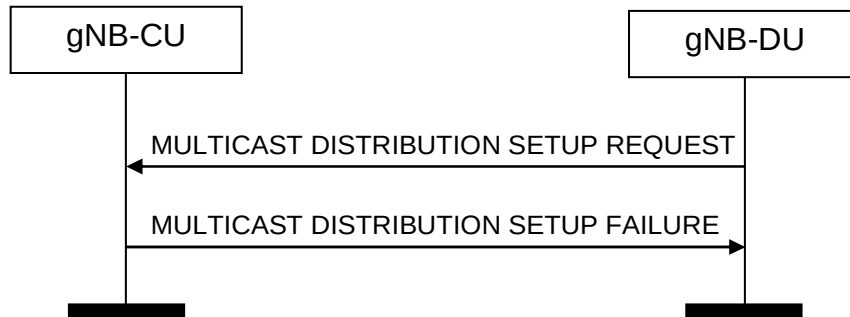


**Figure 8.14.10.3-1: Multicast Distribution Setup procedure: unsuccessful Operation**

If the gNB-CU is not able to provide the requested resources it shall consider the procedure as failed and reply with the MULTICAST CONTEXT SETUP FAILURE message.

#### 8.14.10.4 Abnormal Conditions

Not applicable.

### 8.14.11 Multicast Distribution Release

#### 8.14.11.1 General

The purpose of the Multicast Distribution Release procedure is to enable the gNB-DU to order the release of F1-U tunnels previously established using the Multicast Distribution Setup procedure.

The procedure uses MBS-associated signalling.

#### 8.14.11.2 Successful Operation

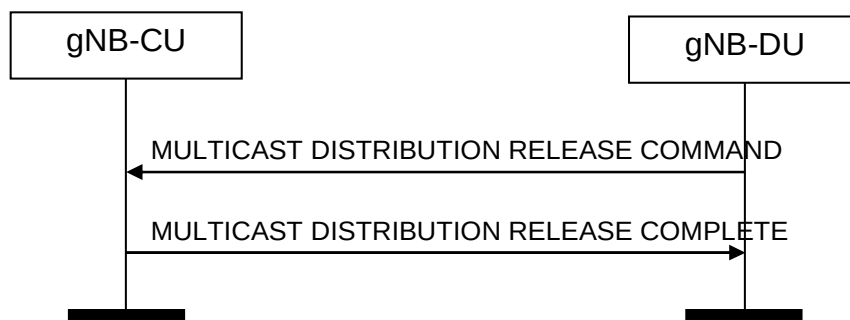


**Figure 8.14.11.2-1: Multicast Distribution Release procedure. Successful operation**

The gNB-DU initiates the procedure by sending the MULTICAST DISTRIBUTION RELEASE COMMAND message to the gNB-CU.

Upon reception of the MULTICAST DISTRIBUTION RELEASE COMMAND message, the gNB-CU shall release all signalling and user data transport resources associated with the context and reply with the MULTICAST DISTRIBUTION RELEASE COMPLETE message.

### 8.14.11.3 Unsuccessful Operation

Not applicable.

### 8.14.11.4 Abnormal Conditions

Not applicable.

## 8.14.12 Multicast Context Notification

### 8.14.12.1 General

The purpose of the Multicast Context Notification is to inform the gNB-CU about changes in the multicast context configuration.

The procedure uses MBS-associated signalling.

### 8.14.12.2 Successful Operation

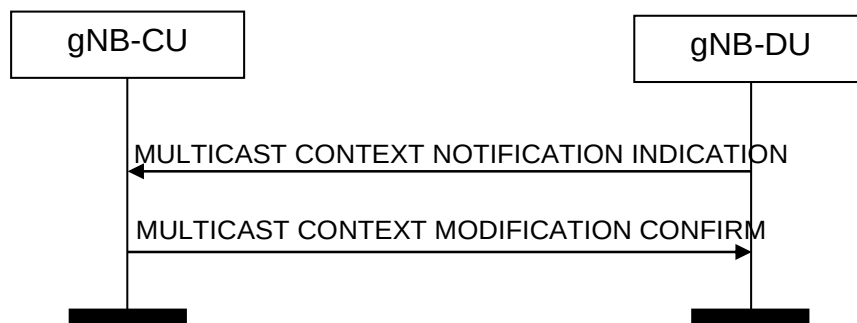


**Figure 8.14.12.2-1: Multicast Context Notification. Successful operation**

The gNB-DU initiates the procedure by sending the MULTICAST CONTEXT NOTIFICATION INDICATION message to the gNB-CU.

If the MULTICAST CONTEXT NOTIFICATION INDICATION message contains the *MBS Multicast Configuration Notification* IE within the *Multicast DU to CU RRC Information* IE, the gNB-CU shall replace, for the respective cell, the Multicast Configuration Information previously received with information received in the *MBS Multicast Configuration Notification* IE.

If the gNB-CU is able to execute the requested functions, the gNB-CU shall respond with the MULTICAST CONTEXT NOTIFICATION CONFIRM message to the gNB-DU.

### 8.14.12.3 Unsuccessful Operation

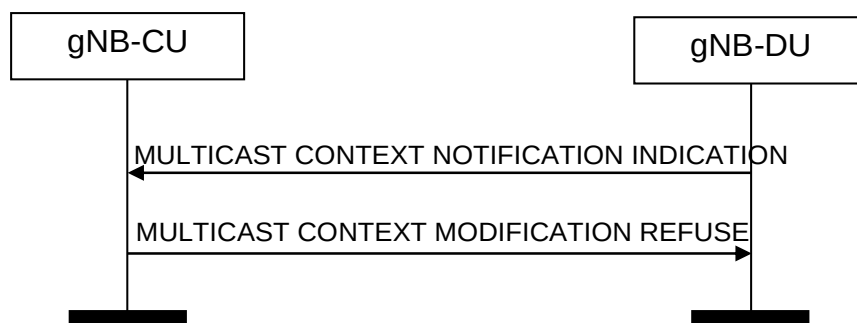


**Figure 8.14.12.3-1: Multicast Context Notification. Unsuccessful operation**

If the gNB-CU is not able to execute the requested functions, the gNB-CU shall respond with the MULTICAST CONTEXT NOTIFICATION REFUSE message to the gNB-DU.

#### 8.14.12.4 Abnormal Conditions

Not applicable.

### 8.14.13 Multicast Common Configuration

#### 8.14.13.1 General

The purpose of the Multicast Common Configuration procedure is to allow the gNB-CU to control the configuration of items common to all multicast contexts in the gNB-DU.

The procedure uses non UE-associated signalling.

#### 8.14.13.2 Successful Operation

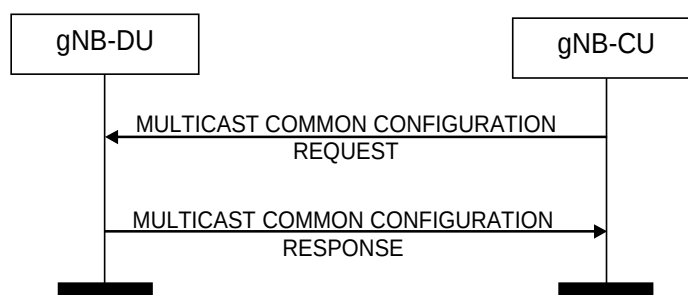


**Figure 8.14.13.2-1: Multicast Common Configuration. Successful operation**

The gNB-CU initiates the procedure by sending the MULTICAST COMMON CONFIGURATION REQUEST message to the gNB-DU.

If the *Multicast CU to DU Common RRC Information* IE is included in the MULTICAST COMMON CONFIGURATION REQUEST message and contains the *Multicast Common CU2DU Cell List* IE, the gNB-DU shall, if supported, use it to configure MBS session resources accordingly.

#### 8.14.13.3 Unsuccessful Operation

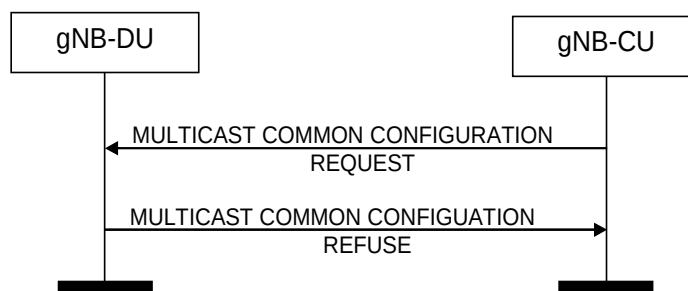


**Figure 8.14.13.3-1: Multicast Common Configuration. Unsuccessful operation**

If the gNB-DU is not able to execute the requested functions, the gNB-DU shall respond with the MULTICAST COMMON CONFIGURATION REFUSE message to the gNB-CU.

#### 8.14.13.4 Abnormal Conditions

void.

## 8.14.14 Broadcast Transport Resource Request

### 8.14.14.1 General

The purpose of the Broadcast Transport Resource Request procedure is to request the gNB-CU to trigger the establishment of F1-U resources for the broadcast session.

The procedure uses MBS-associated signalling.

### 8.14.14.2 Successful Operation



**Figure 8.14.14.2-1: Broadcast Transport Resource Request procedure. Successful operation**

The gNB-DU initiates the procedure by sending the BROADCAST TRANSPORT RESOURCE REQUEST message to the gNB-CU.

#### Interaction with the Broadcast Context Modification procedure:

Upon reception of the BROADCAST TRANSPORT RESOURCE REQUEST message, the gNB-CU should trigger the Broadcast Context Modification procedure to establish the F1-U resources for the broadcast session. Besides, in case the *F1-U Path Failure indication* IE set to "true" is included in the BROADCAST TRANSPORT RESOURCE REQUEST message, the gNB-CU shall, if supported, consider that the previous established shared F1-U resources have been released in the gNB-DU and behave as specified in TS 38.401 [4].

### 8.14.14.3 Unsuccessful Operation

Not applicable.

### 8.14.14.4 Abnormal Conditions

Not applicable.

## 8.15 PDC Measurement Reporting procedures

### 8.15.1 PDC Measurement Initiation

#### 8.15.1.1 General

The purpose of the PDC Measurement Initiation procedure is to enable the gNB-CU to request the gNB-DU to report measurements used for propagation delay compensation at the gNB-CU or UE. The procedure uses UE-associated signalling.

### 8.15.1.2 Successful Operation

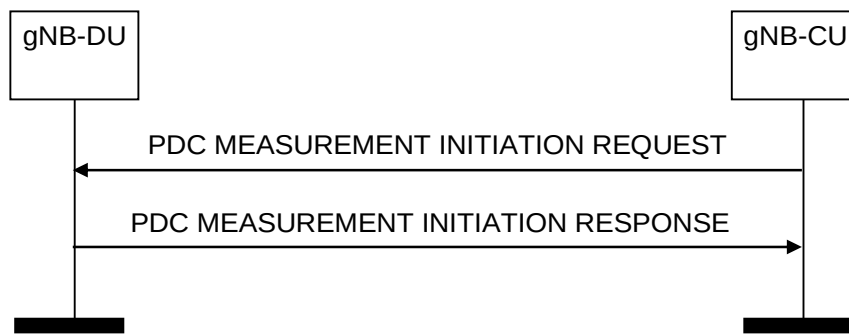


**Figure 8.15.1.2-1: PDC Measurement Initiation procedure, successful operation**

The gNB-CU initiates the procedure by sending a PDC MEASUREMENT INITIATION REQUEST message. If the gNB-DU is able to initiate the requested PDC measurements, it shall reply with the PDC MEASUREMENT INITIATION RESPONSE message.

If the *PDC Report Type* IE is set to "OnDemand", the gNB-DU shall return the result of the measurement in the PDC MEASUREMENT INITIATION RESPONSE message including the *PDC Measurement Result* IE, and the gNB-CU shall consider that the PDC measurements for the UE have been terminated by the gNB-DU.

#### Interaction with the PDC Measurement Report procedure:

If the *PDC Report Type* IE is set to "Periodic", the gNB-DU shall initiate the requested measurements and shall reply with the PDC MEASUREMENT INITIATION RESPONSE message without including the *PDC Measurement Result* IE in this message. The gNB-DU shall then periodically initiate the PDC Measurement Report procedure for the measurements, with the requested reporting periodicity.

### 8.15.1.3 Unsuccessful Operation

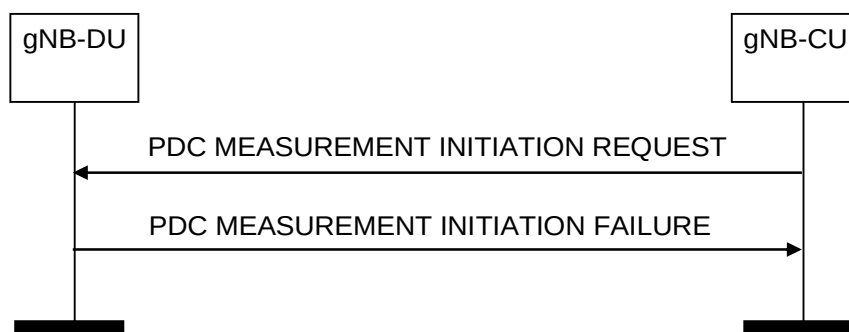


**Figure 8.15.1.3-1: PDC Measurement Initiation procedure, unsuccessful operation**

If the gNB-DU is not able to initiate at least one of the requested PDC measurements, the gNB-DU shall respond with a PDC MEASUREMENT INITIATION FAILURE message.

## 8.15.2 PDC Measurement Report

### 8.15.2.1 General

The purpose of the PDC Measurement Report procedure is for the gNB-DU to provide the PDC measurements for the UE to the gNB-CU. The procedure uses UE-associated signalling.

### 8.15.2.2 Successful Operation



**Figure 8.15.2.2-1: PDC Measurement Report procedure, successful operation**

The gNB-DU initiates the procedure by sending a PDC MEASUREMENT REPORT message. The PDC MEASUREMENT REPORT message contains the PDC measurement results according to the measurement configuration in the respective PDC MEASUREMENT INITIATION REQUEST message.

### 8.15.2.3 Unsuccessful Operation

Not applicable.

## 8.15.3 PDC Measurement Termination

### 8.15.3.1 General

The purpose of the PDC Measurement Termination procedure is to enable the gNB-CU to terminate an on-going periodical PDC measurement. The procedure uses UE-associated signalling.

### 8.15.3.2 Successful Operation

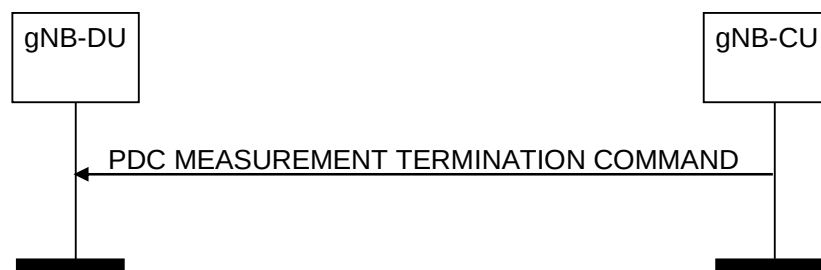


**Figure 8.15.3.2-1: PDC Measurement Termination procedure: successful operation**

The gNB-CU initiates the procedure by sending a PDC MEASUREMENT TERMINATION COMMAND message. Upon receiving this message, the gNB-DU shall terminate the ongoing PDC measurement and may release any resources previously allocated for the same measurement.

### 8.15.3.3 Unsuccessful Operation

Not applicable.

### 8.15.3.4 Abnormal Conditions

If the gNB-DU cannot identify the previously requested measurement to be terminated, it shall ignore the PDC MEASUREMENT TERMINATION COMMAND message.

## 8.15.4 PDC Measurement Failure Indication

### 8.15.4.1 General

The purpose of the PDC Measurement Failure Indication procedure is for the gNB-DU to notify the gNB-CU that the PDC measurements previously requested with the PDC Measurement Initiation procedure can no longer be reported. The procedure uses UE-associated signalling.

### 8.15.4.2 Successful Operation

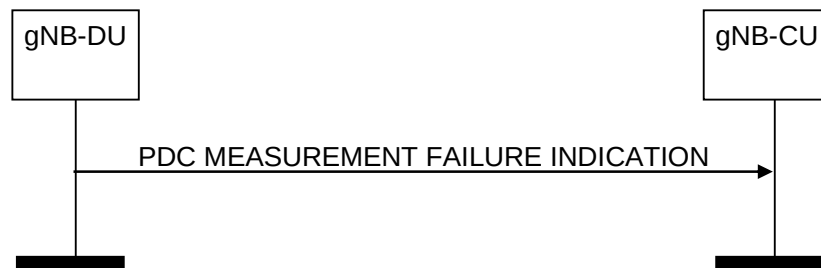


**Figure 8.15.4.2-1: PDC Measurement Failure Indication procedure: successful operation**

The gNB-DU initiates the procedure by sending a PDC MEASUREMENT FAILURE INDICATION message. Upon reception of the PDC MEASUREMENT FAILURE INDICATION message, the gNB-CU shall consider that the indicated PDC measurements have been terminated by the gNB-DU.

### 8.15.4.3 Unsuccessful Operation

Not applicable.

### 8.15.4.4 Abnormal Conditions

Void.

## 8.16 QMC Procedures

### 8.16.1 QoE Information Transfer

#### 8.16.1.1 General

The purpose of the QoE Information Transfer procedure is to transfer RAN visible QoE information from the gNB-CU to the gNB-DU. The procedure uses UE-associated signalling.

#### 8.16.1.2 Successful operation

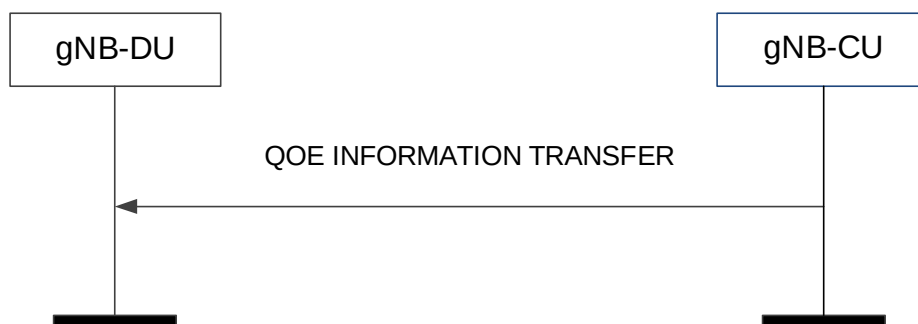


**Figure 8.16.1.2-1: QoE Information Transfer procedure**



The gNB-CU initiates the procedure by sending the QOE INFORMATION TRANSFER message to the gNB-DU.

If the *QoE Information List* IE is included in QOE INFORMATION TRANSFER message, the gNB-DU may take it into account according to TS 38.300 [6].

### 8.16.1.3 Abnormal Conditions

Not applicable.

## 8.16.2 QoE Information Transfer Control

### 8.16.2.1 General

The purpose of the QoE Information Transfer Control procedure is to control the RAN visible QoE information transfer from the gNB-CU to the gNB-DU. The procedure uses non-UE associated signalling.

### 8.16.2.2 Successful operation



**Figure 8.16.2.2-1: QoE Information Transfer Control procedure.**

The gNB-DU initiates the procedure by sending the QOE INFORMATION TRANSFER CONTROL message to the gNB-CU.

If the *Deactivation Indication* IE is present in the message and set to 'Per UE', the gNB-CU shall, if supported, deactivate the QoE information transfer from gNB-CU to gNB-DU for the UEs indicated in the *Deactivation Indication List* IE.

If the *Deactivation Indication* IE is present in the message and set to 'Deactivate ALL', the gNB-CU shall, if supported, deactivate the QoE information transfer from the gNB-CU to the gNB-DU for all UEs served by the gNB-DU.

### 8.16.2.3 Abnormal Conditions

Not applicable.

## 8.17 Timing Synchronisation Status Reporting Procedures

### 8.17.1 Timing Synchronisation Status

#### 8.17.1.1 General

The purpose of the Timing Synchronisation Status procedure is to enable the gNB-CU to request the gNB-DU to start or stop reporting of RAN timing synchronisation status information.

The procedure uses non-UE associated signalling.

### 8.17.1.2 Successful Operation

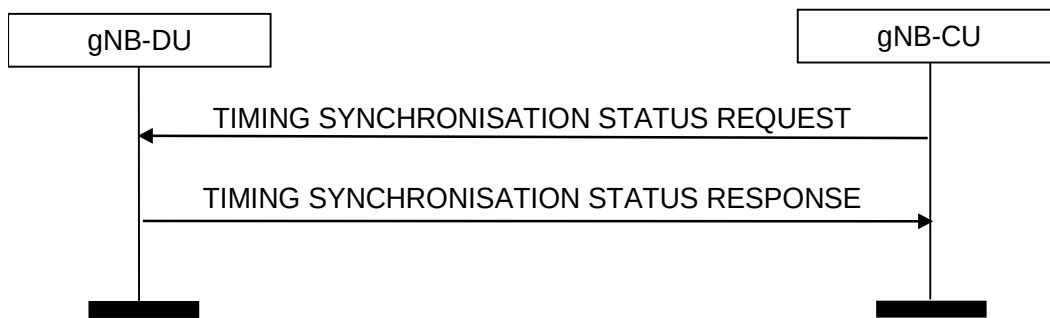


**Figure 8.17.1.2-1: Timing synchronisation status procedure: successful operation**

The gNB-CU initiates the procedure by sending a TIMING SYNCHRONISATION STATUS REQUEST message to the gNB-DU.

If the *RAN TSS Request Type* IE included in the TIMING SYNCHRONISATION STATUS REQUEST message is set to “start”, the gNB-DU shall start the reporting of RAN timing synchronization status information and reply with the TIMING SYNCHRONISATION STATUS RESPONSE message. If the *RAN TSS Request Type* IE is set to “stop”, the gNB-DU shall stop the reporting and reply with the TIMING SYNCHRONISATION STATUS RESPONSE message.

### 8.17.1.3 Unsuccessful Operation

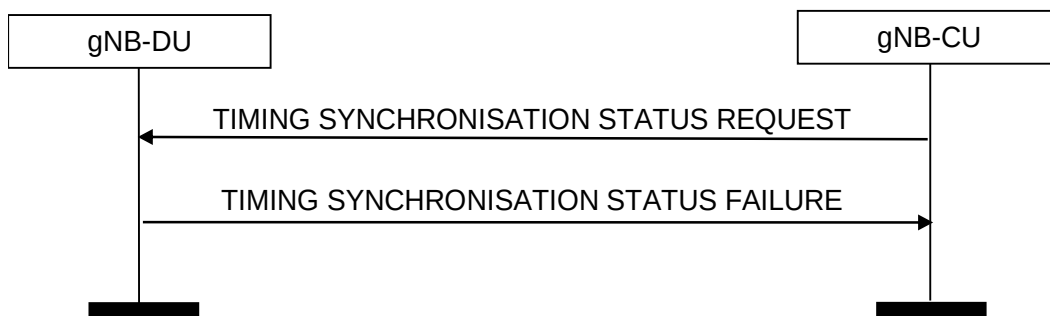


**Figure 8.17.1.3-1: Timing synchronisation status procedure: unsuccessful operation**

If the gNB-DU is not able to report timing synchronisation status, it shall consider the procedure as failed and reply with the TIMING SYNCHRONISATION STATUS FAILURE message.

### 8.17.1.4 Abnormal Conditions

Void.

## 8.17.2 Timing Synchronisation Status Report

### 8.17.2.1 General

The purpose of the Timing Synchronisation Status Report procedure is to enable the gNB-DU to provide RAN timing synchronisation status information to the gNB-CU.

The procedure uses non-UE associated signalling.

### 8.17.2.2 Successful Operation



**Figure 8.17.2.2-1: Timing synchronisation status report**

The gNB-DU initiates the procedure by sending a TIMING SYNCHRONISATION STATUS REPORT message to the gNB-CU.

### 8.17.2.3 Abnormal Conditions

Void.

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## 9 Elements for F1AP Communication

### 9.1 General

Subclauses 9.2 and 9.3 present the F1AP message and IE definitions in tabular format. The corresponding ASN.1 definition is presented in subclause 9.4. In case there is contradiction between the tabular format and the ASN.1 definition, the ASN.1 shall take precedence, except for the definition of conditions for the presence of conditional IEs, where the tabular format shall take precedence.

The messages have been defined in accordance to the guidelines specified in TR 25.921 [14].

When specifying IEs which are to be represented by bitstrings, if not otherwise specifically stated in the semantics description of the concerned IE or elsewhere, the following principle applies with regards to the ordering of bits:

- The first bit (leftmost bit) contains the most significant bit (MSB);
- The last bit (rightmost bit) contains the least significant bit (LSB);
- When importing bitstrings from other specifications, the first bit of the bitstring contains the first bit of the concerned information;

The following attributes are used for the tabular description of the messages and information elements: Presence, Range Criticality and Assigned Criticality. Their definition and use can be found in TS 38.413 [3].

### 9.2 Message Functional Definition and Content

#### 9.2.1 Interface Management messages

##### 9.2.1.1 RESET

This message is sent by both the gNB-CU and the gNB-DU and is used to request that the F1 interface, or parts of the F1 interface, to be reset.

Direction: gNB-CU → gNB-DU and gNB-DU → gNB-CU

| IE/Group Name                               | Presence | Range                                           | IE type and reference         | Semantics description | Criticality | Assigned Criticality |
|---------------------------------------------|----------|-------------------------------------------------|-------------------------------|-----------------------|-------------|----------------------|
| Message Type                                | M        |                                                 | 9.3.1.1                       |                       | YES         | reject               |
| Transaction ID                              | M        |                                                 | 9.3.1.23                      |                       | YES         | reject               |
| Cause                                       | M        |                                                 | 9.3.1.2                       |                       | YES         | ignore               |
| CHOICE Reset Type                           | M        |                                                 |                               |                       | YES         | reject               |
| >F1 interface                               |          |                                                 |                               |                       |             |                      |
| >>Reset All                                 | M        |                                                 | ENUMERATED<br>(Reset all,...) |                       | -           |                      |
| >Part of F1 interface                       |          |                                                 |                               |                       |             |                      |
| >>UE-associated logical F1-connection list  |          | 1                                               |                               |                       | -           |                      |
| >>>UE-associated logical F1-connection Item |          | 1 ..<br><maxnoofIndividualF1ConnectionsToReset> |                               |                       | EACH        | reject               |
| >>>>gNB-CU UE F1AP ID                       | O        |                                                 | 9.3.1.4                       |                       | -           |                      |
| >>>>gNB-DU UE F1AP ID                       | O        |                                                 | 9.3.1.5                       |                       | -           |                      |

| Range bound                           | Explanation                                                                                          |
|---------------------------------------|------------------------------------------------------------------------------------------------------|
| maxnoofIndividualF1ConnectionsToReset | Maximum no. of UE-associated logical F1-connections allowed to reset in one message. Value is 65536. |

### 9.2.1.2 RESET ACKNOWLEDGE

This message is sent by both the gNB-CU and the gNB-DU as a response to a RESET message.

Direction: gNB-DU → gNB-CU and gNB-CU → gNB-DU.

| IE/Group Name                             | Presence | Range                                           | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------------------------|----------|-------------------------------------------------|-----------------------|-----------------------|-------------|----------------------|
| Message Type                              | M        |                                                 | 9.3.1.1               |                       | YES         | reject               |
| Transaction ID                            | M        |                                                 | 9.3.1.23              |                       | YES         | reject               |
| UE-associated logical F1-connection list  |          | 0..1                                            |                       |                       | YES         | ignore               |
| >UE-associated logical F1-connection Item |          | 1 ..<br><maxnoofIndividualF1ConnectionsToReset> |                       |                       | EACH        | ignore               |
| >>gNB-CU UE F1AP ID                       | O        |                                                 | 9.3.1.4               |                       | -           |                      |
| >>gNB-DU UE F1AP ID                       | O        |                                                 | 9.3.1.5               |                       | -           |                      |
| Criticality Diagnostics                   | O        |                                                 | 9.3.1.3               |                       | YES         | ignore               |

| Range bound                           | Explanation                                                                                          |
|---------------------------------------|------------------------------------------------------------------------------------------------------|
| maxnoofIndividualF1ConnectionsToReset | Maximum no. of UE-associated logical F1-connections allowed to reset in one message. Value is 65536. |

### 9.2.1.3 ERROR INDICATION

This message is sent by both the gNB-CU and the gNB-DU and is used to indicate that some error has been detected in the node.

Direction: gNB-CU → gNB-DU and gNB-DU → gNB-CU

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description                                               | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|---------------------------------------------------------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                                                                     | YES         | ignore               |
| Transaction ID          | M        |       | 9.3.1.23              | This IE is ignored if received in UE associated signalling message. | YES         | reject               |
| gNB-CU UE F1AP ID       | O        |       | 9.3.1.4               |                                                                     | YES         | ignore               |
| gNB-DU UE F1AP ID       | O        |       | 9.3.1.5               |                                                                     | YES         | ignore               |
| Cause                   | O        |       | 9.3.1.2               |                                                                     | YES         | ignore               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                                                                     | YES         | ignore               |

### 9.2.1.4 F1 SETUP REQUEST

This message is sent by the gNB-DU to transfer information associated to an F1-C interface instance.

NOTE: If a TNL association is shared among several F1-C interface instances, several F1 Setup procedures are issued via the same TNL association after that TNL association has become operational.

Direction: gNB-DU → gNB-CU

| IE/Group Name                    | Presence | Range                | IE type and reference             | Semantics description                                                                                                                                                                    | Criticality | Assigned Criticality |
|----------------------------------|----------|----------------------|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                     | M        |                      | 9.3.1.1                           |                                                                                                                                                                                          | YES         | reject               |
| Transaction ID                   | M        |                      | 9.3.1.23                          |                                                                                                                                                                                          | YES         | reject               |
| gNB-DU ID                        | M        |                      | 9.3.1.9                           |                                                                                                                                                                                          | YES         | reject               |
| gNB-DU Name                      | O        |                      | PrintableString(SIZE(1..150,...)) |                                                                                                                                                                                          | YES         | ignore               |
| gNB-DU Served Cells List         |          | 0.. 1                |                                   | List of cells configured in the gNB-DU                                                                                                                                                   | YES         | reject               |
| >gNB-DU Served Cells Item        |          | 1.. <maxCellingNBdu> |                                   |                                                                                                                                                                                          | EACH        | reject               |
| >>Served Cell Information        | M        |                      | 9.3.1.10                          | Information about the cells configured in the gNB-DU                                                                                                                                     | -           |                      |
| >>gNB-DU System Information      | O        |                      | 9.3.1.18                          | RRC container with system information owned by gNB-DU                                                                                                                                    | -           |                      |
| gNB-DU RRC version               | M        |                      | RRC version 9.3.1.70              |                                                                                                                                                                                          | YES         | reject               |
| Transport Layer Address Info     | O        |                      | 9.3.2.5                           |                                                                                                                                                                                          | YES         | ignore               |
| BAP Address                      | O        |                      | 9.3.1.111                         | Indicates a BAP address assigned to the IAB-node.                                                                                                                                        | YES         | ignore               |
| Extended gNB-DU Name             | O        |                      | 9.3.1.205                         |                                                                                                                                                                                          | YES         | ignore               |
| RRC Terminating IAB-Donor gNB-ID | O        |                      | Global gNB ID 9.3.1.305           | The Global gNB ID of a mobile IAB-node's RRC-terminating IAB donor. This IE is only present if the mobile IAB-node's RRC terminating IAB-donor-CU is different from the gNB-CU receiving | YES         | reject               |

| IE/Group Name                           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-----------------------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
|                                         |          |       |                       | this message.         |             |                      |
| Mobile IAB-MT User Location Information | O        |       | 9.3.1.307             |                       | YES         | ignore               |

| Range bound    | Explanation                                                     |
|----------------|-----------------------------------------------------------------|
| maxCellingNBDU | Maximum no. cells that can be served by a gNB-DU. Value is 512. |

### 9.2.1.5 F1 SETUP RESPONSE

This message is sent by the gNB-CU to transfer information associated to an F1-C interface instance.

Direction: gNB-CU → gNB-DU

| IE/Group Name                               | Presence | Range                   | IE type and reference             | Semantics description                                                                                                                                                                                                             | Criticality | Assigned Criticality |
|---------------------------------------------|----------|-------------------------|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                                | M        |                         | 9.3.1.1                           |                                                                                                                                                                                                                                   | YES         | reject               |
| Transaction ID                              | M        |                         | 9.3.1.23                          |                                                                                                                                                                                                                                   | YES         | reject               |
| gNB-CU Name                                 | O        |                         | PrintableString(SIZE(1..150,...)) | Human readable name of the gNB-CU.                                                                                                                                                                                                | YES         | ignore               |
| <b>Cells to be Activated List</b>           |          | 0.. 1                   |                                   |                                                                                                                                                                                                                                   | YES         | reject               |
| <b>&gt;Cells to be Activated List Item</b>  |          | 1..<br><maxCellingNBDU> |                                   | List of cells to be activated                                                                                                                                                                                                     | EACH        | reject               |
| >>NR CGI                                    | M        |                         | 9.3.1.12                          |                                                                                                                                                                                                                                   | -           |                      |
| >>NR PCI                                    | O        |                         | INTEGER (0..1007)                 | Physical Cell ID                                                                                                                                                                                                                  | -           |                      |
| >>gNB-CU System Information                 | O        |                         | 9.3.1.42                          | RRC container with system information owned by gNB-CU                                                                                                                                                                             | YES         | reject               |
| >>Available PLMN List                       | O        |                         | 9.3.1.65                          |                                                                                                                                                                                                                                   | YES         | ignore               |
| >>Extended Available PLMN List              | O        |                         | 9.3.1.76                          | This is included if <i>Available PLMN List</i> IE is included and if more than 6 Available PLMNs is to be signalled.                                                                                                              | YES         | ignore               |
| >>IAB Info IAB-donor-CU                     | O        |                         | 9.3.1.105                         | IAB-related configuration sent by the IAB-donor-CU.                                                                                                                                                                               | YES         | ignore               |
| >>Available SNPN ID List                    | O        |                         | 9.3.1.163                         | Indicates the available SNPN ID list. If this IE is included, the content of the <i>Available PLMN List</i> IE and <i>Extended Available PLMN List</i> IE if present in the <i>Cells to be Activated List Item</i> IE is ignored. | YES         | ignore               |
| >>MBS Broadcast Neighbour Cell List         | O        |                         | 9.3.1.226                         |                                                                                                                                                                                                                                   | YES         | ignore               |
| >>SSBs within the cell to be Activated List | O        |                         | 9.3.1.326                         | This IE is not used in this version of the specification.                                                                                                                                                                         | YES         | reject               |

| IE/Group Name                           | Presence | Range                   | IE type and reference | Semantics description                                 | Criticality | Assigned Criticality |
|-----------------------------------------|----------|-------------------------|-----------------------|-------------------------------------------------------|-------------|----------------------|
| gNB-CU RRC version                      | M        |                         | RRC version 9.3.1.70  |                                                       | YES         | reject               |
| Transport Layer Address Info            | O        |                         | 9.3.2.5               |                                                       | YES         | ignore               |
| Uplink BH Non-UP Traffic Mapping        | O        |                         | 9.3.1.103             |                                                       | YES         | reject               |
| BAP Address                             | O        |                         | 9.3.1.111             | Indicates a BAP address assigned to the IAB-donor-DU. | YES         | ignore               |
| Extended gNB-CU Name                    | O        |                         | 9.3.1.206             |                                                       | YES         | ignore               |
| <b>NCGI to be Updated List</b>          |          | 0..1                    |                       |                                                       | YES         | reject               |
| <b>&gt;NCGI to be Updated List Item</b> |          | 1..<br><maxCellingNBdu> |                       | List of NCGLs to be updated.                          | EACH        | reject               |
| >>Old NCGI                              | M        |                         | NR CGI 9.3.1.12       | Old NCGI of a cell served by the mobile IAB-DU        | -           |                      |
| >>New NCGI                              | M        |                         | NR CGI 9.3.1.12       | New NCGI of a cell served by the mobile IAB-DU        | -           |                      |

| Range bound    | Explanation                                                     |
|----------------|-----------------------------------------------------------------|
| maxCellingNBdu | Maximum no. cells that can be served by a gNB-DU. Value is 512. |

### 9.2.1.6 F1 SETUP FAILURE

This message is sent by the gNB-CU to indicate F1 Setup failure.

Direction: gNB-CU → gNB-DU

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| Transaction ID          | M        |       | 9.3.1.23              |                       | YES         | reject               |
| Cause                   | M        |       | 9.3.1.2               |                       | YES         | ignore               |
| Time to wait            | O        |       | 9.3.1.13              |                       | YES         | ignore               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.1.7 GNB-DU CONFIGURATION UPDATE

This message is sent by the gNB-DU to transfer updated information associated to an F1-C interface instance.

NOTE: If F1-C signalling transport is shared among several F1-C interface instances, this message may transfer updated information associated to several F1-C interface instances.

Direction: gNB-DU → gNB-CU

| IE/Group Name                       | Presence | Range                   | IE type and reference | Semantics description                             | Criticality | Assigned Criticality |
|-------------------------------------|----------|-------------------------|-----------------------|---------------------------------------------------|-------------|----------------------|
| Message Type                        | M        |                         | 9.3.1.1               |                                                   | YES         | reject               |
| Transaction ID                      | M        |                         | 9.3.1.23              |                                                   | YES         | reject               |
| <b>Served Cells To Add List</b>     |          | 0..1                    |                       | Complete list of added cells served by the gNB-DU | YES         | reject               |
| <b>&gt;Served Cells To Add Item</b> |          | 1..<br><maxCellingNBdu> |                       |                                                   | EACH        | reject               |
| >>Served Cell                       | M        |                         | 9.3.1.10              | Information about                                 | -           |                      |

| IE/Group Name                                        | Presence | Range                         | IE type and reference                     | Semantics description                                           | Criticality | Assigned Criticality |
|------------------------------------------------------|----------|-------------------------------|-------------------------------------------|-----------------------------------------------------------------|-------------|----------------------|
| Information                                          |          |                               |                                           | the cells configured in the gNB-DU                              |             |                      |
| >>gNB-DU System Information                          | O        |                               | 9.3.1.18                                  | RRC container with system information owned by gNB-DU           | -           |                      |
| <b>Served Cells To Modify List</b>                   |          | 0..1                          |                                           | Complete list of modified cells served by the gNB-DU            | YES         | reject               |
| <b>&gt;Served Cells To Modify Item</b>               |          | 1 ..<br><maxCellingNB-DU>     |                                           |                                                                 | EACH        | reject               |
| >>Old NR CGI                                         | M        |                               | NR CGI<br>9.3.1.12                        |                                                                 | -           |                      |
| >>Served Cell Information                            | M        |                               | 9.3.1.10                                  | Information about the cells configured in the gNB-DU            | -           |                      |
| >>gNB-DU System Information                          | O        |                               | 9.3.1.18                                  | RRC container with system information owned by gNB-DU           | -           |                      |
| <b>Served Cells To Delete List</b>                   |          | 0..1                          |                                           | Complete list of deleted cells served by the gNB-DU             | YES         | reject               |
| <b>&gt;Served Cells To Delete Item</b>               |          | 1..<br><maxCellingNB-DU>      |                                           |                                                                 | EACH        | reject               |
| >>Old NR CGI                                         | M        |                               | NR CGI<br>9.3.1.12                        |                                                                 | -           |                      |
| <b>Cells Status List</b>                             |          | 0..1                          |                                           | Complete list of active cells                                   | YES         | reject               |
| <b>&gt;Cells Status Item</b>                         |          | 0 ..<br><maxCellingNB-DU>     |                                           |                                                                 | EACH        | reject               |
| >>NR CGI                                             | M        |                               | 9.3.1.12                                  |                                                                 | -           |                      |
| >>Service Status                                     | M        |                               | 9.3.1.68                                  |                                                                 | -           |                      |
| <b>Dedicated SI Delivery Needed UE List</b>          |          | 0..1                          |                                           | List of UEs unable to receive system information from broadcast | YES         | ignore               |
| <b>&gt;Dedicated SI Delivery Needed UE Item</b>      |          | 1 ..<br><maxnoofUEIDs>        |                                           |                                                                 | EACH        | ignore               |
| >>gNB-CU UE F1AP ID                                  | M        |                               | 9.3.1.4                                   |                                                                 | -           |                      |
| >>NR CGI                                             | M        |                               | 9.3.1.12                                  |                                                                 | -           |                      |
| gNB-DU ID                                            | O        |                               | 9.3.1.9                                   |                                                                 | YES         | reject               |
| <b>gNB-DU TNL Association To Remove List</b>         |          | 0..1                          |                                           |                                                                 | YES         | reject               |
| <b>&gt;gNB-DU TNL Association To Remove Item IEs</b> |          | 1..<br><maxnofTNLAssociation> |                                           |                                                                 | EACH        | reject               |
| >>TNL Association Transport Layer Address            | M        |                               | CP Transport Layer Information<br>9.3.2.4 | Transport Layer Address of the gNB-DU.                          | -           |                      |
| >>TNL Association Transport Layer Address gNB-CU     | O        |                               | CP Transport Layer Information<br>9.3.2.4 | Transport Layer Address of the gNB-CU                           | -           |                      |



| IE/Group Name                           | Presence | Range | IE type and reference             | Semantics description                                                               | Criticality | Assigned Criticality |
|-----------------------------------------|----------|-------|-----------------------------------|-------------------------------------------------------------------------------------|-------------|----------------------|
| Transport Layer Address Info            | O        |       | 9.3.2.5                           |                                                                                     | YES         | ignore               |
| Coverage Modification Notification      | O        |       | 9.3.1.213                         |                                                                                     | YES         | ignore               |
| gNB-DU Name                             | O        |       | PrintableString(SIZE(1..150,...)) | Human readable name of the gNB-DU.                                                  | YES         | ignore               |
| Extended gNB-DU Name                    | O        |       | 9.3.1.205                         |                                                                                     | YES         | ignore               |
| RRC Terminating IAB-Donor Related Info  | O        |       | 9.3.1.306                         | Indicates the information related to a mobile IAB-node's RRC-terminating IAB-donor. | YES         | reject               |
| Mobile IAB-MT User Location Information | O        |       | 9.3.1.307                         |                                                                                     | YES         | ignore               |

| Range bound            | Explanation                                                                         |
|------------------------|-------------------------------------------------------------------------------------|
| maxCellingNBDU         | Maximum no. cells that can be served by a gNB-DU. Value is 512.                     |
| maxnoofUEIDs           | Maximum no. of UEs that can be served by a gNB-DU. Value is 65536.                  |
| maxnoofTNLAssociations | Maximum numbers of TNL Associations between the gNB-CU and the gNB-DU. Value is 32. |

### 9.2.1.8 GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE

This message is sent by a gNB-CU to a gNB-DU to acknowledge update of information associated to an F1-C interface instance.

NOTE: If F1-C signalling transport is shared among several F1-C interface instances, this message may transfer updated information associated to several F1-C interface instances.

Direction: gNB-CU → gNB-DU

| IE/Group Name                              | Presence | Range                   | IE type and reference | Semantics description                                                                                                | Criticality | Assigned Criticality |
|--------------------------------------------|----------|-------------------------|-----------------------|----------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                               | M        |                         | 9.3.1.1               |                                                                                                                      | YES         | reject               |
| Transaction ID                             | M        |                         | 9.3.1.23              |                                                                                                                      | YES         | reject               |
| <b>Cells to be Activated List</b>          |          | 0.. 1                   |                       | List of cells to be activated                                                                                        | YES         | reject               |
| <b>&gt;Cells to be Activated List Item</b> |          | 1..<br><maxCellingNBDU> |                       |                                                                                                                      | EACH        | reject               |
| >> NR CGI                                  | M        |                         | 9.3.1.12              |                                                                                                                      | -           |                      |
| >> NR PCI                                  | O        |                         | INTEGER (0..1007)     | Physical Cell ID                                                                                                     | -           |                      |
| >> gNB-CU System Information               | O        |                         | 9.3.1.42              | RRC container with system information owned by gNB-CU                                                                | YES         | reject               |
| >>Available PLMN List                      | O        |                         | 9.3.1.65              |                                                                                                                      | YES         | ignore               |
| >>Extended Available PLMN List             | O        |                         | 9.3.1.76              | This is included if <i>Available PLMN List</i> IE is included and if more than 6 Available PLMNs is to be signalled. | YES         | ignore               |
| >>IAB Info IAB-donor-CU                    | O        |                         | 9.3.1.105             | IAB-related configuration sent by the IAB-donor-                                                                     | YES         | ignore               |

| IE/Group Name                                | Presence | Range                   | IE type and reference | Semantics description                                                                                                                                                                                                             | Criticality | Assigned Criticality |
|----------------------------------------------|----------|-------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                                              |          |                         |                       | CU.                                                                                                                                                                                                                               |             |                      |
| >>Available SNPN ID List                     | O        |                         | 9.3.1.163             | Indicates the available SNPN ID list. If this IE is included, the content of the <i>Available PLMN List</i> IE and <i>Extended Available PLMN List</i> IE if present in the <i>Cells to be Activated List Item</i> IE is ignored. | YES         | ignore               |
| >>MBS Broadcast Neighbour Cell List          | O        |                         | 9.3.1.226             |                                                                                                                                                                                                                                   | YES         | ignore               |
| >>SSBs within the cell to be Activated List  | O        |                         | 9.3.1.326             | This IE is not used in this version of the specification.                                                                                                                                                                         | YES         | reject               |
| Criticality Diagnostics                      | O        |                         | 9.3.1.3               |                                                                                                                                                                                                                                   | YES         | ignore               |
| <b>Cells to be Deactivated List</b>          |          | 0.. 1                   |                       | List of cells to be deactivated                                                                                                                                                                                                   | YES         | reject               |
| <b>&gt;Cells to be Deactivated List Item</b> |          | 1..<br><maxCellingNBDU> |                       |                                                                                                                                                                                                                                   | EACH        | reject               |
| >>NR CGI                                     | M        |                         | 9.3.1.12              |                                                                                                                                                                                                                                   | -           |                      |
| Transport Layer Address Info                 | O        |                         | 9.3.2.5               |                                                                                                                                                                                                                                   | YES         | ignore               |
| Uplink BH Non-UP Traffic Mapping             | O        |                         | 9.3.1.103             |                                                                                                                                                                                                                                   | YES         | reject               |
| BAP Address                                  | O        |                         | 9.3.1.111             | Indicates a BAP address assigned to the IAB-donor-DU.                                                                                                                                                                             | YES         | ignore               |
| Cells for SON List                           | O        |                         | 9.3.1.214             |                                                                                                                                                                                                                                   | YES         | ignore               |

| Range bound    | Explanation                                                     |
|----------------|-----------------------------------------------------------------|
| maxCellingNBDU | Maximum no. cells that can be served by a gNB-DU. Value is 512. |

### 9.2.1.9 GNB-DU CONFIGURATION UPDATE FAILURE

This message is sent by the gNB-CU to indicate gNB-DU Configuration Update failure.

Direction: gNB-CU → gNB-DU

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| Transaction ID          | M        |       | 9.3.1.23              |                       | YES         | reject               |
| Cause                   | M        |       | 9.3.1.2               |                       | YES         | ignore               |
| Time to wait            | O        |       | 9.3.1.13              |                       | YES         | ignore               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.1.10 GNB-CU CONFIGURATION UPDATE

This message is sent by the gNB-CU to transfer updated information associated to an F1-C interface instance.

NOTE: If F1-C signalling transport is shared among several F1-C interface instances, this message may transfer updated information associated to several F1-C interface instances.

Direction: gNB-CU → gNB-DU

| IE/Group Name                                     | Presence | Range                                | IE type and reference                  | Semantics description                                                                                                                                                                                                             | Criticality | Assigned Criticality |
|---------------------------------------------------|----------|--------------------------------------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                                      | M        |                                      | 9.3.1.1                                |                                                                                                                                                                                                                                   | YES         | reject               |
| Transaction ID                                    | M        |                                      | 9.3.1.23                               |                                                                                                                                                                                                                                   | YES         | reject               |
| <b>Cells to be Activated List</b>                 |          | 0..1                                 |                                        | List of cells to be activated or modified                                                                                                                                                                                         | YES         | reject               |
| <b>&gt;Cells to be Activated List Item</b>        |          | 1..<br><maxCellingNBdu>              |                                        |                                                                                                                                                                                                                                   | EACH        | reject               |
| >>NR CGI                                          | M        |                                      | 9.3.1.12                               |                                                                                                                                                                                                                                   | -           |                      |
| >>NR PCI                                          | O        |                                      | INTEGER (0..1007)                      | Physical Cell ID                                                                                                                                                                                                                  | -           |                      |
| >>gNB-CU System Information                       | O        |                                      | 9.3.1.42                               | RRC container with system information owned by gNB-CU                                                                                                                                                                             | YES         | reject               |
| >>Available PLMN List                             | O        |                                      | 9.3.1.65                               |                                                                                                                                                                                                                                   | YES         | ignore               |
| >>Extended Available PLMN List                    | O        |                                      | 9.3.1.76                               | This is included if <i>Available PLMN List</i> IE is included and if more than 6 Available PLMNs is to be signalled.                                                                                                              | YES         | ignore               |
| >>IAB Info IAB-donor-CU                           | O        |                                      | 9.3.1.105                              | IAB-related configuration sent by the IAB-donor-CU.                                                                                                                                                                               | YES         | ignore               |
| >>Available SNPN ID List                          | O        |                                      | 9.3.1.163                              | Indicates the available SNPN ID list. If this IE is included, the content of the <i>Available PLMN List</i> IE and <i>Extended Available PLMN List</i> IE if present in the <i>Cells to be Activated List Item</i> IE is ignored. | YES         | ignore               |
| >>MBS Broadcast Neighbour Cell List               | O        |                                      | 9.3.1.226                              |                                                                                                                                                                                                                                   | YES         | ignore               |
| >>SSBs within the cell to be Activated List       | O        |                                      | 9.3.1.326                              | List of SSB beams within the cell requested to be activated.                                                                                                                                                                      | YES         | reject               |
| <b>Cells to be Deactivated List</b>               |          | 0..1                                 |                                        | List of cells to be deactivated                                                                                                                                                                                                   | YES         | reject               |
| <b>&gt;Cells to be Deactivated List Item</b>      |          | 1..<br><maxCellingNBdu>              |                                        |                                                                                                                                                                                                                                   | EACH        | reject               |
| >>NR CGI                                          | M        |                                      | 9.3.1.12                               |                                                                                                                                                                                                                                   | -           |                      |
| <b>gNB-CU TNL Association To Add List</b>         |          | 0..1                                 |                                        |                                                                                                                                                                                                                                   | YES         | ignore               |
| <b>&gt;gNB-CU TNL Association To Add Item IEs</b> |          | 1..<br><maxNumberOfTNLAassociations> |                                        |                                                                                                                                                                                                                                   | EACH        | ignore               |
| >>TNL Association Transport Layer Information     | M        |                                      | CP Transport Layer Information 9.3.2.4 | Transport Layer Address of the gNB-CU.                                                                                                                                                                                            | -           |                      |

| IE/Group Name                                        | Presence | Range                        | IE type and reference                  | Semantics description                                                                                                                                                      | Criticality | Assigned Criticality |
|------------------------------------------------------|----------|------------------------------|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| >>TNL Association Usage                              | M        |                              | ENUMERATED (ue, non-ue, both, ...)     | Indicates whether the TNL association is only used for UE-associated signalling, or non-UE-associated signalling, or both. For usage of this IE, refer to TS 38.472 [22].  | -           |                      |
| <b>gNB-CU TNL Association To Remove List</b>         |          | 0..1                         |                                        |                                                                                                                                                                            | YES         | ignore               |
| <b>&gt;gNB-CU TNL Association To Remove Item IEs</b> |          | 1..<maxno ofTNLAssociation>  |                                        |                                                                                                                                                                            | EACH        | ignore               |
| >>TNL Association Transport Layer Address            | M        |                              | CP Transport Layer Information 9.3.2.4 | Transport Layer Address of the gNB-CU.                                                                                                                                     | -           |                      |
| >>TNL Association Transport Layer Address gNB-DU     | O        |                              | CP Transport Layer Information 9.3.2.4 | Transport Layer Address of the gNB-DU.                                                                                                                                     | YES         | reject               |
| <b>gNB-CU TNL Association To Update List</b>         |          | 0..1                         |                                        |                                                                                                                                                                            | YES         | ignore               |
| <b>&gt;gNB-CU TNL Association To Update Item IEs</b> |          | 1..<maxno ofTNLAssociations> |                                        |                                                                                                                                                                            | EACH        | ignore               |
| >>TNL Association Transport Layer Address            | M        |                              | CP Transport Layer Information 9.3.2.4 | Transport Layer Address of the gNB-CU.                                                                                                                                     | -           |                      |
| >>TNL Association Usage                              | O        |                              | ENUMERATED (ue, non-ue, both, ...)     | Indicates whether the TNL association is only used for UE-associated signalling, or non-UE-associated signalling, or both. For usage of this IE, refer to TS 38.472 [22].  | -           |                      |
| <b>Cells to be barred List</b>                       |          | 0..1                         |                                        | List of cells to be barred.                                                                                                                                                | YES         | ignore               |
| <b>&gt;Cells to be barred List Item</b>              |          | 1..<maxCellingNBdu>          |                                        |                                                                                                                                                                            | EACH        | ignore               |
| >>NR CGI                                             | M        |                              | 9.3.1.12                               |                                                                                                                                                                            | -           |                      |
| >>Cell Barred                                        | M        |                              | ENUMERATED (barred, not-barred, ...)   |                                                                                                                                                                            | -           |                      |
| >>IAB Barred                                         | O        |                              | ENUMERATED (barred, not-barred, ...)   | Corresponds to information provided in the <i>iab-Support</i> contained in the <i>PLMN-IdentityInfo</i> IE or contained in the <i>NPN-IdentityInfo</i> IE as defined in TS | -           |                      |

| IE/Group Name                                   | Presence | Range                      | IE type and reference                | Semantics description                                                                                                                                                                                                                                                                                                                                                                        | Criticality | Assigned Criticality |
|-------------------------------------------------|----------|----------------------------|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                                                 |          |                            |                                      | 38.331 [8]. The codepoint value "barred" indicates that the <i>iab-Support</i> is not sent in SIB1, and the codepoint value "not-barred" indicates that the <i>iab-Support</i> is sent in SIB1.                                                                                                                                                                                              |             |                      |
| >>Mobile IAB Barred                             | O        |                            | ENUMERATED (barred, not-barred, ...) | Corresponds to information provided in the <i>mobileIAB-Support</i> contained in the <i>PLMN-IdentityInfo</i> IE or contained in the <i>NPN-IdentityInfo</i> IE as defined in TS 38.331 [8]. The codepoint value "barred" indicates that the <i>mobileIAB-Support</i> is not sent in SIB1, and the codepoint value "not-barred" indicates that the <i>mobileIAB-Support</i> is sent in SIB1. | -           |                      |
| <b>Protected E-UTRA Resources List</b>          |          | 0..1                       |                                      | List of Protected E-UTRA Resources.                                                                                                                                                                                                                                                                                                                                                          | YES         | reject               |
| <b>&gt;Protected E-UTRA Resources List Item</b> |          | 1..<br><maxCelli<br>neNB>  |                                      |                                                                                                                                                                                                                                                                                                                                                                                              | EACH        | reject               |
| >>Spectrum Sharing Group ID                     | M        |                            | INTEGER (1..maxCellineNB)            | Indicates the E-UTRA cells involved in resource coordination with the NR cells affiliated with the same Spectrum Sharing Group ID.                                                                                                                                                                                                                                                           | -           |                      |
| <b>&gt;&gt;&gt;E-UTRA Cells List</b>            |          | 1                          |                                      | List of applicable E-UTRA cells.                                                                                                                                                                                                                                                                                                                                                             | -           |                      |
| <b>&gt;&gt;&gt;&gt;E-UTRA Cells List Item</b>   |          | 1 ..<br><maxCelli<br>neNB> |                                      |                                                                                                                                                                                                                                                                                                                                                                                              | -           |                      |
| >>>>EUTRA Cell ID                               | M        |                            | BIT STRING (SIZE(28))                | Indicates the E-UTRAN Cell Identifier IE contained in the ECGI as defined in subclause 9.2.14 in TS 36.423 [9].                                                                                                                                                                                                                                                                              | -           |                      |
| >>>>Served E-UTRA Cell Information              | M        |                            | 9.3.1.64                             |                                                                                                                                                                                                                                                                                                                                                                                              | -           |                      |
| <b>Neighbour Cell Information List</b>          |          | 0..1                       |                                      |                                                                                                                                                                                                                                                                                                                                                                                              | YES         | ignore               |

| IE/Group Name                                        | Presence | Range                              | IE type and reference             | Semantics description                                                                                                                                  | Criticality | Assigned Criticality |
|------------------------------------------------------|----------|------------------------------------|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| <b>&gt;Neighbour Cell Information List Item</b>      |          | <i>1 .. &lt;maxCellingNBdu&gt;</i> |                                   |                                                                                                                                                        | EACH        | ignore               |
| >>NR CGI                                             | M        |                                    | 9.3.1.12                          |                                                                                                                                                        | -           |                      |
| >>Intended TDD DL-UL Configuration                   | O        |                                    | 9.3.1.89                          |                                                                                                                                                        | -           |                      |
| Transport Layer Address Info                         | O        |                                    | 9.3.2.5                           |                                                                                                                                                        | YES         | ignore               |
| Uplink BH Non-UP Traffic Mapping                     | O        |                                    | 9.3.1.103                         |                                                                                                                                                        | YES         | reject               |
| BAP Address                                          | O        |                                    | 9.3.1.111                         | Indicates a BAP address assigned to the IAB-donor-DU.                                                                                                  | YES         | ignore               |
| CCO Assistance Information                           | O        |                                    | 9.3.1.211                         | Indicates CCO Assistance Information for cells and beams served by the gNB-DU of the same NG-RAN node or for cells and beams not served by the gNB-DU. | YES         | ignore               |
| Cells for SON List                                   | O        |                                    | 9.3.1.214                         |                                                                                                                                                        | YES         | ignore               |
| gNB-CU Name                                          | O        |                                    | PrintableString(SIZE(1..150,...)) | Human readable name of the gNB-CU.                                                                                                                     | YES         | ignore               |
| Extended gNB-CU Name                                 | O        |                                    | 9.3.1.206                         |                                                                                                                                                        | YES         | ignore               |
| <b>Cells Allowed to be Deactivated List</b>          |          | <i>0..1</i>                        |                                   |                                                                                                                                                        | YES         | ignore               |
| <b>&gt;Cells Allowed to be Deactivated List Item</b> |          | <i>1 .. &lt;maxCellingNBdu&gt;</i> |                                   |                                                                                                                                                        | EACH        | ignore               |
| >>NR CGI                                             | M        |                                    | 9.3.1.12                          |                                                                                                                                                        | -           |                      |

| Range bound             | Explanation                                                                         |
|-------------------------|-------------------------------------------------------------------------------------|
| maxCellingNBdu          | Maximum numbers of cells that can be served by a gNB-DU. Value is 512.              |
| maxnoofTNLAassociations | Maximum numbers of TNL Associations between the gNB-CU and the gNB-DU. Value is 32. |
| maxCellingNB            | Maximum no. cells that can be served by an eNB. Value is 256.                       |
| maxnoofSSBAreas         | Maximum no. SSB Areas that can be served by a cell. Value is 64.                    |

### 9.2.1.11 GNB-CU CONFIGURATION UPDATE ACKNOWLEDGE

This message is sent by a gNB-DU to a gNB-CU to acknowledge update of information associated to an F1-C interface instance.

NOTE: If F1-C signalling transport is shared among several F1-C interface instance, this message may transfer updated information associated to several F1-C interface instances.

Direction: gNB-DU → gNB-CU

| IE/Group Name                            | Presence | Range       | IE type and reference | Semantics description                | Criticality | Assigned Criticality |
|------------------------------------------|----------|-------------|-----------------------|--------------------------------------|-------------|----------------------|
| Message Type                             | M        |             | 9.3.1.1               |                                      | YES         | reject               |
| Transaction ID                           | M        |             | 9.3.1.23              |                                      | YES         | reject               |
| <b>Cells Failed to be Activated List</b> |          | <i>0..1</i> |                       | List of cells which are failed to be | YES         | reject               |

| IE/Group Name                                              | Presence | Range                                   | IE type and reference                  | Semantics description                                           | Criticality | Assigned Criticality |
|------------------------------------------------------------|----------|-----------------------------------------|----------------------------------------|-----------------------------------------------------------------|-------------|----------------------|
|                                                            |          |                                         |                                        | activated                                                       |             |                      |
| <b>&gt;Cells Failed to be Activated Item</b>               |          | 1..<br><maxCelli<br>ngNBDU>             |                                        |                                                                 | EACH        | reject               |
| >>NR CGI                                                   | M        |                                         | 9.3.1.12                               |                                                                 | -           |                      |
| >>Cause                                                    | M        |                                         | 9.3.1.2                                |                                                                 | -           |                      |
| Criticality Diagnostics                                    | O        |                                         | 9.3.1.3                                |                                                                 | YES         | ignore               |
| <b>gNB-CU TNL Association Setup List</b>                   |          | 0..1                                    |                                        |                                                                 | YES         | ignore               |
| <b>&gt;gNB-CU TNL Association Setup Item IEs</b>           |          | 1..<br><maxno<br>ofTNLAss<br>ociations> |                                        |                                                                 | EACH        | ignore               |
| >>TNL Association Transport Layer Address                  | M        |                                         | CP Transport Layer Information 9.3.2.4 | Transport Layer Address of the gNB-CU                           | -           |                      |
| <b>gNB-CU TNL Association Failed to Setup List</b>         |          | 0..1                                    |                                        |                                                                 | YES         | ignore               |
| <b>&gt;gNB-CU TNL Association Failed To Setup Item IEs</b> |          | 1..<br><maxno<br>ofTNLAss<br>ociations> |                                        |                                                                 | EACH        | ignore               |
| >>TNL Association Transport Layer Address                  | M        |                                         | CP Transport Layer Information 9.3.2.4 | Transport Layer Address of the gNB-CU                           | -           |                      |
| >>Cause                                                    | M        |                                         | 9.3.1.2                                |                                                                 | -           |                      |
| <b>Dedicated SI Delivery Needed UE List</b>                |          | 0..1                                    |                                        | List of UEs unable to receive system information from broadcast | YES         | ignore               |
| <b>&gt;Dedicated SI Delivery Needed UE List</b>            |          | 1..<br><maxnoof<br>UEIDs>               |                                        |                                                                 | EACH        | ignore               |
| >>gNB-CU UE F1AP ID                                        | M        |                                         | 9.3.1.4                                |                                                                 | -           |                      |
| >>NR CGI                                                   | M        |                                         | 9.3.1.12                               |                                                                 | -           |                      |
| Transport Layer Address Info                               | O        |                                         | 9.3.2.5                                |                                                                 | YES         | ignore               |
| <b>Cells with SSBs Activated List</b>                      |          | 0..1                                    |                                        |                                                                 | YES         | ignore               |
| <b>&gt;Cells with SSBs Activated List Item</b>             |          | 1..<br><maxCelli<br>ngNBDU>             |                                        |                                                                 | -           |                      |
| >>NR CGI                                                   | M        |                                         | 9.3.1.12                               |                                                                 | -           |                      |
| <b>&gt;&gt;SSBs activated List</b>                         |          | 1..<br><maxnoofS<br>SBAreas<br>>        |                                        |                                                                 | -           |                      |
| >>>SSB Index                                               | M        |                                         | INTEGER (0..63)                        | Identifier of the SSB beam activated.                           | -           |                      |

| Range bound            | Explanation                                                                     |
|------------------------|---------------------------------------------------------------------------------|
| maxCellingNBDU         | Maximum no. cells that can be served by a gNB-DU. Value is 512.                 |
| maxnoofTNLAssociations | Maximum no. of TNL Associations between the gNB-CU and the gNB-DU. Value is 32. |
| maxnoofUEIDs           | Maximum no. of UEs that can be served by a gNB-DU. Value is 65536.              |
| maxnoofSSBAreas        | Maximum no. SSB Areas that can be served by a cell. Value is 64.                |

### 9.2.1.12 GNB-CU CONFIGURATION UPDATE FAILURE

This message is sent by the gNB-DU to indicate gNB-CU Configuration Update failure.

Direction: gNB-DU → gNB-CU

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| Transaction ID          | M        |       | 9.3.1.23              |                       | YES         | reject               |
| Cause                   | M        |       | 9.3.1.2               |                       | YES         | ignore               |
| Time to wait            | O        |       | 9.3.1.13              |                       | YES         | ignore               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.1.13 GNB-DU RESOURCE COORDINATION REQUEST

This message is sent by a gNB-CU to a gNB-DU, to express the desired resource allocation for data traffic, for the sake of resource coordination. The message triggers gNB-DU resource coordination (for NR-initiated resource coordination), to indicate an initial resource offer by the E-UTRA node (for E-UTRA-initiated gNB-DU Resource Coordination), or to indicate the agreed resource allocation that is to be executed.

Direction: gNB-CU → gNB-DU

| IE/Group Name                                            | Presence | Range | IE type and reference                 | Semantics description                                                                                                                                                                                                                                                                    | Criticality | Assigned Criticality |
|----------------------------------------------------------|----------|-------|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                                             | M        |       | 9.3.1.1                               |                                                                                                                                                                                                                                                                                          | YES         | reject               |
| Transaction ID                                           | M        |       | 9.3.1.23                              |                                                                                                                                                                                                                                                                                          | YES         | reject               |
| Request type                                             | M        |       | ENUMERATED<br>(offer, execution, ...) |                                                                                                                                                                                                                                                                                          | YES         | reject               |
| E-UTRA – NR Cell Resource Coordination Request Container | M        |       | OCTET STRING                          | In EN-DC case, includes the X2AP E-UTRA – NR CELL RESOURCE COORDINATION REQUEST message as defined in subclause 9.1.4.24 in TS 36.423 [9]. In NG-RAN cases, includes the XnAP E-UTRA – NR CELL RESOURCE COORDINATION REQUEST message as defined in subclause 9.1.2.23 in TS 38.423 [28]. | YES         | reject               |
| Ignore Coordination Request Container                    | O        |       | ENUMERATED<br>(yes, ...)              |                                                                                                                                                                                                                                                                                          | YES         | reject               |

### 9.2.1.14 GNB-DU RESOURCE COORDINATION RESPONSE

This message is sent by a gNB-DU to a gNB-CU, to express the desired resource allocation for data traffic, as a response to the GNB-DU RESOURCE COORDINATION REQUEST.

Direction: gNB-DU → gNB-CU



| IE/Group Name                                             | Presence | Range | IE type and reference | Semantics description                                                                                                                                                                                                                                                                      | Criticality | Assigned Criticality |
|-----------------------------------------------------------|----------|-------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                                              | M        |       | 9.3.1.1               |                                                                                                                                                                                                                                                                                            | YES         | reject               |
| Transaction ID                                            | M        |       | 9.3.1.23              |                                                                                                                                                                                                                                                                                            | YES         | reject               |
| E-UTRA – NR Cell Resource Coordination Response Container | M        |       | OCTET STRING          | In EN-DC case, includes the X2AP E-UTRA – NR CELL RESOURCE COORDINATION RESPONSE message as defined in subclause 9.1.4.25 in TS 36.423 [9]. In NG-RAN cases, includes the XnAP E-UTRA – NR CELL RESOURCE COORDINATION RESPONSE message as defined in subclause 9.1.2.24 in TS 38.423 [28]. | YES         | reject               |

### 9.2.1.15 GNB-DU STATUS INDICATION

This message is sent by the gNB-DU to indicate to the gNB-CU its status of overload.

Direction: gNB-DU → gNB-CU

| IE/Group Name               | Presence | Range | IE type and reference                   | Semantics description | Criticality | Assigned Criticality |
|-----------------------------|----------|-------|-----------------------------------------|-----------------------|-------------|----------------------|
| Message Type                | M        |       | 9.3.1.1                                 |                       | YES         | ignore               |
| Transaction ID              | M        |       | 9.3.1.23                                |                       | YES         | reject               |
| gNB-DU Overload Information | M        |       | ENUMERATED (overloaded, not-overloaded) |                       | YES         | reject               |
| IAB Congestion Indication   | O        |       | 9.3.1.227                               |                       | YES         | ignore               |

### 9.2.1.16 F1 REMOVAL REQUEST

This message is sent by either the gNB-DU or the gNB-CU to initiate the removal of the interface instance and the related resources.

Direction: gNB-DU → gNB-CU, gNB-CU → gNB-DU.

| IE/Group Name  | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|----------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type   | M        |       | 9.3.1.1               |                       | YES         | reject               |
| Transaction ID | M        |       | 9.3.1.23              |                       | YES         | reject               |

### 9.2.1.17 F1 REMOVAL RESPONSE

This message is sent by either the gNB-DU or the gNB-CU to acknowledge the initiation of removal of the interface instance and the related resources.

Direction: gNB-CU → gNB-DU, gNB-DU → gNB-CU.

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| Transaction ID          | M        |       | 9.3.1.23              |                       | YES         | reject               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.1.18 F1 REMOVAL FAILURE

This message is sent by either the gNB-DU or the gNB-CU to indicate that removing the interface instance and the related resources cannot be accepted.

Direction: gNB-CU → gNB-DU, gNB-DU → gNB-CU.

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| Transaction ID          | M        |       | 9.3.1.23              |                       | YES         | reject               |
| Cause                   | M        |       | 9.3.1.2               |                       | YES         | ignore               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.1.19 NETWORK ACCESS RATE REDUCTION

This message is sent by the gNB-CU to indicate to the gNB-DU a need to reduce the rate at which UEs access the network.

Direction: gNB-CU → gNB-DU

| IE/Group Name              | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|----------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type               | M        |       | 9.3.1.1               |                       | YES         | ignore               |
| Transaction ID             | M        |       | 9.3.1.23              |                       | YES         | reject               |
| UAC Assistance Information | M        |       | 9.3.1.83              |                       | YES         | reject               |

### 9.2.1.20 RESOURCE STATUS REQUEST

This message is sent by gNB-CU to gNB-DU to initiate the requested measurement according to the parameters given in the message.

Direction: gNB-CU → gNB-DU.

| IE/Group Name          | Presence                         | Range | IE type and reference              | Semantics description                                                                       | Criticality | Assigned Criticality |
|------------------------|----------------------------------|-------|------------------------------------|---------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type           | M                                |       | 9.3.1.1                            |                                                                                             | YES         | reject               |
| Transaction ID         | M                                |       | 9.3.1.23                           |                                                                                             | YES         | reject               |
| gNB-CU Measurement ID  | M                                |       | INTEGER (0..4095,...)              | Allocated by gNB-CU                                                                         | YES         | reject               |
| gNB-DU Measurement ID  | C-ifRegistrationRequestStoporAdd |       | INTEGER (0..4095,...)              | Allocated by gNB-DU                                                                         | YES         | ignore               |
| Registration Request   | M                                |       | ENUMERATED (start, stop, add, ...) | Type of request for which the resource status is required.                                  | YES         | ignore               |
| Report Characteristics | C-ifRegistrationRequestStart     |       | BIT STRING (SIZE(32))              | Each position in the bitmap indicates measurement object the gNB-DU is requested to report. | YES         | ignore               |

| IE/Group Name                           | Presence | Range                 | IE type and reference                                    | Semantics description                                                                                                                                                                                                                                                                         | Criticality | Assigned Criticality |
|-----------------------------------------|----------|-----------------------|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                                         |          |                       |                                                          | First Bit = PRB Periodic,<br>Second Bit = TNL Capacity Ind Periodic,<br>Third Bit = Composite Available Capacity Periodic, Fourth Bit = HW LoadInd Periodic, Fifth Bit = Number of Active UEs Periodic, Sixth Bit = NR-U Channel List Periodic.<br>Other bits shall be ignored by the gNB-DU. |             |                      |
| <b>Cell To Report List</b>              |          | 0..1                  |                                                          | Cell ID list to which the request applies.                                                                                                                                                                                                                                                    | YES         | ignore               |
| <b>&gt;Cell To Report Item</b>          |          | 1 .. <maxCellId>      |                                                          |                                                                                                                                                                                                                                                                                               | -           |                      |
| >>Cell ID                               | M        |                       | NR CGI 9.3.1.12                                          |                                                                                                                                                                                                                                                                                               | -           |                      |
| <b>&gt;&gt;SSB To Report List</b>       |          | 0..1                  |                                                          | SSB list to which the request applies.                                                                                                                                                                                                                                                        | -           |                      |
| <b>&gt;&gt;&gt;SSB To Report Item</b>   |          | 1 .. <maxnoofSSB>     |                                                          |                                                                                                                                                                                                                                                                                               | -           |                      |
| >>>>SSB index                           | M        |                       | INTEGER (0..63)                                          |                                                                                                                                                                                                                                                                                               | -           |                      |
| <b>&gt;&gt;Slice To Report List</b>     |          | 0..1                  |                                                          | S-NSSAI list to which the request applies.                                                                                                                                                                                                                                                    | -           |                      |
| <b>&gt;&gt;&gt;Slice To Report Item</b> |          | 1..<maxnoofPLMNs>     |                                                          |                                                                                                                                                                                                                                                                                               | -           |                      |
| >>>>PLMN Identity                       | M        |                       | 9.3.1.14                                                 | Broadcast PLMN                                                                                                                                                                                                                                                                                | -           |                      |
| <b>&gt;&gt;&gt;&gt;S-NSSAI List</b>     |          | 1                     |                                                          |                                                                                                                                                                                                                                                                                               | -           |                      |
| <b>&gt;&gt;&gt;&gt;&gt;S-NSSAI Item</b> |          | 1 .. <maxnoofS-NSSAI> |                                                          |                                                                                                                                                                                                                                                                                               | -           |                      |
| >>>>>>S-NSSAI                           | M        |                       | 9.3.1.38                                                 |                                                                                                                                                                                                                                                                                               | -           |                      |
| Reporting Periodicity                   | O        |                       | ENUMERATED (500ms, 1000ms, 2000ms, 5000ms, 10000ms, ...) | Periodicity that can be used for reporting of indicated measurements. Also used as the averaging window length for all measurement object if supported. This IE is ignored if the <i>Registration Request</i> IE is set to "add".                                                             | YES         | ignore               |

| Condition                      | Explanation                                                                                         |
|--------------------------------|-----------------------------------------------------------------------------------------------------|
| ifRegistrationRequestStoporAdd | This IE shall be present if the <i>Registration Request</i> IE is set to the value "stop" or "add". |
| ifRegistrationRequestStart     | This IE shall be present if the Registration Request IE is set to the value "start".                |

| Range bound       | Explanation                                                               |
|-------------------|---------------------------------------------------------------------------|
| maxCellingNBDU    | Maximum no. cells that can be served by a gNB-DU. Value is 512.           |
| maxnoofSSBAreas   | Maximum no. SSB Areas that can be served by a gNB node cell. Value is 64. |
| maxnoofSliceltems | Maximum no. of signalled slice support items. Value is 1024.              |
| maxnoofBPLMNSNR   | Maximum no. of PLMN Ids.broadcast in a cell. Value is 12.                 |

### 9.2.1.21 RESOURCE STATUS RESPONSE

This message is sent by gNB-DU to gNB-CU to indicate that the requested measurement is successfully initiated.

Direction: gNB-DU → gNB-CU

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| Transaction ID          | M        |       | 9.3.1.23              |                       | YES         | reject               |
| gNB-CU Measurement ID   | M        |       | INTEGER (0..4095,...) | Allocated by gNB-CU   | YES         | reject               |
| gNB-DU Measurement ID   | M        |       | INTEGER (0..4095,...) | Allocated by gNB-DU   | YES         | ignore               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.1.22 RESOURCE STATUS FAILURE

This message is sent by gNB-DU to gNB-CU to indicate that for any of the requested measurement objects the measurement cannot be initiated.

Direction: gNB-DU → gNB-CU.

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| Transaction ID          | M        |       | 9.3.1.23              |                       | YES         | reject               |
| gNB-CU Measurement ID   | M        |       | INTEGER (0..4095,...) | Allocated by gNB-CU   | YES         | reject               |
| gNB-DU Measurement ID   | M        |       | INTEGER (0..4095,...) | Allocated by gNB-DU   | YES         | ignore               |
| Cause                   | M        |       | 9.3.1.2               |                       | YES         | ignore               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.1.23 RESOURCE STATUS UPDATE

This message is sent by gNB-DU to gNB-CU to report the results of the requested measurements.

Direction: gNB-DU → gNB-CU.

| IE/Group Name         | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-----------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type          | M        |       | 9.3.1.1               |                       | YES         | ignore               |
| Transaction ID        | M        |       | 9.3.1.23              |                       | YES         | reject               |
| gNB-CU Measurement ID | M        |       | INTEGER (0..4095,...) | Allocated by gNB-CU   | YES         | reject               |
| gNB-DU Measurement    | M        |       | INTEGER               | Allocated by gNB-     | YES         | ignore               |

| IE/Group Name                            | Presence | Range                              | IE type and reference                      | Semantics description                                                                                                                                                                                                                                                                                                                                      | Criticality | Assigned Criticality |
|------------------------------------------|----------|------------------------------------|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| ID                                       |          |                                    | (0..4095,...)                              | DU                                                                                                                                                                                                                                                                                                                                                         |             |                      |
| Hardware Load Indicator                  | O        |                                    | 9.3.1.136                                  |                                                                                                                                                                                                                                                                                                                                                            | YES         | ignore               |
| TNL Capacity Indicator                   | O        |                                    | 9.3.1.128                                  |                                                                                                                                                                                                                                                                                                                                                            | YES         | ignore               |
| <b>Cell Measurement Result</b>           |          | 0..1                               |                                            |                                                                                                                                                                                                                                                                                                                                                            | YES         | ignore               |
| <b>&gt;Cell Measurement Result Item</b>  |          | 1 ..<br><maxCellingNB<br>DU>       |                                            |                                                                                                                                                                                                                                                                                                                                                            | -           |                      |
| >>Cell ID                                | M        |                                    | NR CGI<br>9.3.1.12                         |                                                                                                                                                                                                                                                                                                                                                            | -           |                      |
| >>Radio Resource Status                  | O        |                                    | 9.3.1.129                                  |                                                                                                                                                                                                                                                                                                                                                            | -           |                      |
| >>Composite Available Capacity Group     | O        |                                    | 9.3.1.130                                  |                                                                                                                                                                                                                                                                                                                                                            | -           |                      |
| >>Slice Available Capacity               | O        |                                    | 9.3.1.134                                  |                                                                                                                                                                                                                                                                                                                                                            | -           |                      |
| >>Number of Active UEs                   | O        |                                    | 9.3.1.135                                  |                                                                                                                                                                                                                                                                                                                                                            | -           |                      |
| <b>&gt;&gt;NR-U Channel List</b>         |          | 0..1                               |                                            |                                                                                                                                                                                                                                                                                                                                                            | YES         | ignore               |
| <b>&gt;&gt;&gt;NR-U Channel Item</b>     |          | 1..<maxno<br>ofNR-UChannel<br>IDs> |                                            |                                                                                                                                                                                                                                                                                                                                                            | -           |                      |
| >>>>NR-U Channel ID                      | M        |                                    | INTEGER (1..<br>maxnoofNR-<br>UChannelIDs) | Identifies a portion of the NR-U Channel Bandwidth on which channel access procedure in shared spectrum has been performed in the last reporting period.                                                                                                                                                                                                   | -           |                      |
| >>>>Channel Occupancy Time Percentage DL | M        |                                    | INTEGER (0..100)                           | The percentage of time for which the channel resources have been utilised for DL traffic served by the corresponding NR-U Channel of the serving cell. Value 100 indicates that the channel resources have been utilized for DL traffic served by the corresponding NR-U Channel of the serving cell for the whole duration between consecutive reporting. | -           |                      |
| >>>>Energy Detection Threshold DL        | M        |                                    | INTEGER (-100..-50,...)                    | Average ED Threshold used for DL channel sensing at the gNB. Value is in                                                                                                                                                                                                                                                                                   | -           |                      |

| IE/Group Name                            | Presence | Range | IE type and reference | Semantics description                                                                                                                                                                                                                                                                                                                                                                                | Criticality | Assigned Criticality |
|------------------------------------------|----------|-------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| >>>>Channel Occupancy Time Percentage UL | O        |       | INTEGER (0..100)      | The percentage of time for which the channel resources have been utilised for UL traffic served by the corresponding NR-U Channel of the serving cell for UEs that transmit to the serving cell. Value 100 indicates that the channel resources have been utilized for UL traffic served by the corresponding NR-U Channel of the serving cell for the whole duration between consecutive reporting. | YES         | ignore               |
| >>>>Radio Resource Status NR-U           | O        |       | 9.3.1.295             | Indicates the radio resource status per NR-U channel.                                                                                                                                                                                                                                                                                                                                                | YES         | ignore               |

| Range bound           | Explanation                                                     |
|-----------------------|-----------------------------------------------------------------|
| maxCeilingNBDU        | Maximum no. cells that can be served by a gNB-DU. Value is 512. |
| maxnoofNR-UChannelIDs | Maximum no. NR-U Channel IDs in a cell. Value is 16.            |

### 9.2.1.24 DU-CU TA INFORMATION TRANSFER

This message is sent by the gNB-DU to inform the gNB-CU about TA information.

Direction: gNB-DU → gNB-CU

| IE/Group Name                               | Presence | Range                 | IE type and reference   | Semantics description                                | Criticality | Assigned Criticality |
|---------------------------------------------|----------|-----------------------|-------------------------|------------------------------------------------------|-------------|----------------------|
| Message Type                                | M        |                       | 9.3.1.1                 |                                                      | YES         | ignore               |
| Transaction ID                              | M        |                       | 9.3.1.23                |                                                      | YES         | reject               |
| <b>DU to CU TA Information List</b>         |          | 1                     |                         |                                                      | YES         | ignore               |
| <b>&gt;DU to CU TA Information Item IEs</b> |          | 1 .. <maxnoof TAList> |                         |                                                      | EACH        | ignore               |
| >>Candidate Cell ID                         | M        |                       | NR CGI 9.3.1.12         |                                                      | -           |                      |
| >>TA Value                                  | M        |                       | INTEGER (0..4095)       | Indicates the TA value as defined in TS 38.213 [31]. | -           |                      |
| >>Preamble Index                            | M        |                       | INTEGER (0..63)         |                                                      | -           |                      |
| >>RA-RNTI                                   | M        |                       | INTEGER (0..65535, ...) | RA-RNTI as defined in TS 38.321 [16].                | -           |                      |
| >>Source gNB-DU ID                          | M        |                       | gNB-DU ID 9.3.1.9       |                                                      | -           |                      |
| >>Tag ID Pointer                            | O        |                       | OCTET STRING            | Includes the <i>tag-Id-ptr</i> contained in          | -           |                      |

| IE/Group Name | Presence | Range | IE type and reference | Semantics description                                                               | Criticality | Assigned Criticality |
|---------------|----------|-------|-----------------------|-------------------------------------------------------------------------------------|-------------|----------------------|
|               |          |       |                       | the <i>TCI-UL-State</i> IE or the <i>TCI-State</i> IE, as defined in TS 38.331 [8]. |             |                      |

| Range bound   | Explanation                                                  |
|---------------|--------------------------------------------------------------|
| maxnoofTAList | Maximum no. of TA values to be sent, the maximum value is 8. |

### 9.2.1.25 CU-DU TA INFORMATION TRANSFER

This message is sent by the gNB-CU to inform the gNB-DU about TA information.

Direction: gNB-CU → gNB-DU

| IE/Group Name                               | Presence | Range                   | IE type and reference      | Semantics description                                                                                                           | Criticality | Assigned Criticality |
|---------------------------------------------|----------|-------------------------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                                | M        |                         | 9.3.1.1                    |                                                                                                                                 | YES         | ignore               |
| Transaction ID                              | M        |                         | 9.3.1.23                   |                                                                                                                                 | YES         | reject               |
| <b>CU to DU TA Information List</b>         |          | 1                       |                            |                                                                                                                                 | YES         | ignore               |
| <b>&gt;CU to DU TA Information Item IEs</b> |          | 1 ..<br><maxnoofTAList> |                            |                                                                                                                                 | EACH        | ignore               |
| >>Candidate Cell ID                         | M        |                         | NR CGI<br>9.3.1.12         |                                                                                                                                 | -           |                      |
| >>TA Value                                  | M        |                         | INTEGER<br>(0..4095)       | Indicates the TA value as defined in TS 38.213 [31].                                                                            | -           |                      |
| >>Preamble Index                            | M        |                         | INTEGER<br>(0..63)         |                                                                                                                                 | -           |                      |
| >>RA-RNTI                                   | M        |                         | INTEGER<br>(0..65535, ...) | RA-RNTI as defined in TS 38.321 [16].                                                                                           | -           |                      |
| >>Tag ID Pointer                            | O        |                         | OCTET STRING               | Includes the <i>tag-Id-ptr</i> contained in the <i>TCI-UL-State</i> IE or the <i>TCI-State</i> IE, as defined in TS 38.331 [8]. | -           |                      |

| Range bound   | Explanation                                                  |
|---------------|--------------------------------------------------------------|
| maxnoofTAList | Maximum no. of TA values to be sent, the maximum value is 8. |

### 9.2.1.26 RACH INDICATION

This message is sent by the gNB-DU to inform the gNB-CU about one or more random access procedures performed at the gNB-DU.

Direction: gNB-DU → gNB-CU.

| IE/Group Name                    | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|----------------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type                     | M        |       | 9.3.1.1               |                       | YES         | ignore               |
| Transaction ID                   | M        |       | 9.3.1.23              |                       | YES         | reject               |
| <b>RA Report Indication List</b> |          | 1     |                       |                       | YES         | reject               |

| IE/Group Name                   | Presence | Range                                                    | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|---------------------------------|----------|----------------------------------------------------------|-----------------------|-----------------------|-------------|----------------------|
| >RA Report Indication List Item |          | <i>1..&lt;maxno of UEs for RA Report Indications&gt;</i> |                       |                       | -           |                      |
| >>gNB-CU UE F1AP ID             | M        |                                                          | 9.3.1.4               |                       | -           |                      |

| Range bound                       | Explanation                                                                              |
|-----------------------------------|------------------------------------------------------------------------------------------|
| maxnoofUEsforRARReportIndications | Maximum number of UEs from which gNB-DU is interested to collect RA report. Value is 64. |

## 9.2.2 UE Context Management messages

### 9.2.2.1 UE CONTEXT SETUP REQUEST

This message is sent by the gNB-CU to request the setup of a UE context.

Direction: gNB-CU → gNB-DU.

| IE/Group Name                            | Presence | Range                               | IE type and reference          | Semantics description                                                                                                                                                                                                           | Criticality | Assigned Criticality |
|------------------------------------------|----------|-------------------------------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                             | M        |                                     | 9.3.1.1                        |                                                                                                                                                                                                                                 | YES         | reject               |
| gNB-CU UE F1AP ID                        | M        |                                     | 9.3.1.4                        |                                                                                                                                                                                                                                 | YES         | reject               |
| gNB-DU UE F1AP ID                        | O        |                                     | 9.3.1.5                        |                                                                                                                                                                                                                                 | YES         | ignore               |
| SpCell ID                                | M        |                                     | NR CGI<br>9.3.1.12             | Special Cell as defined in TS 38.321 [16]. For handover case, this IE is considered as target cell.                                                                                                                             | YES         | reject               |
| ServCellIndex                            | M        |                                     | INTEGER (0..31,...)            |                                                                                                                                                                                                                                 | YES         | reject               |
| SpCell UL Configured                     | O        |                                     | Cell UL Configured<br>9.3.1.33 |                                                                                                                                                                                                                                 | YES         | ignore               |
| CU to DU RRC Information                 | M        |                                     | 9.3.1.25                       |                                                                                                                                                                                                                                 | YES         | reject               |
| Candidate SpCell List                    |          | 0..1                                |                                |                                                                                                                                                                                                                                 | YES         | ignore               |
| >Candidate SpCell Item IEs               |          | 1 ..<br><maxnoof Candidate SpCells> |                                |                                                                                                                                                                                                                                 | EACH        | ignore               |
| >>Candidate SpCell ID                    | M        |                                     | NR CGI<br>9.3.1.12             | Special Cell as defined in TS 38.321 [16]                                                                                                                                                                                       | -           |                      |
| DRX Cycle                                | O        |                                     | 9.3.1.24                       |                                                                                                                                                                                                                                 | YES         | ignore               |
| Resource Coordination Transfer Container | O        |                                     | OCTET STRING                   | Includes the <i>MeNB Resource Coordination Information</i> IE as defined in subclause 9.2.116 of TS 36.423 [9] for EN-DC case or <i>MR-DC Resource Coordination Information</i> IE as defined in TS 38.423 [28] for NGEN-DC and | YES         | ignore               |



| IE/Group Name                         | Presence | Range                                     | IE type and reference                     | Semantics description                                                                                                    | Criticality | Assigned Criticality |
|---------------------------------------|----------|-------------------------------------------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                                       |          |                                           |                                           | NE-DC cases.                                                                                                             |             |                      |
| <b>SCell To Be Setup List</b>         |          | <i>0..1</i>                               |                                           |                                                                                                                          | YES         | ignore               |
| <b>&gt;SCell to Be Setup Item IEs</b> |          | <i>1..<br/>&lt;maxnoof<br/>SCells&gt;</i> |                                           |                                                                                                                          | EACH        | ignore               |
| >>SCell ID                            | M        |                                           | NR CGI<br>9.3.1.12                        | SCell Identifier in gNB                                                                                                  | -           |                      |
| >>SCellIndex                          | M        |                                           | INTEGER<br>(1..31, ...)                   |                                                                                                                          | -           |                      |
| >>SCell UL Configured                 | O        |                                           | Cell UL Configured<br>9.3.1.33            |                                                                                                                          | -           |                      |
| >>servingCellMO                       | O        |                                           | INTEGER<br>(1..64, ...)                   |                                                                                                                          | YES         | ignore               |
| <b>SRB to Be Setup List</b>           |          | <i>0..1</i>                               |                                           |                                                                                                                          | YES         | reject               |
| <b>&gt;SRB to Be Setup Item IEs</b>   |          | <i>1..<br/>&lt;maxnoof<br/>SRBs&gt;</i>   |                                           |                                                                                                                          | EACH        | reject               |
| >>SRB ID                              | M        |                                           | 9.3.1.7                                   |                                                                                                                          | -           |                      |
| >>Duplication Indication              | O        |                                           | ENUMERATED<br>(true, ..., false)          | If included, it should be set to true. This IE is ignored if the <i>Additional Duplication Indication</i> IE is present. | -           |                      |
| >>Additional Duplication Indication   | O        |                                           | ENUMERATED<br>(three, four, ...)          |                                                                                                                          | YES         | ignore               |
| >>SDT RLC Bearer Configuration        | O        |                                           | OCTET STRING                              | Includes the <i>RLC-BearerConfig</i> IE defined in subclause 6.3.2 of TS 38.331 [8]                                      | YES         | ignore               |
| >>SRB Mapping Info                    | O        |                                           | Uu RLC Channel ID<br>9.3.1.266            | This IE contains the mapped Uu Relay RLC CH ID for the SRB                                                               | YES         | ignore               |
| <b>DRB to Be Setup List</b>           |          | <i>0..1</i>                               |                                           |                                                                                                                          | YES         | reject               |
| <b>&gt;DRB to Be Setup Item IEs</b>   |          | <i>1..<br/>&lt;maxnoof<br/>DRBs&gt;</i>   |                                           |                                                                                                                          | EACH        | reject               |
| >>DRB ID                              | M        |                                           | 9.3.1.8                                   |                                                                                                                          | -           |                      |
| >>CHOICE QoS Information              | M        |                                           |                                           |                                                                                                                          | -           |                      |
| >>>E-UTRAN QoS                        |          |                                           |                                           |                                                                                                                          |             |                      |
| >>>>E-UTRAN QoS                       | M        |                                           | 9.3.1.19                                  | Shall be used for EN-DC case to convey E-RAB Level QoS Parameters                                                        | -           |                      |
| >>>>DRB Information                   |          |                                           |                                           |                                                                                                                          |             |                      |
| >>>>>DRB Information                  |          | <i>1</i>                                  |                                           | Shall be used for NG-RAN cases                                                                                           | YES         | ignore               |
| >>>>>DRB QoS                          | M        |                                           | QoS Flow Level QoS Parameters<br>9.3.1.45 |                                                                                                                          | -           |                      |
| >>>>>S-NSSAI                          | M        |                                           | 9.3.1.38                                  |                                                                                                                          | -           |                      |
| >>>>>Notification Control             | O        |                                           | 9.3.1.56                                  |                                                                                                                          | -           |                      |
| >>>>>Flows Mapped to DRB              |          | <i>1..<br/>&lt;maxnoof</i>                |                                           |                                                                                                                          | -           |                      |

| IE/Group Name                                               | Presence | Range                                           | IE type and reference                     | Semantics description                                                                                                                                                                                                                                                            | Criticality | Assigned Criticality |
|-------------------------------------------------------------|----------|-------------------------------------------------|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| <b>Item</b>                                                 |          | <i>QoSFlows</i><br>>                            |                                           |                                                                                                                                                                                                                                                                                  |             |                      |
| >>>>>QoS Flow Identifier                                    | M        |                                                 | 9.3.1.63                                  |                                                                                                                                                                                                                                                                                  | -           |                      |
| >>>>>QoS Flow Level QoS Parameters                          | M        |                                                 | 9.3.1.45                                  |                                                                                                                                                                                                                                                                                  | -           |                      |
| >>>>>QoS Flow Mapping Indication                            | O        |                                                 | 9.3.1.72                                  |                                                                                                                                                                                                                                                                                  | YES         | ignore               |
| >>>>>TSC Traffic Characteristics                            | O        |                                                 | 9.3.1.141                                 | Traffic pattern information associated with the QFI. Details in TS 23.501 [21].                                                                                                                                                                                                  | YES         | ignore               |
| >>>>ECN Marking or Congestion Information Reporting Request | O        |                                                 | 9.3.1.321                                 |                                                                                                                                                                                                                                                                                  | YES         | ignore               |
| >>>>PSI based SDU Discard UL                                | O        |                                                 | ENUMERATED (start, stop, ...)             | Indicates whether UL PSI based SDU discard is (re)configured or released for the DRB. The codepoint "start" means that UL PSI based discarding is (re)configured, while the codepoint "stop" means that UL PSI based discarding is released. Up to 8 DRBs can be set as "start". | YES         | ignore               |
| >>UL UP TNL Information to be setup List                    |          | 1                                               |                                           |                                                                                                                                                                                                                                                                                  | -           |                      |
| >>>UL UP TNL Information to Be Setup Item IEs               |          | 1 ..<br><maxnoof<br>ULUPTNL<br>Informatio<br>n> |                                           |                                                                                                                                                                                                                                                                                  | -           |                      |
| >>>>UL UP TNL Information                                   | M        |                                                 | UP Transport Layer Information<br>9.3.2.1 | gNB-CU endpoint of the F1 transport bearer. For delivery of UL PDUs.                                                                                                                                                                                                             | -           |                      |
| >>>>BH Information                                          | O        |                                                 | 9.3.1.114                                 |                                                                                                                                                                                                                                                                                  | YES         | ignore               |
| >>>>DRB Mapping Info                                        | O        |                                                 | Uu RLC Channel ID<br>9.3.1.266            | This IE contains the mapped Uu Relay RLC CH ID of the DL tunnel corresponding to such UL tunnel                                                                                                                                                                                  | YES         | ignore               |
| >>RLC Mode                                                  | M        |                                                 | 9.3.1.27                                  |                                                                                                                                                                                                                                                                                  | -           |                      |
| >>UL Configuration                                          | O        |                                                 | 9.3.1.31                                  | Information about UL usage in gNB-DU.                                                                                                                                                                                                                                            | -           |                      |
| >>Duplication Activation                                    | O        |                                                 | 9.3.1.36                                  | Information on the initial state of CA based UL PDCP duplication.                                                                                                                                                                                                                | -           |                      |

| IE/Group Name                                      | Presence | Range                                        | IE type and reference                  | Semantics description                                                                                                                                                                         | Criticality | Assigned Criticality |
|----------------------------------------------------|----------|----------------------------------------------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                                                    |          |                                              |                                        | This IE is ignored if the <i>RLC Duplication Information</i> IE is present.                                                                                                                   |             |                      |
| >>DC Based Duplication Configured                  | O        |                                              | ENUMERATED (true, ..., false)          | Indication on whether DC based PDCP duplication is configured or not. If included, it should be set to true. This IE is also applicable to multi-path relay.                                  | YES         | reject               |
| >>DC Based Duplication Activation                  | O        |                                              | Duplication Activation 9.3.1.36        | Information on the initial state of DC based UL PDCP duplication. This IE is ignored if the <i>RLC Duplication Information</i> IE is present. This IE is also applicable to multi-path relay. | YES         | reject               |
| >>DL PDCP SN length                                | M        |                                              | ENUMERATED (12bits, 18bits, ...)       |                                                                                                                                                                                               | YES         | ignore               |
| >>UL PDCP SN length                                | O        |                                              | ENUMERATED (12bits, 18bits, ...)       |                                                                                                                                                                                               | YES         | ignore               |
| >>Additional PDCP Duplication TNL List             |          | 0..1                                         |                                        |                                                                                                                                                                                               | YES         | ignore               |
| >>>Additional PDCP Duplication TNL Items           |          | 1 .. <maxnoof Additional PDCPDuplicationTNL> |                                        |                                                                                                                                                                                               | EACH        | ignore               |
| >>>>Additional PDCP Duplication UP TNL Information | M        |                                              | UP Transport Layer Information 9.3.2.1 | gNB-CU endpoint of the F1 transport bearer. For delivery of UL PDUs.                                                                                                                          | -           |                      |
| >>>>BH Information                                 | O        |                                              | 9.3.1.114                              |                                                                                                                                                                                               | YES         | ignore               |
| >>RLC Duplication Information                      | O        |                                              | 9.3.1.146                              |                                                                                                                                                                                               | YES         | ignore               |
| >>SDT RLC Bearer Configuration                     | O        |                                              | OCTET STRING                           | RLC-BearerConfig IE defined in subclause 6.3.2 of TS 38.331 [8]                                                                                                                               | YES         | ignore               |
| Inactivity Monitoring Request                      | O        |                                              | ENUMERATED (true, ...)                 |                                                                                                                                                                                               | YES         | reject               |
| RAT-Frequency Priority Information                 | O        |                                              | 9.3.1.34                               |                                                                                                                                                                                               | YES         | reject               |
| RRC-Container                                      | O        |                                              | 9.3.1.6                                | Includes the <i>DL-DCCH-Message</i> message as defined in subclause 6.2 of TS 38.331 [8], encapsulated in a PDCP PDU.                                                                         | YES         | ignore               |
| Masked IMEISV                                      | O        |                                              | 9.3.1.55                               |                                                                                                                                                                                               | YES         | ignore               |

| IE/Group Name                                  | Presence     | Range                              | IE type and reference                     | Semantics description                                                             | Criticality | Assigned Criticality |
|------------------------------------------------|--------------|------------------------------------|-------------------------------------------|-----------------------------------------------------------------------------------|-------------|----------------------|
| Serving PLMN                                   | O            |                                    | PLMN Identity<br>9.3.1.14                 | Indicates the PLMN serving the UE.                                                | YES         | ignore               |
| gNB-DU UE Aggregate Maximum Bit Rate Uplink    | C-ifDRBSetup |                                    | Bit Rate<br>9.3.1.22                      | The gNB-DU UE Aggregate Maximum Bit Rate Uplink is to be enforced by the gNB-DU.  | YES         | ignore               |
| RRC Delivery Status Request                    | O            |                                    | ENUMERATED<br>(true, ...)                 | Indicates whether RRC DELIVERY REPORT procedure is requested for the RRC message. | YES         | ignore               |
| Resource Coordination Transfer Information     | O            |                                    | 9.3.1.73                                  |                                                                                   | YES         | ignore               |
| servingCellMO                                  | O            |                                    | INTEGER<br>(1..64, ...)                   |                                                                                   | YES         | ignore               |
| New gNB-CU UE F1AP ID                          | O            |                                    | gNB-CU UE F1AP ID<br>9.3.1.4              |                                                                                   | YES         | reject               |
| RAN UE ID                                      | O            |                                    | OCTET STRING (SIZE (8))                   |                                                                                   | YES         | ignore               |
| Trace Activation                               | O            |                                    | 9.3.1.88                                  |                                                                                   | YES         | ignore               |
| Additional RRM Policy Index                    | O            |                                    | 9.3.1.90                                  |                                                                                   | YES         | ignore               |
| <b>BH RLC Channel to be Setup List</b>         |              | 0..1                               |                                           |                                                                                   | YES         | reject               |
| <b>&gt;BH RLC Channel to be Setup Item IEs</b> |              | 1 ..<br><maxnoof<br>BHRLCChannels> |                                           |                                                                                   | EACH        | reject               |
| >>BH RLC CH ID                                 | M            |                                    | BH RLC Channel ID<br>9.3.1.113            |                                                                                   | -           |                      |
| >>CHOICE BH QoS Information                    | M            |                                    |                                           |                                                                                   |             |                      |
| >>>BH RLC CH QoS                               |              |                                    |                                           |                                                                                   |             |                      |
| >>>>BH RLC CH QoS                              | M            |                                    | QoS Flow Level QoS Parameters<br>9.3.1.45 | Shall be used for SA case.                                                        | -           |                      |
| >>>>E-UTRAN BH RLC CH QoS                      |              |                                    |                                           |                                                                                   |             |                      |
| >>>>E-UTRAN BH RLC CH QoS                      | M            |                                    | E-UTRAN QoS<br>9.3.1.19                   | Shall be used for EN-DC case.                                                     | -           |                      |
| >>>>Control Plane Traffic Type                 |              |                                    |                                           |                                                                                   |             |                      |
| >>>>>Control Plane Traffic Type                | M            |                                    | 9.3.1.115                                 |                                                                                   | -           |                      |
| >>RLC Mode                                     | M            |                                    | 9.3.1.27                                  |                                                                                   | -           |                      |
| >>BAP Control PDU Channel                      | O            |                                    | ENUMERATED<br>(true, ...)                 |                                                                                   | -           |                      |
| >>Traffic Mapping Information                  | O            |                                    | 9.3.1.95                                  |                                                                                   | -           |                      |
| Configured BAP Address                         | O            |                                    | BAP Address<br>9.3.1.111                  | The BAP address configured for the corresponding child IAB-node.                  | YES         | reject               |
| NR V2X Services Authorized                     | O            |                                    | 9.3.1.116                                 |                                                                                   | YES         | ignore               |
| LTE V2X Services                               | O            |                                    | 9.3.1.117                                 |                                                                                   | YES         | ignore               |

| IE/Group Name                                    | Presence       | Range                                | IE type and reference                                  | Semantics description                                                         | Criticality | Assigned Criticality |
|--------------------------------------------------|----------------|--------------------------------------|--------------------------------------------------------|-------------------------------------------------------------------------------|-------------|----------------------|
| Authorized                                       |                |                                      |                                                        |                                                                               |             |                      |
| NR UE Sidelink Aggregate Maximum Bit Rate        | O              |                                      | 9.3.1.119                                              | This IE applies only if the UE is authorized for NR V2X services.             | YES         | ignore               |
| LTE UE Sidelink Aggregate Maximum Bit Rate       | O              |                                      | 9.3.1.118                                              | This IE applies only if the UE is authorized for LTE V2X services.            | YES         | ignore               |
| PC5 Link Aggregate Bit Rate                      | O              |                                      | Bit Rate<br>9.3.1.22                                   | Only applies for non-GBR and unicast QoS Flows.                               | YES         | ignore               |
| <b>SL DRB to Be Setup List</b>                   |                | 0..1                                 |                                                        |                                                                               | YES         | reject               |
| <b>&gt;SL DRB to Be Setup Item IEs</b>           |                | 1 ..<br><maxnoof<br>SLDRBs>          |                                                        |                                                                               | EACH        | reject               |
| >>SL DRB ID                                      | M              |                                      | 9.3.1.120                                              |                                                                               | -           |                      |
| >>SL DRB Information                             |                | 1                                    |                                                        |                                                                               | -           |                      |
| >>>SL DRB QoS                                    | M              |                                      | PC5 QoS Parameters<br>9.3.1.122                        |                                                                               | -           |                      |
| >>>Flows Mapped to SL DRB Item                   |                | 1 ..<br><maxnoof<br>PC5QoSFI<br>ows> |                                                        |                                                                               | -           |                      |
| >>>>PC5 QoS Flow Identifier                      |                |                                      | 9.3.1.121                                              |                                                                               | -           |                      |
| >>RLC mode                                       | M              |                                      | 9.3.1.27                                               |                                                                               | -           |                      |
| >>Duplication Indication                         | O              |                                      | ENUMERATED<br>(true, ..., false)                       | If included, it should be set to true.                                        | -           |                      |
| <b>Conditional Inter-DU Mobility Information</b> | O              |                                      |                                                        |                                                                               | YES         | reject               |
| >CHO Trigger                                     | M              |                                      | ENUMERATED<br>(CHO-initiation,<br>CHO-replace,<br>...) |                                                                               | -           |                      |
| >Target gNB-DU UE F1AP ID                        | C-<br>ifCHOmod |                                      | gNB-DU UE F1AP ID<br>9.3.1.15                          | Allocated at the target gNB-DU                                                | -           |                      |
| >Estimated Arrival Probability                   | O              |                                      | INTEGER<br>(1..100)                                    |                                                                               | YES         | ignore               |
| >S-CPAC Request                                  | O              |                                      | ENUMERATED<br>(initiation, ...)                        | Indicates that SN change is for S-CPAC preparation.                           | YES         | reject               |
| >S-CPAC Lower Layer Reference Config Request     | O              |                                      | ENUMERATED<br>(true, ...)                              |                                                                               | YES         | reject               |
| Management Based MDT PLMN List                   | O              |                                      | MDT PLMN List<br>9.3.1.151                             |                                                                               | YES         | ignore               |
| Serving NID                                      | O              |                                      | NID<br>9.3.1.155                                       |                                                                               | YES         | reject               |
| F1-C Transfer Path                               | O              |                                      | 9.3.1.207                                              |                                                                               | YES         | reject               |
| F1-C Transfer Path NRDC                          | O              |                                      | 9.3.1.228                                              |                                                                               | YES         | reject               |
| MDT Polluted Measurement Indicator               | O              |                                      | ENUMERATED<br>(IDC,no-IDC,<br>...)                     | Indication on whether MDT Measurement affect (e.g. IDC) is undertaken or not. | YES         | ignore               |
| SCG Activation Request                           | O              |                                      | 9.3.1.233                                              |                                                                               | YES         | ignore               |
| Old CG-SDT Session                               | O              |                                      | CG-SDT                                                 |                                                                               | YES         | ignore               |

| IE/Group Name                                   | Presence | Range                             | IE type and reference                                  | Semantics description                                                                                                   | Criticality | Assigned Criticality |
|-------------------------------------------------|----------|-----------------------------------|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Info                                            |          |                                   | Session Info<br>9.3.1.261                              |                                                                                                                         |             |                      |
| 5G ProSe Authorized                             | O        |                                   | 9.3.1.268                                              |                                                                                                                         | YES         | ignore               |
| 5G ProSe UE PC5 Aggregate Maximum Bit Rate      | O        |                                   | NR UE Sidelink Aggregate Maximum Bit Rate<br>9.3.1.119 | This IE applies only if the UE is authorized for 5G ProSe services.                                                     | YES         | ignore               |
| 5G ProSe PC5 Link Aggregate Bit Rate            | O        |                                   | Bit Rate<br>9.3.1.22                                   | This IE applies only if the UE is authorized for 5G ProSe services, and only applies for non-GBR and unicast QoS Flows. | YES         | ignore               |
| <b>Uu RLC Channel to Be Setup List</b>          |          | 0..1                              |                                                        | This IE is not used in this version of the specification.                                                               | YES         | reject               |
| <b>&gt;Uu RLC Channel to be Setup Item IEs</b>  |          | 1 ..<br><maxnoof UuRLCCh annels>  |                                                        |                                                                                                                         | -           |                      |
| >>Uu RLC Channel ID                             | M        |                                   | 9.3.1.266                                              |                                                                                                                         | -           |                      |
| >>CHOICE Uu RLC Channel QoS Information         | M        |                                   |                                                        |                                                                                                                         | -           |                      |
| >>>Uu RLC Channel QoS                           |          |                                   |                                                        |                                                                                                                         |             |                      |
| >>>>Uu RLC Channel QoS                          | M        |                                   | QoS Flow Level QoS Parameters<br>9.3.1.45              |                                                                                                                         | -           |                      |
| >>>>Uu Control Plane Traffic Type               |          |                                   |                                                        |                                                                                                                         |             |                      |
| >>>>>Uu Control Plane Traffic Type              | M        |                                   | ENUMERATED (SRB0, SRB1, SRB2, ...)                     | This IE indicates the type of SRB conveyed via the Uu Relay RLC Channel.                                                | -           |                      |
| >>RLC Mode                                      | M        |                                   | 9.3.1.27                                               |                                                                                                                         | -           |                      |
| <b>PC5 RLC Channel to Be Setup List</b>         |          | 0..1                              |                                                        |                                                                                                                         | YES         | reject               |
| <b>&gt;PC5 RLC Channel to be Setup Item IEs</b> |          | 1 ..<br><maxnoof PC5RLCC hannels> |                                                        |                                                                                                                         | -           |                      |
| >>PC5 RLC Channel ID                            | M        |                                   | 9.3.1.265                                              |                                                                                                                         | -           |                      |
| >>Remote UE Local ID                            | O        |                                   | 9.3.1.267                                              | This IE is not used in this version of the specification.                                                               | -           |                      |
| >>CHOICE PC5 RLC Channel QoS Information        | M        |                                   |                                                        |                                                                                                                         | -           |                      |
| >>>PC5 RLC Channel QoS                          |          |                                   |                                                        |                                                                                                                         |             |                      |
| >>>>PC5 RLC Channel QoS                         | M        |                                   | QoS Flow Level QoS Parameters<br>9.3.1.45              |                                                                                                                         | -           |                      |
| >>>>PC5 Control Plane Traffic Type              |          |                                   |                                                        |                                                                                                                         |             |                      |
| >>>>>PC5 Control                                | M        |                                   | ENUMERATED                                             | This IE indicates                                                                                                       | -           |                      |

| IE/Group Name                                    | Presence | Range                    | IE type and reference                | Semantics description                                                                                                                                                                                                                                                                         | Criticality | Assigned Criticality |
|--------------------------------------------------|----------|--------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Plane Traffic Type                               |          |                          | (SRB1, SRB2, ...)                    | the type of SRB conveyed via the PC5 Relay RLC Channel.                                                                                                                                                                                                                                       |             |                      |
| >>>U2U RLC Channel QoS                           |          |                          |                                      |                                                                                                                                                                                                                                                                                               | YES         | reject               |
| >>>>U2U RLC Channel QoS                          | M        |                          | PC5 QoS Parameters 9.3.1.122         |                                                                                                                                                                                                                                                                                               | -           |                      |
| >>RLC Mode                                       | M        |                          | 9.3.1.27                             |                                                                                                                                                                                                                                                                                               | -           |                      |
| >>Peer UE ID                                     | O        |                          | BIT STRING (SIZE(24))                | Corresponds to information provided in the <i>sl-DestinationIdentity L2-U2U</i> contained in the <i>SL-TxResourceReqL2-U2U</i> IE, defined in TS 38.331 [8]. This IE is included if the gNB-CU UE F1AP ID and/or gNB-DU UE F1AP ID are associated with a L2 U2U Remote UE or L2 U2U Relay UE. | YES         | reject               |
| Path Switch Configuration                        | O        |                          | 9.3.1.263                            |                                                                                                                                                                                                                                                                                               | YES         | ignore               |
| gNB-DU UE Slice Maximum Bit Rate List            | O        |                          | 9.3.1.271                            | The Slice Maximum Bit Rate List is the maximum aggregate UL bit rate per slice, to be enforced by the gNB-DU, if feasible. This IE is ignored if the <i>DRB to Be Setup List</i> IE is not present.                                                                                           | YES         | ignore               |
| Multicast MBS Session Setup List                 | O        |                          | Multicast MBS Session List 9.3.1.272 | The list of MBS Session ID that UE has joined.                                                                                                                                                                                                                                                | YES         | reject               |
| UE Multicast MRB to Be Setup List                |          | 0..1                     |                                      |                                                                                                                                                                                                                                                                                               | YES         | reject               |
| >UE Multicast MRB to Be Setup Item IEs           |          | 1 .. <maxnoof MRBsforUE> |                                      |                                                                                                                                                                                                                                                                                               | EACH        | reject               |
| >>MRB ID                                         | M        |                          | 9.3.1.224                            | MRB ID for the UE.                                                                                                                                                                                                                                                                            | -           |                      |
| >>MBS PTP Retransmission Tunnel Required         | O        |                          | 9.3.2.10                             |                                                                                                                                                                                                                                                                                               | -           |                      |
| >>MBS PTP Forwarding Tunnel Required Information | O        |                          | MRB Progress Information 9.3.2.12    |                                                                                                                                                                                                                                                                                               | -           |                      |
| >>Source MRB ID                                  | O        |                          | MRB ID 9.3.1.224                     | In case of inter-DU handover, indicates the MRB ID provided to the UE in the source cell.                                                                                                                                                                                                     | YES         | ignore               |
| ServingCellMO List                               |          | 0..1                     |                                      | For NCD-SSBs                                                                                                                                                                                                                                                                                  | YES         | ignore               |

| IE/Group Name                                        | Presence | Range                                      | IE type and reference                                | Semantics description                                                                      | Criticality | Assigned Criticality |
|------------------------------------------------------|----------|--------------------------------------------|------------------------------------------------------|--------------------------------------------------------------------------------------------|-------------|----------------------|
| <b>&gt;ServingCellMO Item IEs</b>                    |          | <i>1 .. &lt;maxnoof ServingCellMOs&gt;</i> |                                                      |                                                                                            | EACH        | ignore               |
| >>servingCellMO                                      | M        |                                            | INTEGER (1..64, ...)                                 |                                                                                            | -           |                      |
| >>SSB frequency                                      | M        |                                            | INTEGER (0..3279165)                                 | ARFCN                                                                                      | -           |                      |
| Network Controlled Repeater Authorized               | O        |                                            | 9.3.1.288                                            |                                                                                            | YES         | ignore               |
| SDT Volume Threshold                                 | O        |                                            | INTEGER(1..192000,...)                               | Unit: byte.                                                                                | YES         | ignore               |
| <b>LTM InformationSetup</b>                          |          | <i>0..1</i>                                |                                                      |                                                                                            | YES         | reject               |
| >LTM Indicator                                       | M        |                                            | ENUMERATED (true, ...)                               |                                                                                            | -           |                      |
| >Reference Configuration                             | O        |                                            | 9.3.1.292                                            |                                                                                            | -           |                      |
| >CSI Resource Configuration                          | O        |                                            | 9.3.1.330                                            |                                                                                            | -           |                      |
| LTM Configuration ID Mapping List                    | O        |                                            | 9.3.1.294                                            |                                                                                            | YES         | reject               |
| <b>Early Sync Information Request</b>                |          | <i>0..1</i>                                |                                                      |                                                                                            | YES         | ignore               |
| >Request for RACH Configuration                      | M        |                                            | ENUMERATED (true, ...)                               |                                                                                            | -           |                      |
| <b>&gt;LTM gNB-DUs List</b>                          |          | <i>1</i>                                   |                                                      | This IE contains the IDs of the source gNB-DU and candidate gNB-DU(s).                     | YES         | reject               |
| <b>&gt;&gt;LTM gNB-DUs Item IEs</b>                  |          | <i>1..&lt;maxnoofLTMgNB-DUs&gt;</i>        |                                                      |                                                                                            | -           |                      |
| >>>LTM gNB-DU ID                                     | M        |                                            | gNB-DU ID 9.3.1.9                                    |                                                                                            | -           |                      |
| Path Addition Information                            | O        |                                            | 9.3.1.296                                            |                                                                                            | YES         | reject               |
| NR A2X Services Authorized                           | O        |                                            | 9.3.1.323                                            |                                                                                            | YES         | ignore               |
| LTE A2X Services Authorized                          | O        |                                            | 9.3.1.324                                            |                                                                                            | YES         | ignore               |
| NR UE Sidelink Aggregate Maximum Bit Rate for A2X    | O        |                                            | NR UE Sidelink Aggregate Maximum Bit Rate 9.3.1.119  | This IE applies only if the UE is authorized for NR A2X services.                          | YES         | ignore               |
| LTE UE Sidelink Aggregate Maximum Bit Rate for A2X   | O        |                                            | LTE UE Sidelink Aggregate Maximum Bit Rate 9.3.1.118 | This IE applies only if the UE is authorized for LTE A2X services.                         | YES         | ignore               |
| DL LBT Failure Information Request                   | O        |                                            | ENUMERATED (inquiry, ...)                            |                                                                                            | YES         | ignore               |
| Ranging and Sidelink Positioning Service Information | O        |                                            | 9.3.1.331                                            | This IE applies only if the UE is authorized for NR V2X services and/or 5G ProSe services. | YES         | ignore               |
| Non-Integer DRX Cycle                                | O        |                                            | 9.3.1.344                                            |                                                                                            | YES         | ignore               |



| Range bound                         | Explanation                                                                                                                   |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| maxnoofSCells                       | Maximum no. of SCells allowed towards one UE, the maximum value is 32.                                                        |
| maxnoofServingCellMOs               | Maximum number of ServingCellMOs for NCD-SSB per cell. Maximum value is 16                                                    |
| maxnoofSRBs                         | Maximum no. of SRB allowed towards one UE, the maximum value is 8.                                                            |
| maxnoofDRBs                         | Maximum no. of DRB allowed towards one UE, the maximum value is 64.                                                           |
| maxnoofULUPTNLInformation           | Maximum no. of ULUP TNL Information allowed towards one DRB, the maximum value is 2.                                          |
| maxnoofCandidateSpCells             | Maximum no. of SpCells allowed towards one UE, the maximum value is 64.                                                       |
| maxnoofQoSFlows                     | Maximum no. of flows allowed to be mapped to one DRB, the maximum value is 64.                                                |
| maxnoofBHRLCChannels                | Maximum no. of BH RLC channels allowed towards one IAB-node, the maximum value is 65536.                                      |
| maxnoofSLDRBs                       | Maximum no. of SL DRB allowed for NR sidelink communication per UE, the maximum value is 512.                                 |
| maxnoofPC5QoSFlows                  | Maximum no. of PC5 QoS flow allowed towards one UE for NR sidelink communication, the maximum value is 2048.                  |
| maxnoofAdditionalPDCPDuplicationTNL | Maximum no. of additional UP TNL Information allowed towards one DRB, the maximum value is 2.                                 |
| maxnoofUuRLCChannels                | Maximum no. of Uu Relay RLC channels for L2 U2N relaying per Relay UE, the maximum value is 32.                               |
| maxnoofPC5RLCChannels               | Maximum no. of PC5 Relay RLC channels allowed for L2 U2N or U2U relaying per Remote UE or Relay UE, the maximum value is 512. |
| maxnoofMRBsforUE                    | Maximum no. of multicast MRB allowed towards one UE, the maximum value is 64.                                                 |
| maxnoofLTMgNB-DUs                   | Maximum no. of gNB-DUs allowed to be configured with LTM towards one UE, the maximum value is 8.                              |

| Condition  | Explanation                                                                                |
|------------|--------------------------------------------------------------------------------------------|
| ifDRBSetup | This IE shall be present only if the <i>DRB to Be Setup List</i> IE is present.            |
| ifCHOmod   | This IE shall be present if the <i>CHO Trigger</i> IE is present and set to "CHO-replace". |

### 9.2.2.2 UE CONTEXT SETUP RESPONSE

This message is sent by the gNB-DU to confirm the setup of a UE context.

Direction: gNB-DU → gNB-CU.

| IE/Group Name                            | Presence | Range | IE type and reference | Semantics description                                                                                                                                               | Criticality | Assigned Criticality |
|------------------------------------------|----------|-------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                             | M        |       | 9.3.1.1               |                                                                                                                                                                     | YES         | reject               |
| gNB-CU UE F1AP ID                        | M        |       | 9.3.1.4               |                                                                                                                                                                     | YES         | reject               |
| gNB-DU UE F1AP ID                        | M        |       | 9.3.1.5               |                                                                                                                                                                     | YES         | reject               |
| DU To CU RRC Information                 | M        |       | 9.3.1.26              |                                                                                                                                                                     | YES         | reject               |
| C-RNTI                                   | O        |       | 9.3.1.32              | C-RNTI allocated at the gNB-DU                                                                                                                                      | YES         | ignore               |
| Resource Coordination Transfer Container | O        |       | OCTET STRING          | Includes the <i>SgNB Resource Coordination Information</i> IE as defined in subclause 9.2.117 of TS 36.423 [9] for EN-DC case or <i>MR-DC Resource Coordination</i> | YES         | ignore               |

| IE/Group Name                                                 | Presence | Range                                            | IE type and reference                          | Semantics description                                                                                                  | Criticality | Assigned Criticality |
|---------------------------------------------------------------|----------|--------------------------------------------------|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                                                               |          |                                                  |                                                | Information IE as defined in TS 38.423 [28] for NGEN-DC and NE-DC cases.                                               |             |                      |
| Full Configuration                                            | O        |                                                  | ENUMERATED (full, ...)                         |                                                                                                                        | YES         | reject               |
| <b>DRB Setup List</b>                                         |          | 0..1                                             |                                                | The List of DRBs which are successfully established.                                                                   | YES         | ignore               |
| <b>&gt;DRB Setup Item list</b>                                |          | 1 ..<br><maxnoof DRBs>                           |                                                |                                                                                                                        | EACH        | ignore               |
| >>DRB ID                                                      | M        |                                                  | 9.3.1.8                                        |                                                                                                                        | -           |                      |
| >>LCID                                                        | O        |                                                  | 9.3.1.35                                       | LCID for the primary path or for the split secondary path for fallback to split bearer if PDCP duplication is applied. | -           |                      |
| <b>&gt;&gt;DL UP TNL Information to be setup List</b>         |          | 1                                                |                                                |                                                                                                                        | -           |                      |
| <b>&gt;&gt;&gt;DL UP TNL Information to Be Setup Item IEs</b> |          | 1 ..<br><maxnoof DLUP TNL Information>           |                                                |                                                                                                                        | -           |                      |
| >>>>DL UP TNL Information                                     | M        |                                                  | UP Transport Layer Information 9.3.2.1         | gNB-DU endpoint of the F1 transport bearer. For delivery of DL PDUs.                                                   | -           |                      |
| <b>&gt;&gt;Additional PDCP Duplication TNL List</b>           |          | 0..1                                             |                                                |                                                                                                                        | YES         | ignore               |
| <b>&gt;&gt;&gt;Additional PDCP Duplication TNL Items</b>      |          | 1 ..<br><maxnoof Additional PDCPDuplication TNL> |                                                |                                                                                                                        | EACH        | ignore               |
| >>>>Additional PDCP Duplication UP TNL Information            | M        |                                                  | UP Transport Layer Information 9.3.2.1         | gNB-DU endpoint of the F1 transport bearer. For delivery of DL PDUs.                                                   | -           |                      |
| >>>>BH Information                                            | O        |                                                  | 9.3.1.114                                      | This IE is not used in this version of the specification.                                                              | YES         | ignore               |
| >>Current QoS Parameters Set Index                            | O        |                                                  | Alternative QoS Parameters Set Index 9.3.1.123 | Index to the currently fulfilled alternative QoS parameters set.                                                       | YES         | ignore               |
| >>TSC Traffic Characteristics Feedback                        | O        |                                                  | 9.3.1.302                                      |                                                                                                                        | YES         | ignore               |
| >>ECN Marking or Congestion Information Reporting Status      | O        |                                                  | 9.3.1.322                                      |                                                                                                                        | YES         | ignore               |
| <b>SRB Failed to Setup List</b>                               |          | 0..1                                             |                                                |                                                                                                                        | YES         | ignore               |
| <b>&gt;SRB Failed to Setup</b>                                |          | 1 ..                                             |                                                |                                                                                                                        | EACH        | ignore               |

| IE/Group Name                                 | Presence | Range                                          | IE type and reference              | Semantics description                                           | Criticality | Assigned Criticality |
|-----------------------------------------------|----------|------------------------------------------------|------------------------------------|-----------------------------------------------------------------|-------------|----------------------|
| <b>Item</b>                                   |          | <i>&lt;maxnoof SRBs&gt;</i>                    |                                    |                                                                 |             |                      |
| >>SRB ID                                      | M        |                                                | 9.3.1.7                            |                                                                 | -           |                      |
| >>Cause                                       | O        |                                                | 9.3.1.2                            |                                                                 | -           |                      |
| <b>DRB Failed to Setup List</b>               |          | 0..1                                           |                                    |                                                                 | YES         | ignore               |
| >DRB Failed to Setup Item                     |          | 1 ..<br><i>&lt;maxnoof DRBs&gt;</i>            |                                    |                                                                 | EACH        | ignore               |
| >>DRB ID                                      | M        |                                                | 9.3.1.8                            |                                                                 | -           |                      |
| >>Cause                                       | O        |                                                | 9.3.1.2                            |                                                                 | -           |                      |
| <b>SCell Failed To Setup List</b>             |          | 0..1                                           |                                    |                                                                 | YES         | ignore               |
| >SCell Failed to Setup Item                   |          | 1 ..<br><i>&lt;maxnoof SCells&gt;</i>          |                                    |                                                                 | EACH        | ignore               |
| >>SCell ID                                    | M        |                                                | NR CGI<br>9.3.1.12                 | SCell Identifier in gNB                                         | -           |                      |
| >>Cause                                       | O        |                                                | 9.3.1.2                            |                                                                 | -           |                      |
| Inactivity Monitoring Response                | O        |                                                | ENUMERATED<br>(not-supported, ...) |                                                                 | YES         | reject               |
| Criticality Diagnostics                       | O        |                                                | 9.3.1.3                            |                                                                 | YES         | ignore               |
| <b>SRB Setup List</b>                         |          | 0..1                                           |                                    |                                                                 | YES         | ignore               |
| >SRB Setup Item                               |          | 1 ..<br><i>&lt;maxnoof SRBs&gt;</i>            |                                    |                                                                 | EACH        | ignore               |
| >>SRB ID                                      | M        |                                                | 9.3.1.7                            |                                                                 | -           |                      |
| >>LCID                                        | M        |                                                | 9.3.1.35                           | LCID for the primary path if PDCP duplication is applied        | -           |                      |
| <b>BH RLC Channel Setup List</b>              |          | 0..1                                           |                                    | The list of BH RLC channels which are successfully established. | YES         | ignore               |
| >BH RLC Channel Setup Item                    |          | 1 ..<br><i>&lt;maxnoof BHRLLCCh annels&gt;</i> |                                    |                                                                 | EACH        | ignore               |
| >>BH RLC CH ID                                | M        |                                                | BH RLC Channel ID<br>9.3.1.113     |                                                                 | -           |                      |
| <b>BH RLC Channel Failed to be Setup List</b> |          | 0..1                                           |                                    | The list of BH RLC channels whose setup has failed.             | YES         | ignore               |
| >BH RLC Channel Failed to be Setup Item       |          | 1 ..<br><i>&lt;maxnoof BHRLLCCh annels&gt;</i> |                                    |                                                                 | EACH        | ignore               |
| >>BH RLC CH ID                                | M        |                                                | BH RLC Channel ID<br>9.3.1.113     |                                                                 | -           |                      |
| >>Cause                                       | O        |                                                | 9.3.1.2                            |                                                                 | -           |                      |
| <b>SL DRB Setup List</b>                      |          | 0..1                                           |                                    | The List of SL DRBs which are successfully established.         | YES         | ignore               |
| >SL DRB Setup Item IEs                        |          | 1 ..<br><i>&lt;maxnoof SLDRBs&gt;</i>          |                                    |                                                                 | EACH        | ignore               |
| >>SL DRB ID                                   | M        |                                                | 9.3.1.120                          |                                                                 | -           |                      |
| <b>SL DRB Failed To Setup List</b>            |          | 0..1                                           |                                    |                                                                 | EACH        | ignore               |

| IE/Group Name                                          | Presence | Range                                   | IE type and reference   | Semantics description                                            | Criticality | Assigned Criticality |
|--------------------------------------------------------|----------|-----------------------------------------|-------------------------|------------------------------------------------------------------|-------------|----------------------|
| <b>&gt;SL DRB Failed To Setup Item IE</b>              |          | 1 ..<br><maxnoof<br>SLDRBs>             |                         |                                                                  | EACH        | ignore               |
| >>SL DRB ID                                            | M        |                                         | 9.3.1.120               |                                                                  | -           |                      |
| >>Cause                                                | O        |                                         | 9.3.1.2                 |                                                                  | -           |                      |
| Requested Target Cell ID                               | O        |                                         | NR CGI<br>9.3.1.12      | Special Cell indicated in the UE CONTEXT SETUP REQUEST message.  | YES         | reject               |
| SCG Activation Status                                  | O        |                                         | 9.3.1.234               |                                                                  | YES         | ignore               |
| <b>Uu RLC Channel Setup List</b>                       |          | 0..1                                    |                         | This IE is not used in this version of the specification.        | YES         | ignore               |
| <b>&gt;Uu RLC Channel Setup Item IEs</b>               |          | 1 ..<br><maxnoof<br>UuRLCCh<br>annels>  |                         |                                                                  | -           |                      |
| >>Uu RLC Channel ID                                    | M        |                                         | 9.3.1.266               |                                                                  | -           |                      |
| <b>Uu RLC Channel Failed to be Setup List</b>          |          | 0..1                                    |                         | This IE is not used in this version of the specification.        | YES         | ignore               |
| <b>&gt;Uu RLC Channel Failed to be Setup Item IEs</b>  |          | 1 ..<br><maxnoof<br>UuRLCCh<br>annels>  |                         |                                                                  | -           |                      |
| >>Uu RLC Channel ID                                    | M        |                                         | 9.3.1.266               |                                                                  | -           |                      |
| >>Cause                                                | O        |                                         | 9.3.1.2                 |                                                                  | -           |                      |
| <b>PC5 RLC Channel Setup List</b>                      |          | 0..1                                    |                         |                                                                  | YES         | ignore               |
| <b>&gt;PC5 RLC Channel Setup Item IEs</b>              |          | 1 ..<br><maxnoof<br>PC5RLCC<br>hannels> |                         |                                                                  | -           |                      |
| >>PC5 RLC Channel ID                                   | M        |                                         | 9.3.1.265               |                                                                  | -           |                      |
| >>Remote UE Local ID                                   | O        |                                         | 9.3.1.267               | This IE is not used in this version of the specification.        |             |                      |
| <b>PC5 RLC Channel Failed to be Setup List</b>         |          | 0..1                                    |                         |                                                                  | YES         | ignore               |
| <b>&gt;PC5 RLC Channel Failed to be Setup Item IEs</b> |          | 1 ..<br><maxnoof<br>PC5RLCC<br>hannels> |                         |                                                                  | -           |                      |
| >>PC5 RLC Channel ID                                   | M        |                                         | 9.3.1.265               |                                                                  | -           |                      |
| >>Remote UE Local ID                                   | O        |                                         | 9.3.1.267               | This IE is not used in this version of the specification.        | -           |                      |
| >>Cause                                                | O        |                                         | 9.3.1.2                 |                                                                  | -           |                      |
| <b>ServingCellIMO-encoded-in-CGC List</b>              |          | 0..1                                    |                         |                                                                  | YES         | ignore               |
| <b>&gt;ServingCellIMO-encoded-in-CGC Item IEs</b>      |          | 1 ..<br><maxNrof<br>BWPs>               |                         | The servingCellIMO which has been encoded in CellGroupConfig IE. | EACH        | ignore               |
| >>servingCellIMO                                       | M        |                                         | INTEGER<br>(1..64, ...) |                                                                  | -           |                      |
| >>BWP ID                                               | M        |                                         | INTEGER (0..4)          |                                                                  | YES         | ignore               |
| <b>UE Multicast MRB</b>                                |          | 0..1                                    |                         |                                                                  | YES         | reject               |

| IE/Group Name                               | Presence | Range                          | IE type and reference                 | Semantics description                                                                                               | Criticality | Assigned Criticality |
|---------------------------------------------|----------|--------------------------------|---------------------------------------|---------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| <b>Setup List</b>                           |          |                                |                                       |                                                                                                                     |             |                      |
| >UE Multicast MRB Setup Item IEs            |          | 1 ..<br><maxnoof<br>MRBsforUE> |                                       |                                                                                                                     | EACH        | reject               |
| >>MRB ID                                    | M        |                                | 9.3.1.224                             | MRB ID for the UE.                                                                                                  | -           |                      |
| >>Multicast F1-U Context Reference CU       | M        |                                | 9.3.2.13                              |                                                                                                                     | -           |                      |
| Dedicated SI Delivery Indication            | O        |                                | ENUMERATED (true, ...)                |                                                                                                                     | YES         | ignore               |
| <b>Configured BWP List</b>                  |          | 0..1                           |                                       | This IE is present when the gNB-DU configures at least one BWP with NCD-SSB or without SSB.                         | YES         | ignore               |
| >Configured BWP Item IEs                    |          | 1 ..<br><maxNrof<br>BWPs>      |                                       |                                                                                                                     | EACH        | ignore               |
| >>BWP-Id                                    | M        |                                | INTEGER (0..4)                        | The IE is used to refer to one BWP.                                                                                 | -           |                      |
| >>BWP Location And Bandwidth                | M        |                                | INTEGER (0..37949)                    | The IE type range is the same as the <i>locationAndBandwidth</i> IE in <i>BWP</i> IE as specified in TS 38.331 [8]. | -           |                      |
| <b>Early Sync Information</b>               |          | 0..1                           |                                       |                                                                                                                     | YES         | ignore               |
| >TCI States Configurations List             | M        |                                | OCTET STRING                          | Includes the <i>LTM-TCI-Info</i> IE, as defined in TS 38.331 [8].                                                   | -           |                      |
| >Early UL Sync Configuration                | O        |                                | 9.3.1.328                             |                                                                                                                     | -           |                      |
| >Early UL Sync Configuration for SUL        | O        |                                | Early UL Sync Configuration 9.3.1.328 | This IE applies for SUL carrier.                                                                                    | -           |                      |
| <b>LTM Configuration</b>                    |          | 0..1                           |                                       |                                                                                                                     | YES         | ignore               |
| >SSB Information                            | M        |                                | 9.3.1.202                             | Includes the SSB Information for the requested target cell.                                                         | -           |                      |
| >Reference Configuration Information        | O        |                                | OCTET STRING                          | Includes the <i>CellGroupConfig</i> IE, as defined in TS 38.331 [8].                                                | -           |                      |
| >Complete Candidate Configuration Indicator | O        |                                | ENUMERATED (complete, ...)            |                                                                                                                     | -           |                      |
| >LTM CFRA Resource Configuration            | O        |                                | OCTET STRING                          | Includes the <i>RACH-ConfigDedicated</i> IE, as defined in TS 38.331 [8].                                           | -           |                      |
| >LTM CFRA Resource Configuration for SUL    | O        |                                | OCTET STRING                          | Includes the <i>RACH-ConfigDedicated</i> IE, as defined in TS 38.331 [8]. This IE applies for SUL carrier.          | -           |                      |
| <b>S-CPAC Configuration</b>                 |          | 0..1                           |                                       |                                                                                                                     | YES         | ignore               |
| >Reference                                  | O        |                                | OCTET                                 | Includes the                                                                                                        | -           |                      |

| IE/Group Name                               | Presence | Range | IE type and reference      | Semantics description                                   | Criticality | Assigned Criticality |
|---------------------------------------------|----------|-------|----------------------------|---------------------------------------------------------|-------------|----------------------|
| Configuration Information                   |          |       | STRING                     | <i>CellGroupConfig</i> IE, as defined in TS 38.331 [8]. |             |                      |
| >Complete Candidate Configuration Indicator | O        |       | ENUMERATED (complete, ...) |                                                         | -           |                      |

| Range bound                         | Explanation                                                                                                                      |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| maxnoofSCells                       | Maximum no. of SCells allowed towards one UE, the maximum value is 32.                                                           |
| maxnoofSRBs                         | Maximum no. of SRB allowed towards one UE, the maximum value is 8.                                                               |
| maxnoofDRBs                         | Maximum no. of DRB allowed towards one UE, the maximum value is 64.                                                              |
| maxnoofDLUPTNLInformation           | Maximum no. of DL UP TNL Information allowed towards one DRB, the maximum value is 2.                                            |
| maxnoofBHRLCChannels                | Maximum no. of BH RLC channels allowed towards one IAB-node, the maximum value is 65536.                                         |
| maxnoofSLDRBs                       | Maximum no. of SL DRB allowed for NR sidelink communication per UE, the maximum value is 512.                                    |
| maxnoofAdditionalPDCPDuplicationTNL | Maximum no. of additional UP TNL Information allowed towards one DRB, the maximum value is 2.                                    |
| maxnoofUuRLCChannels                | Maximum no. of Uu Relay RLC channels for L2 U2N relaying per Relay UE, the maximum value is 32.                                  |
| maxnoofPC5RLCChannels               | Maximum no. of PC5 Relay RLC channels allowed for L2 U2N or L2 U2U relaying per Remote UE or Relay UE, the maximum value is 512. |
| maxNrofBWPs                         | Maximum number of BWPs per serving cell, the maximum value is 8.                                                                 |
| maxnoofMRBsforUE                    | Maximum no. of multicast MRB allowed towards one UE, the maximum value is 64.                                                    |

### 9.2.2.3 UE CONTEXT SETUP FAILURE

This message is sent by the gNB-DU to indicate that the setup of the UE context was unsuccessful.

Direction: gNB-DU → gNB-CU

| IE/Group Name                        | Presence | Range                                        | IE type and reference | Semantics description                                           | Criticality | Assigned Criticality |
|--------------------------------------|----------|----------------------------------------------|-----------------------|-----------------------------------------------------------------|-------------|----------------------|
| Message Type                         | M        |                                              | 9.3.1.1               |                                                                 | YES         | reject               |
| gNB-CU UE F1AP ID                    | M        |                                              | 9.3.1.4               |                                                                 | YES         | reject               |
| gNB-DU UE F1AP ID                    | O        |                                              | 9.3.1.5               |                                                                 | YES         | ignore               |
| Cause                                | M        |                                              | 9.3.1.2               |                                                                 | YES         | ignore               |
| Criticality Diagnostics              | O        |                                              | 9.3.1.3               |                                                                 | YES         | ignore               |
| <b>Potential SpCell List</b>         |          | <i>0..1</i>                                  |                       |                                                                 | YES         | ignore               |
| <b>&gt;Potential SpCell Item IEs</b> |          | <i>0 .. &lt;maxnoof PotentialSpCells&gt;</i> |                       |                                                                 | EACH        | ignore               |
| >>Potential SpCell ID                | M        |                                              | NR CGI 9.3.1.12       | Special Cell as defined in TS 38.321 [16]                       | -           |                      |
| Requested Target Cell ID             | O        |                                              | NR CGI 9.3.1.12       | Special Cell indicated in the UE CONTEXT SETUP REQUEST message. | YES         | reject               |

| Range bound             | Explanation                                                             |
|-------------------------|-------------------------------------------------------------------------|
| maxnoofPotentialSpCells | Maximum no. of SpCells allowed towards one UE, the maximum value is 64. |

### 9.2.2.4 UE CONTEXT RELEASE REQUEST

This message is sent by the gNB-DU to request the gNB-CU to release the UE-associated logical F1 connection or candidate cells in conditional handover, conditional PSCell addition, conditional PSCell change, LTM, or subsequent CPAC.

Direction: gNB-DU → gNB-CU

| IE/Group Name                        | Presence | Range                     | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|--------------------------------------|----------|---------------------------|-----------------------|-----------------------|-------------|----------------------|
| Message Type                         | M        |                           | 9.3.1.1               |                       | YES         | ignore               |
| gNB-CU UE F1AP ID                    | M        |                           | 9.3.1.4               |                       | YES         | reject               |
| gNB-DU UE F1AP ID                    | M        |                           | 9.3.1.5               |                       | YES         | reject               |
| Cause                                | M        |                           | 9.3.1.2               |                       | YES         | ignore               |
| Candidate Cells To Be Cancelled List |          | 0 .. <maxnoof CellsinCHO> |                       |                       | YES         | reject               |
| >Target Cell ID                      | M        |                           | NR CGI<br>9.3.1.12    |                       | -           |                      |
| LTM Cells To Be Released List        | O        |                           | 9.3.1.291             |                       | YES         | reject               |

| Range bound       | Explanation                                                                    |
|-------------------|--------------------------------------------------------------------------------|
| maxnoofCellsinCHO | Maximum no. cells that can be prepared for a conditional mobility. Value is 8. |

### 9.2.2.5 UE CONTEXT RELEASE COMMAND

This message is sent by the gNB-CU to request the gNB-DU to release the UE-associated logical F1 connection or candidate cells in conditional handover, conditional PSCell addition, conditional PSCell change, LTM, or subsequent CPAC.

Direction: gNB-CU → gNB-DU

| IE/Group Name         | Presence             | Range | IE type and reference        | Semantics description                                                                                                                                                                                    | Criticality | Assigned Criticality |
|-----------------------|----------------------|-------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type          | M                    |       | 9.3.1.1                      |                                                                                                                                                                                                          | YES         | reject               |
| gNB-CU UE F1AP ID     | M                    |       | 9.3.1.4                      |                                                                                                                                                                                                          | YES         | reject               |
| gNB-DU UE F1AP ID     | M                    |       | 9.3.1.5                      |                                                                                                                                                                                                          | YES         | reject               |
| Cause                 | M                    |       | 9.3.1.2                      |                                                                                                                                                                                                          | YES         | ignore               |
| RRC-Container         | O                    |       | 9.3.1.6                      | Includes the <i>DL-DCCH-Message</i> message as defined in subclause 6.2 of TS 38.331 [8] encapsulated in a PDCP PDU, or the <i>DL-CCCH-Message</i> message as defined in subclause 6.2 of TS 38.331 [8]. | YES         | ignore               |
| SRB ID                | C-<br>ifRRCContainer |       | 9.3.1.7                      | The gNB-DU sends the RRC message on the indicated SRB.                                                                                                                                                   | YES         | ignore               |
| old gNB-DU UE F1AP ID | O                    |       | gNB-DU UE F1AP ID<br>9.3.1.5 | Include it if RRCReestablishmentRequest is not                                                                                                                                                           | YES         | ignore               |

| IE/Group Name                               | Presence | Range                      | IE type and reference     | Semantics description                                                             | Criticality | Assigned Criticality |
|---------------------------------------------|----------|----------------------------|---------------------------|-----------------------------------------------------------------------------------|-------------|----------------------|
|                                             |          |                            |                           | accepted                                                                          |             |                      |
| Execute Duplication                         | O        |                            | ENUMERATED (true, ...)    | This IE may be sent only if duplication has been configured for the UE.           | YES         | ignore               |
| RRC Delivery Status Request                 | O        |                            | ENUMERATED (true, ...)    | Indicates whether RRC DELIVERY REPORT procedure is requested for the RRC message. | YES         | ignore               |
| <b>Candidate Cells To Be Cancelled List</b> |          | 0 .. <maxnoof CellsinCH O> |                           |                                                                                   | YES         | reject               |
| >Target Cell ID                             | M        |                            | NR CGI 9.3.1.12           |                                                                                   | -           |                      |
| Positioning Context Reservation Indication  | O        |                            | ENUMERATED (true,...)     |                                                                                   | YES         | ignore               |
| CG-SDT Kept Indicator                       | O        |                            | ENUMERATED (true, ...)    |                                                                                   | YES         | ignore               |
| LTM Cells To Be Released List               | O        |                            | 9.3.1.291                 |                                                                                   | YES         | reject               |
| DL LBT Failure Information Request          | O        |                            | ENUMERATED (inquiry, ...) |                                                                                   | YES         | ignore               |

| Range bound       | Explanation                                                                    |
|-------------------|--------------------------------------------------------------------------------|
| maxnoofCellsInCHO | Maximum no. cells that can be prepared for a conditional mobility. Value is 8. |

| Condition      | Explanation                                                         |
|----------------|---------------------------------------------------------------------|
| ifRRCContainer | This IE shall be present if the <i>RRC container</i> IE is present. |

### 9.2.2.6 UE CONTEXT RELEASE COMPLETE

This message is sent by the gNB-DU to confirm the release of the UE-associated logical F1 connection or candidate cells in conditional handover, conditional PSCell addition, conditional PSCell change or subsequent CPAC.

Direction: gNB-DU → gNB-CU

| IE/Group Name                    | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|----------------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type                     | M        |       | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU UE F1AP ID                | M        |       | 9.3.1.4               |                       | YES         | reject               |
| gNB-DU UE F1AP ID                | M        |       | 9.3.1.5               |                       | YES         | reject               |
| Criticality Diagnostics          | O        |       | 9.3.1.3               |                       | YES         | ignore               |
| Recommended SSBs for Paging List | O        |       | 9.3.1.297             |                       | YES         | ignore               |

### 9.2.2.7 UE CONTEXT MODIFICATION REQUEST

This message is sent by the gNB-CU to provide UE Context information changes to the gNB-DU.

Direction: gNB-CU → gNB-DU

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|---------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type  | M        |       | 9.3.1.1               |                       | YES         | reject               |



| IE/Group Name                            | Presence | Range                                      | IE type and reference          | Semantics description                                                                                                                                                                                                                        | Criticality | Assigned Criticality |
|------------------------------------------|----------|--------------------------------------------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| gNB-CU UE F1AP ID                        | M        |                                            | 9.3.1.4                        |                                                                                                                                                                                                                                              | YES         | reject               |
| gNB-DU UE F1AP ID                        | M        |                                            | 9.3.1.5                        |                                                                                                                                                                                                                                              | YES         | reject               |
| SpCell ID                                | O        |                                            | NR CGI<br>9.3.1.12             | Special Cell as defined in TS 38.321 [16]. For handover case, this IE is considered as target cell.                                                                                                                                          | YES         | ignore               |
| ServCellIndex                            | O        |                                            | INTEGER<br>(0..31, ...)        |                                                                                                                                                                                                                                              | YES         | reject               |
| SpCell UL Configured                     | O        |                                            | Cell UL Configured<br>9.3.1.33 |                                                                                                                                                                                                                                              | YES         | ignore               |
| DRX Cycle                                | O        |                                            | 9.3.1.24                       |                                                                                                                                                                                                                                              | YES         | ignore               |
| CU to DU RRC Information                 | O        |                                            | 9.3.1.25                       |                                                                                                                                                                                                                                              | YES         | reject               |
| Transmission Action Indicator            | O        |                                            | 9.3.1.11                       |                                                                                                                                                                                                                                              | YES         | ignore               |
| Resource Coordination Transfer Container | O        |                                            | OCTET STRING                   | Includes the <i>MeNB Resource Coordination Information</i> IE as defined in subclause 9.2.116 of TS 36.423 [9] for EN-DC case or <i>MR-DC Resource Coordination Information</i> IE as defined in TS 38.423 [28] for NGEN-DC and NE-DC cases. | YES         | ignore               |
| RRC Reconfiguration Complete Indicator   | O        |                                            | 9.3.1.30                       |                                                                                                                                                                                                                                              | YES         | ignore               |
| RRC-Container                            | O        |                                            | 9.3.1.6                        | Includes the <i>DL-DCCH-Message</i> message as defined in subclause 6.2 of TS 38.331 [8], encapsulated in a PDCP PDU.                                                                                                                        | YES         | reject               |
| <b>SCell To Be Setup List</b>            |          | <i>0..1</i>                                |                                |                                                                                                                                                                                                                                              | YES         | ignore               |
| <b>&gt;SCell to Be Setup Item IEs</b>    |          | <i>1..<br/>&lt;maxnoof<br/>SCells&gt;</i>  |                                |                                                                                                                                                                                                                                              | EACH        | ignore               |
| >>SCell ID                               | M        |                                            | NR CGI<br>9.3.1.12             | SCell Identifier in gNB                                                                                                                                                                                                                      | -           |                      |
| >>SCellIndex                             | M        |                                            | INTEGER<br>(1..31, ...)        |                                                                                                                                                                                                                                              | -           |                      |
| >>SCell UL Configured                    | O        |                                            | Cell UL Configured<br>9.3.1.33 |                                                                                                                                                                                                                                              | -           |                      |
| >>servingCellMO                          | O        |                                            | INTEGER<br>(1..64, ...)        |                                                                                                                                                                                                                                              | YES         | ignore               |
| <b>SCell To Be Removed List</b>          |          | <i>0..1</i>                                |                                |                                                                                                                                                                                                                                              | YES         | ignore               |
| <b>&gt;SCell to Be Removed Item IEs</b>  |          | <i>1 ..<br/>&lt;maxnoof<br/>SCells&gt;</i> |                                |                                                                                                                                                                                                                                              | EACH        | ignore               |
| >>SCell ID                               | M        |                                            | NR CGI<br>9.3.1.12             | SCell Identifier in gNB                                                                                                                                                                                                                      | -           |                      |
| <b>SRB to Be Setup List</b>              |          | <i>0..1</i>                                |                                |                                                                                                                                                                                                                                              | YES         | reject               |

| IE/Group Name                                                | Presence | Range                                 | IE type and reference                  | Semantics description                                                             | Criticality | Assigned Criticality |
|--------------------------------------------------------------|----------|---------------------------------------|----------------------------------------|-----------------------------------------------------------------------------------|-------------|----------------------|
| <b>&gt;SRB to Be Setup Item IEs</b>                          |          | <i>1..&lt;maxno ofSRBs&gt;</i>        |                                        |                                                                                   | EACH        | reject               |
| >>SRB ID                                                     | M        |                                       | 9.3.1.7                                |                                                                                   | -           |                      |
| >>Duplication Indication                                     | O        |                                       | ENUMERATED (true, ..., false)          | This IE is ignored if the <i>Additional Duplication Indication</i> IE is present. | -           |                      |
| >>Additional Duplication Indication                          | O        |                                       | ENUMERATED (three, four, ...)          |                                                                                   | YES         | ignore               |
| >>SRB Mapping Info                                           | O        |                                       | Uu RLC Channel ID 9.3.1.266            | This IE contains the mapped Uu Relay RLC CH ID for the SRB                        | YES         | ignore               |
| >>SDT Indicator Setup                                        | O        |                                       | ENUMERATED (true, ...)                 | Indicates SDT SRB.                                                                | YES         | reject               |
| <b>DRB to Be Setup List</b>                                  |          | <i>0..1</i>                           |                                        |                                                                                   | YES         | reject               |
| <b>&gt;DRB to Be Setup Item IEs</b>                          |          | <i>1 .. &lt;maxno of DRBs&gt;</i>     |                                        |                                                                                   | EACH        | reject               |
| >>DRB ID                                                     | M        |                                       | 9.3.1.8                                |                                                                                   | -           |                      |
| >>CHOICE QoS Information                                     | M        |                                       |                                        |                                                                                   | -           |                      |
| >>>E-UTRAN QoS                                               |          |                                       |                                        |                                                                                   |             |                      |
| >>>>E-UTRAN QoS                                              | M        |                                       | 9.3.1.19                               | Shall be used for EN-DC case to convey E-RAB Level QoS Parameters                 |             |                      |
| >>>>DRB Information                                          |          |                                       |                                        |                                                                                   |             |                      |
| >>>>>DRB Information                                         |          | 1                                     |                                        | Shall be used for NG-RAN cases                                                    | YES         | ignore               |
| >>>>>DRB QoS                                                 | M        |                                       | QoS Flow Level QoS Parameters 9.3.1.45 |                                                                                   | -           |                      |
| >>>>>S-NSSAI                                                 | M        |                                       | 9.3.1.38                               |                                                                                   | -           |                      |
| >>>>>Notification Control                                    | O        |                                       | 9.3.1.56                               |                                                                                   | -           |                      |
| >>>>>Flows Mapped to DRB Item                                |          | <i>1 .. &lt;maxno of QoSFlows&gt;</i> |                                        |                                                                                   | -           |                      |
| >>>>>>QoS Flow Identifier                                    | M        |                                       | 9.3.1.63                               |                                                                                   | -           |                      |
| >>>>>>QoS Flow Level QoS Parameters                          | M        |                                       | 9.3.1.45                               |                                                                                   | -           |                      |
| >>>>>>QoS Flow Mapping Indication                            | O        |                                       | 9.3.1.72                               |                                                                                   | YES         | ignore               |
| >>>>>>TSC Traffic Characteristics                            | O        |                                       | 9.3.1.141                              | Traffic pattern information associated with the QFI. Details in TS 23.501 [21].   | YES         | ignore               |
| >>>>>ECN Marking or Congestion Information Reporting Request | O        |                                       | 9.3.1.321                              |                                                                                   | YES         | ignore               |
| >>>>>PSI based SDU Discard UL                                | O        |                                       | ENUMERATED (start, stop, ...)          | Indicates whether UL PSI based SDU discard is (re)configured or                   | YES         | ignore               |

| IE/Group Name                                 | Presence | Range                               | IE type and reference                  | Semantics description                                                                                                                                                                                            | Criticality | Assigned Criticality |
|-----------------------------------------------|----------|-------------------------------------|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                                               |          |                                     |                                        | released for the DRB. The codepoint "start" means that UL PSI based discarding is (re)configured, while the codepoint "stop" means that UL PSI based discarding is released. Up to 8 DRBs can be set as "start". |             |                      |
| >>UL UP TNL Information to be setup List      |          | 1                                   |                                        |                                                                                                                                                                                                                  | -           |                      |
| >>>UL UP TNL Information to Be Setup Item IEs |          | 1 .. <maxnoof ULUP TNL Information> |                                        |                                                                                                                                                                                                                  | -           |                      |
| >>>>UL UP TNL Information                     | M        |                                     | UP Transport Layer Information 9.3.2.1 | gNB-CU endpoint of the F1 transport bearer. For delivery of UL PDUs.                                                                                                                                             | -           |                      |
| >>>>BH Information                            | O        |                                     | 9.3.1.114                              |                                                                                                                                                                                                                  | YES         | ignore               |
| >>>>DRB Mapping Info                          | O        |                                     | Uu RLC Channel ID 9.3.1.266            | This IE contains the mapped Uu Relay RLC CH ID of the DL tunnel corresponding to such UL tunnel                                                                                                                  | YES         | ignore               |
| >>RLC Mode                                    | M        |                                     | 9.3.1.27                               |                                                                                                                                                                                                                  | -           |                      |
| >>UL Configuration                            | O        |                                     | 9.3.1.31                               | Information about UL usage in gNB-DU.                                                                                                                                                                            | -           |                      |
| >>Duplication Activation                      | O        |                                     | 9.3.1.36                               | Information on the initial state of CA based or multi-path relay based UL PDCP duplication. This IE is ignored if the <i>RLC Duplication Information</i> IE is present.                                          | -           |                      |
| >>DC Based Duplication Configured             | O        |                                     | ENUMERATED (true, ..., false)          | Indication on whether DC based PDCP duplication is configured or not. If included, it should be set to true. This IE is also applicable to multi-path relay.                                                     | YES         | reject               |
| >>DC Based Duplication Activation             | O        |                                     | Duplication Activation 9.3.1.36        | Information on the initial state of DC based UL PDCP duplication. This IE is ignored if the <i>RLC Duplication Information</i> IE is                                                                             | YES         | reject               |

| IE/Group Name                                      | Presence | Range                                      | IE type and reference                  | Semantics description                                                | Criticality | Assigned Criticality |
|----------------------------------------------------|----------|--------------------------------------------|----------------------------------------|----------------------------------------------------------------------|-------------|----------------------|
|                                                    |          |                                            |                                        | present. This IE is also applicable to multi-path relay.             |             |                      |
| >>DL PDCP SN length                                | O        |                                            | ENUMERATED (12bits, 18bits, ...)       |                                                                      | YES         | ignore               |
| >>UL PDCP SN length                                | O        |                                            | ENUMERATED (12bits, 18bits, ...)       |                                                                      | YES         | ignore               |
| >>Additional PDCP Duplication TNL List             |          | 0..1                                       |                                        |                                                                      | YES         | ignore               |
| >>>Additional PDCP Duplication TNL Items           |          | 1 .. <maxnoofAdditionalPDCPDuplicationTNL> |                                        |                                                                      | EACH        | ignore               |
| >>>>Additional PDCP Duplication UP TNL Information | M        |                                            | UP Transport Layer Information 9.3.2.1 | gNB-CU endpoint of the F1 transport bearer. For delivery of UL PDUs. | -           |                      |
| >>>>BH Information                                 | O        |                                            | 9.3.1.114                              |                                                                      | YES         | ignore               |
| >>RLC Duplication Information                      | O        |                                            | 9.3.1.146                              |                                                                      | YES         | ignore               |
| >>SDT Indicator Setup                              | O        |                                            | ENUMERATED (true, ...)                 | Indicates SDT DRB.                                                   | YES         | reject               |
| DRB to Be Modified List                            |          | 0..1                                       |                                        |                                                                      | YES         | reject               |
| >DRB to Be Modified Item IEs                       |          | 1 .. <maxnoofDRBs>                         |                                        |                                                                      | EACH        | reject               |
| >>DRB ID                                           | M        |                                            | 9.3.1.8                                |                                                                      | -           |                      |
| >>CHOICE QoS Information                           | O        |                                            |                                        |                                                                      | -           |                      |
| >>>E-UTRAN QoS                                     |          |                                            |                                        |                                                                      |             |                      |
| >>>>E-UTRAN QoS                                    | M        |                                            | 9.3.1.19                               | Used for EN-DC case to convey E-RAB Level QoS Parameters             | -           |                      |
| >>>>DRB Information                                |          |                                            |                                        |                                                                      |             |                      |
| >>>>>DRB Information                               |          | 1                                          |                                        | Used for NG-RAN cases                                                | YES         | ignore               |
| >>>>>DRB QoS                                       | M        |                                            | QoS Flow Level QoS Parameters 9.3.1.45 |                                                                      | -           |                      |
| >>>>>S-NSSAI                                       | M        |                                            | 9.3.1.38                               |                                                                      | -           |                      |
| >>>>>Notification Control                          | O        |                                            | 9.3.1.56                               |                                                                      | -           |                      |
| >>>>>Flows Mapped to DRB Item                      |          | 1 .. <maxnoofQoSFlows>                     |                                        |                                                                      | -           |                      |
| >>>>>>QoS Flow Identifier                          | M        |                                            | 9.3.1.63                               |                                                                      | -           |                      |
| >>>>>>QoS Flow Level QoS Parameters                | M        |                                            | 9.3.1.45                               |                                                                      | -           |                      |
| >>>>>>QoS Flow Mapping Indication                  | O        |                                            | 9.3.1.72                               |                                                                      | YES         | ignore               |

| IE/Group Name                                               | Presence | Range                                           | IE type and reference                  | Semantics description                                                                                                                                                                                                                                                            | Criticality | Assigned Criticality |
|-------------------------------------------------------------|----------|-------------------------------------------------|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| >>>>>TSC Traffic Characteristics                            | O        |                                                 | 9.3.1.141                              | Traffic pattern information associated with the QFI. Details in TS 23.501 [21].                                                                                                                                                                                                  | YES         | ignore               |
| >>>>ECN Marking or Congestion Information Reporting Request | O        |                                                 | 9.3.1.321                              |                                                                                                                                                                                                                                                                                  | YES         | ignore               |
| >>>>PSI based SDU Discard UL                                | O        |                                                 | ENUMERATED (start, stop, ...)          | Indicates whether UL PSI based SDU discard is (re)configured or released for the DRB. The codepoint "start" means that UL PSI based discarding is (re)configured, while the codepoint "stop" means that UL PSI based discarding is released. Up to 8 DRBs can be set as "start". | YES         | ignore               |
| >>UL UP TNL Information to be setup List                    |          | 1                                               |                                        |                                                                                                                                                                                                                                                                                  | -           |                      |
| >>>UL UP TNL Information to Be Setup Item IEs               |          | 1 .. <i>&lt;maxnoof ULUPTNL Information&gt;</i> |                                        |                                                                                                                                                                                                                                                                                  | -           |                      |
| >>>>UL UP TNL Information                                   | M        |                                                 | UP Transport Layer Information 9.3.2.1 | gNB-CU endpoint of the F1 transport bearer. For delivery of UL PDUs.                                                                                                                                                                                                             | -           |                      |
| >>>>BH Information                                          | O        |                                                 | 9.3.1.114                              |                                                                                                                                                                                                                                                                                  | YES         | ignore               |
| >>>>DRB Mapping Info                                        | O        |                                                 | Uu RLC Channel ID 9.3.1.266            |                                                                                                                                                                                                                                                                                  | YES         | ignore               |
| >>UL Configuration                                          | O        |                                                 | 9.3.1.31                               | Information about UL usage in gNB-DU.                                                                                                                                                                                                                                            | -           |                      |
| >>DL PDCP SN length                                         | O        |                                                 | ENUMERATED (12bits,18bits, ...)        |                                                                                                                                                                                                                                                                                  | YES         | ignore               |
| >>UL PDCP SN length                                         | O        |                                                 | ENUMERATED (12bits, 18bits, ...)       |                                                                                                                                                                                                                                                                                  | YES         | ignore               |
| >>Bearer Type Change                                        | O        |                                                 | ENUMERATED (true, ...)                 |                                                                                                                                                                                                                                                                                  | YES         | ignore               |
| >>RLC Mode                                                  | O        |                                                 | 9.3.1.27                               |                                                                                                                                                                                                                                                                                  | YES         | ignore               |
| >>Duplication Activation                                    | O        |                                                 | 9.3.1.36                               | Information on the initial state of CA based or multi-path relay based UL PDCP duplication. This IE is ignored if the <i>RLC Duplication Information</i> IE is                                                                                                                   | YES         | reject               |

| IE/Group Name                                      | Presence | Range                                        | IE type and reference                  | Semantics description                                                                                                                                                                         | Criticality | Assigned Criticality |
|----------------------------------------------------|----------|----------------------------------------------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                                                    |          |                                              |                                        | present.                                                                                                                                                                                      |             |                      |
| >>DC Based Duplication Configured                  | O        |                                              | ENUMERATED (true, ..., false)          | Indication on whether DC based PDCP duplication is configured or not. This IE is also applicable to multi-path relay.                                                                         | YES         | reject               |
| >>DC Based Duplication Activation                  | O        |                                              | Duplication activation 9.3.1.36        | Information on the initial state of DC based UL PDCP duplication. This IE is ignored if the <i>RLC Duplication Information</i> IE is present. This IE is also applicable to multi-path relay. | YES         | reject               |
| >>Additional PDCP Duplication TNL List             |          | 0..1                                         |                                        |                                                                                                                                                                                               | YES         | ignore               |
| >>>Additional PDCP Duplication TNL Items           |          | 1 .. <maxnoof Additional PDCPDuplicationTNL> |                                        |                                                                                                                                                                                               | EACH        | ignore               |
| >>>>Additional PDCP Duplication UP TNL Information | M        |                                              | UP Transport Layer Information 9.3.2.1 | gNB-CU endpoint of the F1 transport bearer. For delivery of UL PDUs.                                                                                                                          | -           |                      |
| >>>>BH Information                                 | O        |                                              | 9.3.1.114                              |                                                                                                                                                                                               | YES         | ignore               |
| >>RLC Duplication Information                      | O        |                                              | 9.3.1.146                              |                                                                                                                                                                                               | YES         | ignore               |
| >>Transmission Stop Indicator                      | O        |                                              | 9.3.1.209                              |                                                                                                                                                                                               | YES         | ignore               |
| >>SDT Indicator Modify                             | O        |                                              | ENUMERATED (true, false, ...)          | Indicates SDT DRB or not.                                                                                                                                                                     | YES         | reject               |
| SRB To Be Released List                            |          | 0..1                                         |                                        |                                                                                                                                                                                               | YES         | reject               |
| >SRB To Be Released Item IEs                       |          | 1.. <maxnoof SRBs>                           |                                        |                                                                                                                                                                                               | EACH        | reject               |
| >>SRB ID                                           | M        |                                              | 9.3.1.7                                |                                                                                                                                                                                               | -           |                      |
| DRB to Be Released List                            |          | 0..1                                         |                                        |                                                                                                                                                                                               | YES         | reject               |
| >DRB to Be Released Item IEs                       |          | 1 .. <maxnoof DRBs>                          |                                        |                                                                                                                                                                                               | EACH        | reject               |
| >>DRB ID                                           | M        |                                              | 9.3.1.8                                |                                                                                                                                                                                               | -           |                      |
| Inactivity Monitoring Request                      | O        |                                              | ENUMERATED (true, ...)                 |                                                                                                                                                                                               | YES         | reject               |
| RAT-Frequency Priority Information                 | O        |                                              | 9.3.1.34                               |                                                                                                                                                                                               | YES         | reject               |
| DRX configuration indicator                        | O        |                                              | ENUMERATED (release,...)               |                                                                                                                                                                                               | YES         | ignore               |
| RLC Failure Indication                             | O        |                                              | 9.3.1.66                               |                                                                                                                                                                                               | YES         | ignore               |
| Uplink TxDirectCurrentList Information             | O        |                                              | 9.3.1.67                               |                                                                                                                                                                                               | YES         | ignore               |
| GNB-DU Configuration                               | O        |                                              | ENUMERATED                             | Used to request                                                                                                                                                                               | YES         | reject               |

| IE/Group Name                                  | Presence | Range                        | IE type and reference                  | Semantics description                                                                         | Criticality | Assigned Criticality |
|------------------------------------------------|----------|------------------------------|----------------------------------------|-----------------------------------------------------------------------------------------------|-------------|----------------------|
| Query                                          |          |                              | (true, ...)                            | the gNB-DU to provide its configuration.                                                      |             |                      |
| gNB-DU UE Aggregate Maximum Bit Rate Uplink    | O        |                              | Bit Rate 9.3.1.22                      | The gNB-DU UE Aggregate Maximum Bit Rate Uplink is to be enforced by the gNB-DU.              | YES         | ignore               |
| Execute Duplication                            | O        |                              | ENUMERATED (true, ...)                 | This IE may be sent only if duplication has been configured for the UE.                       | YES         | ignore               |
| RRC Delivery Status Request                    | O        |                              | ENUMERATED (true, ...)                 | Indicates whether RRC DELIVERY REPORT procedure is requested for the RRC message.             | YES         | ignore               |
| Resource Coordination Transfer Information     | O        |                              | 9.3.1.73                               |                                                                                               | YES         | ignore               |
| servingCellMO                                  | O        |                              | INTEGER (1..64, ...)                   |                                                                                               | YES         | ignore               |
| Need for Gap                                   | O        |                              | ENUMERATED (true, ...)                 | Indicate gap for SeNB configured measurement is requested. It only applied to NE DC scenario. | YES         | ignore               |
| Full Configuration                             | O        |                              | ENUMERATED (full, ...)                 |                                                                                               | YES         | reject               |
| Additional RRM Policy Index                    | O        |                              | 9.3.1.90                               |                                                                                               | YES         | ignore               |
| Lower Layer Presence Status Change             | O        |                              | 9.3.1.94                               |                                                                                               | YES         | ignore               |
| <b>BH RLC Channel to be Setup List</b>         |          | 0..1                         |                                        |                                                                                               | YES         | reject               |
| <b>&gt;BH RLC Channel to be Setup Item IEs</b> |          | 1 .. <maxnoof BHRLCChannels> |                                        |                                                                                               | EACH        | reject               |
| >>BH RLC CH ID                                 | M        |                              | BH RLC Channel ID 9.3.1.113            |                                                                                               | -           |                      |
| >>CHOICE BH QoS information                    | M        |                              |                                        |                                                                                               |             |                      |
| >>>BH RLC CH QoS                               |          |                              |                                        |                                                                                               |             |                      |
| >>>>BH RLC CH QoS                              | M        |                              | QoS Flow Level QoS Parameters 9.3.1.45 | Shall be used for SA case.                                                                    |             |                      |
| >>>>E-UTRAN BH RLC CH QoS                      |          |                              |                                        |                                                                                               |             |                      |
| >>>>>E-UTRAN BH RLC CH QoS                     | M        |                              | E-UTRAN QoS 9.3.1.19                   | Shall be used for EN-DC case.                                                                 |             |                      |
| >>>>>Control Plane Traffic Type                |          |                              |                                        |                                                                                               |             |                      |
| >>>>>>Control Plane Traffic Type               | M        |                              | 9.3.1.115                              |                                                                                               |             |                      |
| >>RLC Mode                                     | M        |                              | 9.3.1.27                               |                                                                                               | -           |                      |
| >>BAP Control PDU Channel                      | O        |                              | ENUMERATED (true, ...)                 |                                                                                               | -           |                      |
| >>Traffic Mapping                              | O        |                              | 9.3.1.95                               |                                                                                               | -           |                      |

| IE/Group Name                                     | Presence | Range                                   | IE type and reference                           | Semantics description                                                       | Criticality | Assigned Criticality |
|---------------------------------------------------|----------|-----------------------------------------|-------------------------------------------------|-----------------------------------------------------------------------------|-------------|----------------------|
| Information                                       |          |                                         |                                                 |                                                                             |             |                      |
| <b>BH RLC Channel to be Modified List</b>         |          | 0..1                                    |                                                 |                                                                             | YES         | reject               |
| <b>&gt;BH RLC Channel to be Modified Item IEs</b> |          | 1 ..<br><maxnoof<br>BHRLCCh<br>annels>  |                                                 |                                                                             | EACH        | reject               |
| >>BH RLC CH ID                                    | M        |                                         | BH RLC<br>Channel ID<br>9.3.1.113               |                                                                             | -           |                      |
| >>CHOICE BH QoS<br>information                    | O        |                                         |                                                 |                                                                             |             |                      |
| >>>BH RLC CH<br>QoS                               |          |                                         |                                                 |                                                                             |             |                      |
| >>>>BH RLC CH<br>QoS                              | M        |                                         | QoS Flow Level<br>QoS<br>Parameters<br>9.3.1.45 | Shall be used for<br>SA case.                                               | -           |                      |
| >>>>E-UTRAN BH<br>RLC CH QoS                      |          |                                         |                                                 |                                                                             |             |                      |
| >>>>E-UTRAN BH<br>RLC CH QoS                      | M        |                                         | E-UTRAN QoS<br>9.3.1.19                         | Shall be used for<br>EN-DC case.                                            | -           |                      |
| >>>>Control Plane<br>Traffic Type                 |          |                                         |                                                 |                                                                             |             |                      |
| >>>>Control Plane<br>Traffic Type                 | M        |                                         | 9.3.1.115                                       |                                                                             | -           |                      |
| >>RLC Mode                                        | O        |                                         | 9.3.1.27                                        |                                                                             | -           |                      |
| >>BAP Control PDU<br>Channel                      | O        |                                         | ENUMERATED<br>(true, ...)                       |                                                                             | -           |                      |
| >>Traffic Mapping<br>Information                  | O        |                                         | 9.3.1.95                                        |                                                                             | -           |                      |
| <b>BH RLC Channel to be Released List</b>         |          | 0..1                                    |                                                 |                                                                             | YES         | reject               |
| <b>&gt;BH RLC Channel to be Released Item IEs</b> |          | 1 ..<br><maxnoof<br>BHRLCCh<br>annels > |                                                 |                                                                             | EACH        | reject               |
| >>BH RLC CH ID                                    | M        |                                         | BH RLC<br>Channel ID<br>9.3.1.113               |                                                                             | -           |                      |
| NR V2X Services<br>Authorized                     | O        |                                         | 9.3.1.116                                       |                                                                             | YES         | ignore               |
| LTE V2X Services<br>Authorized                    | O        |                                         | 9.3.1.117                                       |                                                                             | YES         | ignore               |
| NR UE Sidelink<br>Aggregate Maximum Bit<br>Rate   | O        |                                         | 9.3.1.119                                       | This IE applies<br>only if the UE is<br>authorized for NR<br>V2X services.  | YES         | ignore               |
| LTE UE Sidelink<br>Aggregate Maximum Bit<br>Rate  | O        |                                         | 9.3.1.118                                       | This IE applies<br>only if the UE is<br>authorized for LTE<br>V2X services. | YES         | ignore               |
| PC5 Link Aggregate Bit<br>Rate                    | O        |                                         | Bit Rate<br>9.3.1.22                            | Only applies for<br>non-GBR and<br>unicast QoS<br>Flows.                    | YES         | ignore               |
| <b>SL DRB to Be Setup List</b>                    |          | 0..1                                    |                                                 |                                                                             | YES         | reject               |
| <b>&gt;SL DRB to Be Setup Item IEs</b>            |          | 1 ..<br><maxnoof<br>SLDRBs>             |                                                 |                                                                             | EACH        | reject               |
| >>SL DRB ID                                       | M        |                                         | 9.3.1.120                                       |                                                                             | -           |                      |
| >>SL DRB<br>Information                           |          | 1                                       |                                                 |                                                                             | -           |                      |
| >>>SL DRB QoS                                     | M        |                                         | PC5 QoS                                         |                                                                             | -           |                      |



| IE/Group Name                                    | Presence      | Range                      | IE type and reference                                     | Semantics description                                                               | Criticality | Assigned Criticality |
|--------------------------------------------------|---------------|----------------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------|-------------|----------------------|
|                                                  |               |                            | Parameters 9.3.1.122                                      |                                                                                     |             |                      |
| >>>Flows Mapped to SL DRB Item                   |               | 1 .. <maxnoof PC5QoSFlows> |                                                           |                                                                                     | -           |                      |
| >>>>PC5 QoS Flow Identifier                      | M             |                            | 9.3.1.121                                                 |                                                                                     | -           |                      |
| >>RLC mode                                       | O             |                            | 9.3.1.27                                                  |                                                                                     | -           |                      |
| >>Duplication Indication                         | O             |                            | ENUMERATED (true, ..., false)                             | If included, it should be set to true.                                              | -           |                      |
| <b>SL DRB to Be Modified List</b>                |               | 0..1                       |                                                           |                                                                                     | YES         | reject               |
| >SL DRB to Be Modified Item IEs                  |               | 1 .. <maxnoof SLDRBs>      |                                                           |                                                                                     | EACH        | reject               |
| >>SL DRB ID                                      | M             |                            | 9.3.1.120                                                 |                                                                                     | -           |                      |
| >>SL DRB Information                             |               | 1                          |                                                           |                                                                                     | -           |                      |
| >>>SL DRB QoS                                    | M             |                            | PC5 QoS Parameters 9.3.1.122                              |                                                                                     | -           |                      |
| >>>Flows Mapped to SL DRB Item                   |               | 1 .. <maxnoof PC5QoSFlows> |                                                           |                                                                                     | -           |                      |
| >>>>PC5 QoS Flow Identifier                      | M             |                            | 9.3.1.121                                                 |                                                                                     | -           |                      |
| >>RLC mode                                       | O             |                            | 9.3.1.27                                                  |                                                                                     | -           |                      |
| >>Duplication Indication                         | O             |                            | ENUMERATED (true, ..., false)                             |                                                                                     | -           |                      |
| <b>SL DRB to Be Released List</b>                |               | 0..1                       |                                                           |                                                                                     | YES         | reject               |
| >SL DRB to Be Released Item IEs                  |               | 1 .. <maxnoof SLDRBs>      |                                                           |                                                                                     | EACH        | reject               |
| >>SL DRB ID                                      | M             |                            | 9.3.1.120                                                 |                                                                                     | -           |                      |
| <b>Conditional Intra-DU Mobility Information</b> | O             |                            |                                                           |                                                                                     | YES         | reject               |
| >CHO Trigger                                     | M             |                            | ENUMERATED (CHO-initiation, CHO-replace, CHO-cancel, ...) |                                                                                     | -           | -                    |
| >Candidate Cells To Be Cancelled List            | C-ifCHOcancel | 0 .. <maxnoof CellsinCHO>  |                                                           |                                                                                     | -           | -                    |
| >>Target Cell ID                                 | M             |                            | NR CGI 9.3.1.12                                           |                                                                                     | -           | -                    |
| >Estimated Arrival Probability                   | O             |                            | INTEGER (1..100)                                          |                                                                                     | YES         | ignore               |
| >S-CPAC Request                                  | O             |                            | ENUMERATED (initiation, ...)                              | Indicates that SN change is for S-CPAC preparation.                                 | YES         | reject               |
| >S-CPAC Lower Layer Reference Config Request     | O             |                            | ENUMERATED (true, ...)                                    |                                                                                     | YES         | reject               |
| F1-C Transfer Path                               | O             |                            | 9.3.1.207                                                 |                                                                                     | YES         | reject               |
| SCG Indicator                                    | O             |                            | ENUMERATED (released,...)                                 | This IE is used at the MN in NR-DC and NE-DC and it indicates the release of an SCG | YES         | ignore               |

| IE/Group Name                                    | Presence | Range                           | IE type and reference                                  | Semantics description                                                                                                                        | Criticality | Assigned Criticality |
|--------------------------------------------------|----------|---------------------------------|--------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Uplink TxDirectCurrentTwoCarrierList Information | O        |                                 | 9.3.1.283                                              |                                                                                                                                              | YES         | ignore               |
| IAB Conditional RRC Message Delivery Indication  | O        |                                 | ENUMERATED (true, ...)                                 | Indicates whether the RRC message within should be withheld. This IE is only applicable if the UE is an IAB-MT, and the gNB-DU is an IAB-DU. | YES         | reject               |
| F1-C Transfer Path NRDC                          | O        |                                 | 9.3.1.228                                              | This IE is only applicable if the UE is an IAB-MT.                                                                                           | YES         | reject               |
| MDT Polluted Measurement Indicator               | O        |                                 | ENUMERATED (IDC,no-IDC, ...)                           | Indication on whether MDT Measurement affect (e.g. IDC) is undertaken or not.                                                                | YES         | ignore               |
| SCG Activation Request                           | O        |                                 | 9.3.1.233                                              |                                                                                                                                              | YES         | ignore               |
| CG-SDT Query Indication                          | O        |                                 | ENUMERATED (true, ...)                                 |                                                                                                                                              | YES         | ignore               |
| 5G ProSe Authorized                              | O        |                                 | 9.3.1.268                                              |                                                                                                                                              | YES         | ignore               |
| 5G ProSe UE PC5 Aggregate Maximum Bit Rate       | O        |                                 | NR UE Sidelink Aggregate Maximum Bit Rate<br>9.3.1.119 | This IE applies only if the UE is authorized for 5G ProSe services.                                                                          | YES         | ignore               |
| 5G ProSe PC5 Link Aggregate Bit Rate             | O        |                                 | Bit Rate<br>9.3.1.22                                   | This IE applies only if the UE is authorized for 5G ProSe services, and only applies for non-GBR and unicast QoS Flows.                      | YES         | ignore               |
| Updated Remote UE Local ID                       | O        |                                 | Remote UE Local ID<br>9.3.1.267                        | This IE indicates the updated Remote UE Local ID for the U2N Remote UE associated with the F1AP-IDs                                          | YES         | ignore               |
| <b>Uu RLC Channel to Be Setup List</b>           |          | 0..1                            |                                                        |                                                                                                                                              | YES         | reject               |
| <b>&gt;Uu RLC Channel to be Setup Item IEs</b>   |          | 1 ..<br><maxnoof UuRLCChannels> |                                                        |                                                                                                                                              | -           |                      |
| >>Uu RLC Channel ID                              | M        |                                 | 9.3.1.266                                              |                                                                                                                                              | -           |                      |
| >>CHOICE Uu RLC Channel QoS Information          | M        |                                 |                                                        |                                                                                                                                              | -           |                      |
| >>>Uu RLC Channel QoS                            |          |                                 |                                                        |                                                                                                                                              |             |                      |
| >>>>Uu RLC Channel QoS                           | M        |                                 | QoS Flow Level QoS Parameters<br>9.3.1.45              |                                                                                                                                              | -           |                      |
| >>>Uu Control Plane Traffic Type                 |          |                                 |                                                        |                                                                                                                                              |             |                      |
| >>>>Uu Control Plane Traffic Type                | M        |                                 | ENUMERATED (SRB0, SRB1, SRB2, ...)                     | This IE indicates the type of SRB conveyed via the Uu Relay RLC                                                                              | -           |                      |

| IE/Group Name                                     | Presence | Range                                   | IE type and reference                     | Semantics description                                                     | Criticality | Assigned Criticality |
|---------------------------------------------------|----------|-----------------------------------------|-------------------------------------------|---------------------------------------------------------------------------|-------------|----------------------|
|                                                   |          |                                         |                                           | Channel.                                                                  |             |                      |
| >>RLC Mode                                        | M        |                                         | 9.3.1.27                                  |                                                                           | -           |                      |
| <b>Uu RLC Channel to Be Modified List</b>         |          | 0..1                                    |                                           |                                                                           | YES         | reject               |
| <b>&gt;Uu RLC Channel to be Modified Item IEs</b> |          | 1 ..<br><maxnoof<br>UuRLCCh<br>annels>  |                                           |                                                                           | -           |                      |
| >>Uu RLC Channel ID                               | M        |                                         | 9.3.1.266                                 |                                                                           | -           |                      |
| >>CHOICE Uu RLC Channel QoS Information           | O        |                                         |                                           |                                                                           | -           |                      |
| >>>Uu RLC Channel QoS                             |          |                                         |                                           |                                                                           |             |                      |
| >>>>Uu RLC Channel QoS                            | M        |                                         | QoS Flow Level QoS Parameters<br>9.3.1.45 |                                                                           | -           |                      |
| >>>>Uu Control Plane Traffic Type                 |          |                                         |                                           |                                                                           |             |                      |
| >>>>>Uu Control Plane Traffic Type                | M        |                                         | ENUMERATED (SRB0, SRB1, SRB2, ...)        | This IE indicates the type of SRB conveyed via the Uu Relay RLC Channel.  | -           |                      |
| >>RLC Mode                                        | O        |                                         | 9.3.1.27                                  |                                                                           | -           |                      |
| <b>Uu RLC Channel to Be Released List</b>         |          | 0..1                                    |                                           |                                                                           | YES         | reject               |
| <b>&gt;Uu RLC Channel to Be Released Item IEs</b> |          | 1 ..<br><maxnoof<br>UuRLCCh<br>annels>  |                                           |                                                                           | -           |                      |
| >>Uu RLC channel ID                               | M        |                                         | 9.3.1.266                                 |                                                                           | -           |                      |
| <b>PC5 RLC Channel to Be Setup List</b>           |          | 0..1                                    |                                           |                                                                           | YES         | reject               |
| <b>&gt;PC5 RLC Channel to be Setup Item IEs</b>   |          | 1 ..<br><maxnoof<br>PC5RLCC<br>hannels> |                                           |                                                                           | -           |                      |
| >>PC5 RLC Channel ID                              | M        |                                         | 9.3.1.265                                 |                                                                           | -           |                      |
| >>Remote UE Local ID                              | O        |                                         | 9.3.1.267                                 |                                                                           | -           |                      |
| >>CHOICE PC5 RLC Channel QoS Information          | M        |                                         |                                           |                                                                           | -           |                      |
| >>>PC5 RLC Channel QoS                            |          |                                         |                                           |                                                                           |             |                      |
| >>>>PC5 RLC Channel QoS                           | M        |                                         | QoS Flow Level QoS Parameters<br>9.3.1.45 |                                                                           | -           |                      |
| >>>>PC5 Control Plane Traffic Type                |          |                                         |                                           |                                                                           |             |                      |
| >>>>>PC5 Control Plane Traffic Type               | M        |                                         | ENUMERATED (SRB1, SRB2, ...)              | This IE indicates the type of SRB conveyed via the PC5 Relay RLC Channel. | -           |                      |
| >>>>U2U RLC Channel QoS                           |          |                                         |                                           |                                                                           | YES         | reject               |
| >>>>>U2U RLC                                      | M        |                                         | PC5 QoS                                   |                                                                           | -           |                      |

| IE/Group Name                              | Presence | Range                          | IE type and reference                  | Semantics description                                                                                                                                                                                                                                                                         | Criticality | Assigned Criticality |
|--------------------------------------------|----------|--------------------------------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Channel QoS                                |          |                                | Parameters 9.3.1.122                   |                                                                                                                                                                                                                                                                                               |             |                      |
| >>RLC Mode                                 | M        |                                | 9.3.1.27                               |                                                                                                                                                                                                                                                                                               | -           |                      |
| >>Peer UE ID                               | O        |                                | BIT STRING (SIZE(24))                  | Corresponds to information provided in the <i>sl-DestinationIdentity</i> L2-U2U contained in the <i>SL-TxResourceReqL2-U2U</i> IE, defined in TS 38.331 [8]. This IE is included if the gNB-CU UE F1AP ID and/or gNB-DU UE F1AP ID are associated with a L2 U2U Remote UE or L2 U2U Relay UE. | YES         | reject               |
| <b>PC5 RLC Channel to Be Modified List</b> |          | 0..1                           |                                        |                                                                                                                                                                                                                                                                                               | YES         | reject               |
| >PC5 RLC Channel to be Modified Item IEs   |          | 1 .. <maxnoof PC5RLCC hannels> |                                        |                                                                                                                                                                                                                                                                                               | -           |                      |
| >>PC5 RLC Channel ID                       | M        |                                | 9.3.1.265                              |                                                                                                                                                                                                                                                                                               | -           |                      |
| >>Remote UE Local ID                       | O        |                                | 9.3.1.267                              |                                                                                                                                                                                                                                                                                               |             |                      |
| >>CHOICE PC5 RLC Channel QoS Information   | O        |                                |                                        |                                                                                                                                                                                                                                                                                               | -           |                      |
| >>>PC5 RLC Channel QoS                     |          |                                |                                        |                                                                                                                                                                                                                                                                                               |             |                      |
| >>>>PC5 RLC Channel QoS                    | M        |                                | QoS Flow Level QoS Parameters 9.3.1.45 |                                                                                                                                                                                                                                                                                               | -           |                      |
| >>>PC5 Control Plane Traffic Type          |          |                                |                                        |                                                                                                                                                                                                                                                                                               |             |                      |
| >>>>PC5 Control Plane Traffic Type         | M        |                                | ENUMERATED (SRB1, SRB2, ...)           | This IE indicate the type of SRB conveyed via the PC5 Relay RLC Channel.                                                                                                                                                                                                                      | -           |                      |
| >>>>U2U RLC Channel QoS                    |          |                                |                                        |                                                                                                                                                                                                                                                                                               | YES         | reject               |
| >>>>>U2U RLC Channel QoS                   | M        |                                | PC5 QoS Parameters 9.3.1.122           |                                                                                                                                                                                                                                                                                               | -           |                      |
| >>RLC Mode                                 | O        |                                | 9.3.1.27                               |                                                                                                                                                                                                                                                                                               | -           |                      |
| <b>PC5 RLC Channel to Be Released List</b> |          | 0..1                           |                                        |                                                                                                                                                                                                                                                                                               | YES         | reject               |
| >PC5 RLC Channel to be Released Item IEs   |          | 1 .. <maxnoof PC5RLCC hannels> |                                        |                                                                                                                                                                                                                                                                                               | -           |                      |
| >>PC5 RLC Channel ID                       | M        |                                | 9.3.1.265                              |                                                                                                                                                                                                                                                                                               | -           |                      |
| >>Remote UE Local ID                       | O        |                                | 9.3.1.267                              |                                                                                                                                                                                                                                                                                               | -           |                      |
| Path Switch Configuration                  | O        |                                | 9.3.1.263                              |                                                                                                                                                                                                                                                                                               | YES         | ignore               |
| gNB-DU UE Slice                            | O        |                                | 9.3.1.271                              | The Slice                                                                                                                                                                                                                                                                                     | YES         | ignore               |

| IE/Group Name                                              | Presence | Range                          | IE type and reference                                                                                                                                       | Semantics description                                                                                            | Criticality | Assigned Criticality |
|------------------------------------------------------------|----------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Maximum Bit Rate List                                      |          |                                |                                                                                                                                                             | Maximum Bit Rate List is the maximum aggregate UL bit rate per slice, to be enforced by the gNB-DU, if feasible. |             |                      |
| Multicast MBS Session Setup List                           | O        |                                | Multicast MBS Session List 9.3.1.272                                                                                                                        | The list of MBS Session ID that UE has joined.                                                                   | YES         | reject               |
| Multicast MBS Session Remove List                          | O        |                                | Multicast MBS Session List 9.3.1.272                                                                                                                        | The list of MBS Session ID that UE has left.                                                                     | YES         | reject               |
| <b>UE Multicast MRB to Be Setup at Modify List</b>         |          | 0..1                           |                                                                                                                                                             |                                                                                                                  | YES         | reject               |
| <b>&gt;UE Multicast MRB to Be Setup at Modify Item IEs</b> |          | 1 .. <maxnoof MRBsforUE>       |                                                                                                                                                             |                                                                                                                  | EACH        | reject               |
| >>MRB ID                                                   | M        |                                | 9.3.1.224                                                                                                                                                   | MRB ID for the UE.                                                                                               | -           |                      |
| >>MBS PTP Retransmission Tunnel Required                   | O        |                                | 9.3.2.10                                                                                                                                                    |                                                                                                                  | -           |                      |
| >>MBS PTP Forwarding Tunnel Required Information           | O        |                                | MRB Progress Information 9.3.2.12                                                                                                                           |                                                                                                                  | -           |                      |
| <b>UE Multicast MRB to Be Released List</b>                |          | 0..1                           |                                                                                                                                                             |                                                                                                                  | YES         | reject               |
| <b>&gt;UE Multicast MRB to Be Released Item IEs</b>        |          | 1 .. <maxnoof MRBsforUE>       |                                                                                                                                                             |                                                                                                                  | EACH        | reject               |
| >>MRB ID                                                   | M        |                                | 9.3.1.224                                                                                                                                                   | MRB ID for the UE.                                                                                               | -           |                      |
| <b>SL DRX Cycle List</b>                                   |          | 0..1                           |                                                                                                                                                             |                                                                                                                  | YES         | ignore               |
| <b>&gt;SL DRX Cycle Item IEs</b>                           |          | 1 .. <maxnoof SLdestinations > |                                                                                                                                                             |                                                                                                                  | EACH        | ignore               |
| >>RX UE ID                                                 | M        |                                | BIT STRING (SIZE(24))                                                                                                                                       | Indicates the destination L2 ID of RX UE associated to this UE.                                                  | -           |                      |
| >>CHOICE SL DRX Information                                | M        |                                |                                                                                                                                                             |                                                                                                                  | -           |                      |
| >>>SL DRX Cycle                                            |          |                                |                                                                                                                                                             |                                                                                                                  |             |                      |
| >>>>SL DRX Cycle Length                                    | M        |                                | ENUMERATED (ms10, ms20, ms32, ms40, ms60, ms64, ms70, ms80, ms128, ms160, ms256, ms320, ms512, ms640, ms1024, ms1280, ms2048, ms2560, ms5120, ms10240, ...) | Indicates the desired SL DRX cycle for RX UE associated to this UE.                                              | -           |                      |
| >>>>No SL DRX                                              |          |                                |                                                                                                                                                             |                                                                                                                  | -           |                      |
| >>>>>SL DRX                                                | M        |                                | ENUMERATED                                                                                                                                                  |                                                                                                                  | -           |                      |

| IE/Group Name                                              | Presence           | Range                                  | IE type and reference                                          | Semantics description                                                                                                                                                                           | Criticality | Assigned Criticality |
|------------------------------------------------------------|--------------------|----------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| configuration indicator                                    |                    |                                        | (release,...)                                                  |                                                                                                                                                                                                 |             |                      |
| Management Based MDT PLMN Modification List                | O                  |                                        | MDT PLMN Modification List 9.3.1.274                           |                                                                                                                                                                                                 | YES         | ignore               |
| SDT Bearer Configuration Query Indication                  | O                  |                                        | ENUMERATED (true, ...)                                         |                                                                                                                                                                                                 | YES         | ignore               |
| DAPS HO status                                             | O                  |                                        | ENUMERATED (initiation, ...)                                   | This IE is used if DAPS HO is initiated.                                                                                                                                                        | YES         | ignore               |
| <b>ServingCellMO List</b>                                  |                    | 0..1                                   |                                                                | For NCD-SSBs                                                                                                                                                                                    | YES         | ignore               |
| <b>&gt;ServingCellMO Item IEs</b>                          |                    | 1 ..<br><maxnoof<br>ServingCe<br>lMOs> |                                                                |                                                                                                                                                                                                 | EACH        | ignore               |
| >>servingCellMO                                            | M                  |                                        | INTEGER (1..64, ...)                                           |                                                                                                                                                                                                 | -           |                      |
| >>SSB frequency                                            | M                  |                                        | INTEGER (0..3279165)                                           | ARFCN                                                                                                                                                                                           | -           |                      |
| Uplink TxDirectCurrentMoreCarrierList Information          | O                  |                                        | 9.3.1.284                                                      |                                                                                                                                                                                                 | YES         | ignore               |
| <b>CPAC MCG Information</b>                                |                    | 0..1                                   |                                                                | This IE is used at the MN for MCG configuration as specified in TS 37.340 [7] for CPAC.                                                                                                         | YES         | ignore               |
| >CPAC Trigger                                              | M                  |                                        | ENUMERATED (CPAC-preparation, CPAC-executed, ..., CPAC-cancel) |                                                                                                                                                                                                 | -           |                      |
| >PSCell ID                                                 | M                  |                                        | NR CGI 9.3.1.12                                                | The PSCell corresponding to the included CG-Config IE at CPAC-preparation or the selected PSCell by the UE at CPAC-executed. This IE is ignored if the CPAC Trigger IE is set to "CPAC-cancel". | -           |                      |
| <b>&gt;Candidate PSCells To Be Cancelled List</b>          | C-<br>ifCPACcancel |                                        |                                                                |                                                                                                                                                                                                 | YES         | ignore               |
| <b>&gt;&gt; Candidate PSCells To Be Cancelled Item IEs</b> |                    | 1 ..<br><maxnoof<br>CellsinCH<br>O>    |                                                                |                                                                                                                                                                                                 | -           | -                    |
| >>>PSCell ID                                               | M                  |                                        | NR CGI 9.3.1.12                                                | The corresponding PSCell cancelled at CPAC-cancel.                                                                                                                                              | -           | -                    |
| Network Controlled Repeater Authorized                     | O                  |                                        | 9.3.1.288                                                      |                                                                                                                                                                                                 | YES         | ignore               |
| SDT Volume Threshold                                       | O                  |                                        | INTEGER(1..192000,...)                                         | Unit: byte.                                                                                                                                                                                     | YES         | ignore               |
| <b>LTM Information Modify</b>                              |                    | 0..1                                   |                                                                |                                                                                                                                                                                                 | YES         | reject               |
| >LTM Indicator                                             | M                  |                                        | ENUMERATED (true, ...)                                         |                                                                                                                                                                                                 | -           |                      |

| IE/Group Name                                             | Presence | Range                              | IE type and reference                    | Semantics description                                                                                      | Criticality | Assigned Criticality |
|-----------------------------------------------------------|----------|------------------------------------|------------------------------------------|------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| >Reference Configuration                                  | O        |                                    | 9.3.1.292                                |                                                                                                            | -           |                      |
| >CSI Resource Configuration                               | O        |                                    | 9.3.1.330                                |                                                                                                            | -           |                      |
| <b>LTM CFRA Resource Config List</b>                      |          | 0..1                               |                                          |                                                                                                            | YES         | ignore               |
| <b>&gt;LTM CFRA Resource Config Item IEs</b>              |          | 1 ..<br><maxnoof<br>LTMCCells<br>> |                                          |                                                                                                            | EACH        | ignore               |
| >>Cell ID                                                 | M        |                                    | NR CGI<br>9.3.1.12                       |                                                                                                            | -           |                      |
| >>LTM CFRA Resource Configuration                         | O        |                                    | OCTET STRING                             | Includes the <i>RACH-ConfigDedicated</i> IE, as defined in TS 38.331 [8].                                  | -           |                      |
| >>LTM CFRA Resource Configuration for SUL                 | O        |                                    | OCTET STRING                             | Includes the <i>RACH-ConfigDedicated</i> IE, as defined in TS 38.331 [8]. This IE applies for SUL carrier. | -           |                      |
| LTM Configuration ID Mapping List                         | O        |                                    | 9.3.1.294                                |                                                                                                            | YES         | reject               |
| <b>Early Sync Information Request</b>                     |          | 0..1                               |                                          |                                                                                                            | YES         | ignore               |
| >Request for RACH Configuration                           | M        |                                    | ENUMERATED<br>(true, ...)                |                                                                                                            | -           |                      |
| <b>&gt;LTM gNB-DUs ID List</b>                            |          | 1                                  |                                          | This IE contains the IDs of the source gNB-DU and candidate gNB-DU(s).                                     | YES         | reject               |
| <b>&gt;&gt;LTM gNB-DUs Item IEs</b>                       |          | 1..<<br>maxnoofL<br>TMgNBD<br>Us>  |                                          |                                                                                                            | -           |                      |
| >>>LTM gNB-DU ID                                          | M        |                                    | gNB-DU ID<br>9.3.1.9                     |                                                                                                            | -           |                      |
| <b>Early Sync Candidate Cell Information List</b>         |          | 0..1                               |                                          |                                                                                                            | YES         | ignore               |
| <b>&gt;Early Sync Candidate Cell Information Item IEs</b> |          | 1 ..<br><maxnoof<br>LTMCCells<br>> |                                          |                                                                                                            | EACH        | ignore               |
| >>Cell ID                                                 | M        |                                    | NR CGI<br>9.3.1.12                       |                                                                                                            | -           |                      |
| >>TCI States Configurations List                          | O        |                                    | OCTET STRING                             | Includes the <i>LTM-TCI-Info</i> IE, as defined in TS 38.331 [8].                                          | -           |                      |
| >>Early UL Sync Configuration                             | O        |                                    | 9.3.1.328                                |                                                                                                            | -           |                      |
| >>Early UL Sync Configuration for SUL                     | O        |                                    | Early UL Sync Configuration<br>9.3.1.328 | This IE applies for SUL carrier.                                                                           | -           |                      |
| >>TA Assistance Information                               | O        |                                    | ENUMERATED<br>(zero, ...)                | The value "zero" corresponds to TA value of the cell being equal to zero.                                  | -           |                      |
| >>UE Based TA Measurement                                 | O        |                                    | OCTET STRING                             | Includes the <i>ltm-UE-MeasuredTA-</i>                                                                     | -           |                      |

| IE/Group Name                                        | Presence    | Range | IE type and reference                                   | Semantics description                                                                                                                                 | Criticality | Assigned Criticality |
|------------------------------------------------------|-------------|-------|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Configuration                                        |             |       |                                                         | <i>ID</i> contained in the <i>LTM-Candidate</i> IE, as defined in TS 38.331 [8], for the LTM candidate cell identified by the <i>Cell ID</i> IE.      |             |                      |
| >>SSB Positions In Burst                             | C-ifEarlyUL |       | 9.3.1.138                                               | This IE applies to early TA acquisition.                                                                                                              | YES         | ignore               |
| <b>Early Sync Serving Cell Information</b>           |             | 0..1  |                                                         |                                                                                                                                                       | YES         | ignore               |
| >UE Based TA Measurement Configuration               | O           |       | OCTET STRING                                            | Includes the <i>ltm-ServingCellUE-MeasuredTA-ID</i> contained in the <i>LTM-Config</i> IE, as defined in TS 38.331 [8], for the current serving cell. | -           |                      |
| LTM Cells To Be Released List                        | O           |       | 9.3.1.291                                               |                                                                                                                                                       | YES         | reject               |
| Path Addition Information                            | O           |       | 9.3.1.296                                               |                                                                                                                                                       | YES         | reject               |
| NR A2X Services Authorized                           | O           |       | 9.3.1.323                                               |                                                                                                                                                       | YES         | ignore               |
| LTE A2X Services Authorized                          | O           |       | 9.3.1.324                                               |                                                                                                                                                       | YES         | ignore               |
| NR UE Sidelink Aggregate Maximum Bit Rate for A2X    | O           |       | NR UE Sidelink Aggregate Maximum Bit Rate<br>9.3.1.119  | This IE applies only if the UE is authorized for NR A2X services.                                                                                     | YES         | ignore               |
| LTE UE Sidelink Aggregate Maximum Bit Rate for A2X   | O           |       | LTE UE Sidelink Aggregate Maximum Bit Rate<br>9.3.1.118 | This IE applies only if the UE is authorized for LTE A2X services.                                                                                    | YES         | ignore               |
| DL LBT Failure Information Request                   | O           |       | ENUMERATED (inquiry, ...)                               |                                                                                                                                                       | YES         | ignore               |
| Ranging and Sidelink Positioning Service Information | O           |       | 9.3.1.331                                               | This IE applies only if the UE is authorized for NR V2X services and/or 5G ProSe services.                                                            | YES         | ignore               |
| Non-Integer DRX Cycle                                | O           |       | 9.3.1.344                                               |                                                                                                                                                       | YES         | ignore               |
| LTM Reset Information                                | O           |       | 9.3.1.346                                               |                                                                                                                                                       | YES         | ignore               |

| Range bound               | Explanation                                                                           |
|---------------------------|---------------------------------------------------------------------------------------|
| maxnoofSCells             | Maximum no. of SCells allowed towards one UE, the maximum value is 32.                |
| maxnoofServingCellMOs     | Maximum number of ServingCellMOs for NCD-SSB per cell. Maximum value is 16            |
| maxnoofSRBs               | Maximum no. of SRB allowed towards one UE, the maximum value is 8.                    |
| maxnoofDRBs               | Maximum no. of DRB allowed towards one UE, the maximum value is 64.                   |
| maxnoofULUPTNLInformation | Maximum no. of UL UP TNL Information allowed towards one DRB, the maximum value is 2. |
| maxnoofQoSFlows           | Maximum no. of flows allowed to be mapped to one DRB, the maximum value is 64.        |



| Range bound                         | Explanation                                                                                                                  |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| maxnoofBHRLCChannels                | Maximum no. of BH RLC channels allowed towards one IAB-node, the maximum value is 65536.                                     |
| maxnoofSLDRBs                       | Maximum no. of SL DRB allowed for NR sidelink communication per UE, the maximum value is 512.                                |
| maxnoofPC5QoSFlows                  | Maximum no. of PC5 QoS flow allowed towards one UE for NR sidelink communication, the maximum value is 2048.                 |
| maxnoofAdditionalPDCPDuplicationTNL | Maximum no. of additional UP TNL Information allowed towards one DRB, the maximum value is 2.                                |
| maxnoofCellsInCHO                   | Maximum no. cells that can be prepared for a conditional mobility. Value is 8.                                               |
| maxnoofUuRLCChannels                | Maximum no. of Uu Relay RLC channels for L2 U2N relaying or L2 N3C relaying per Relay UE, the maximum value is 32.           |
| maxnoofPC5RLCChannels               | Maximum no. of PC5 Relay RLC channel allowed for L2 U2N or U2U relaying per Remote UE or Relay UE, the maximum value is 512. |
| maxnoofMRBsforUE                    | Maximum no. of multicast MRB allowed towards one UE, the maximum value is 64.                                                |
| maxnoofSLdestinations               | Maximum number of destination for NR sidelink communication, the maximum value is 32                                         |
| maxnoofLTMCells                     | Maximum no. of Cells configured for LTM allowed towards one UE, the maximum value is 8.                                      |
| maxnoofLTMgNB-DUs                   | Maximum no. of gNB-DUs allowed to be configured with LTM towards one UE, the maximum value is 8.                             |

| Condition    | Explanation                                                                                                                            |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------|
| ifCHOcancel  | This IE shall be present if the <i>CHO Trigger</i> IE is present and set to "CHO-cancel".                                              |
| ifEarlyUL    | This IE shall be present if the <i>Early UL Sync Configuration</i> IE or the <i>Early UL Sync Configuration for SUL</i> IE is present. |
| ifCPACcancel | This IE may be present if the <i>CPAC Trigger</i> IE is present and set to "CPAC-cancel".                                              |

### 9.2.2.8 UE CONTEXT MODIFICATION RESPONSE

This message is sent by the gNB-DU to confirm the modification of a UE context.

Direction: gNB-DU → gNB-CU.

| IE/Group Name                            | Presence | Range | IE type and reference | Semantics description                                                                                                                                                                                                                        | Criticality | Assigned Criticality |
|------------------------------------------|----------|-------|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                             | M        |       | 9.3.1.1               |                                                                                                                                                                                                                                              | YES         | reject               |
| gNB-CU UE F1AP ID                        | M        |       | 9.3.1.4               |                                                                                                                                                                                                                                              | YES         | reject               |
| gNB-DU UE F1AP ID                        | M        |       | 9.3.1.5               |                                                                                                                                                                                                                                              | YES         | reject               |
| Resource Coordination Transfer Container | O        |       | OCTET STRING          | Includes the <i>SgNB Resource Coordination Information</i> IE as defined in subclause 9.2.117 of TS 36.423 [9] for EN-DC case or <i>MR-DC Resource Coordination Information</i> IE as defined in TS 38.423 [28] for NGEN-DC and NE-DC cases. | YES         | ignore               |
| DU To CU RRC Information                 | O        |       | 9.3.1.26              |                                                                                                                                                                                                                                              | YES         | reject               |
| <b>DRB Setup List</b>                    |          | 0..1  |                       | The List of DRBs which are successfully established.                                                                                                                                                                                         | YES         | ignore               |

| IE/Group Name                                                 | Presence | Range                                                          | IE type and reference                             | Semantics description                                                                                                  | Criticality | Assigned Criticality |
|---------------------------------------------------------------|----------|----------------------------------------------------------------|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| <b>&gt;DRB Setup Item IEs</b>                                 |          | 1 ..<br><maxnoof<br>DRBs>                                      |                                                   |                                                                                                                        | EACH        | ignore               |
| >>DRB ID                                                      | M        |                                                                | 9.3.1.8                                           |                                                                                                                        | -           |                      |
| >>LCID                                                        | O        |                                                                | 9.3.1.35                                          | LCID for the primary path or for the split secondary path for fallback to split bearer if PDCP duplication is applied. | -           |                      |
| <b>&gt;&gt;DL UP TNL Information to be setup List</b>         |          | 1                                                              |                                                   |                                                                                                                        | -           |                      |
| <b>&gt;&gt;&gt;DL UP TNL Information to Be Setup Item IEs</b> |          | 1 ..<br><maxnoof<br>DLUPTNL<br>Informatio<br>n>                |                                                   |                                                                                                                        | -           |                      |
| >>>>DL UP TNL Information                                     | M        |                                                                | UP Transport Layer Information<br>9.3.2.1         | gNB-DU endpoint of the F1 transport bearer. For delivery of DL PDUs.                                                   | -           |                      |
| <b>&gt;&gt;Additional PDCP Duplication TNL List</b>           |          | 0..1                                                           |                                                   |                                                                                                                        | YES         | ignore               |
| <b>&gt;&gt;&gt;Additional PDCP Duplication TNL Items</b>      |          | 1 .. <<br>maxnoofA<br>dditionalP<br>DCPDupli<br>cationTNL<br>> |                                                   |                                                                                                                        | EACH        | ignore               |
| >>>>Additional PDCP Duplication UP TNL Information            | M        |                                                                | UP Transport Layer Information<br>9.3.2.1         | gNB-DU endpoint of the F1 transport bearer. For delivery of DL PDUs.                                                   | -           |                      |
| >>>>BH Information                                            | O        |                                                                | 9.3.1.114                                         | This IE is not used in this version of the specification.                                                              | YES         | ignore               |
| >>Current QoS Parameters Set Index                            | O        |                                                                | Alternative QoS Parameters Set Index<br>9.3.1.123 | Index to the currently fulfilled alternative QoS parameters set.                                                       | YES         | ignore               |
| >>TSC Traffic Characteristics Feedback                        | O        |                                                                | 9.3.1.302                                         |                                                                                                                        | YES         | ignore               |
| >>ECN Marking or Congestion Information Reporting Status      | O        |                                                                | 9.3.1.322                                         |                                                                                                                        | YES         | ignore               |
| <b>DRB Modified List</b>                                      |          | 0..1                                                           |                                                   | The List of DRBs which are successfully modified.                                                                      | YES         | ignore               |
| <b>&gt;DRB Modified Item IEs</b>                              |          | 1 ..<br><maxnoof<br>DRBs>                                      |                                                   |                                                                                                                        | EACH        | ignore               |
| >>DRB ID                                                      | M        |                                                                | 9.3.1.8                                           |                                                                                                                        | -           |                      |
| >>LCID                                                        | O        |                                                                | 9.3.1.35                                          | LCID for the primary path or for the split secondary path for fallback to split bearer if PDCP duplication             | -           |                      |

| IE/Group Name                                            | Presence | Range                                          | IE type and reference                          | Semantics description                                                | Criticality | Assigned Criticality |
|----------------------------------------------------------|----------|------------------------------------------------|------------------------------------------------|----------------------------------------------------------------------|-------------|----------------------|
|                                                          |          |                                                |                                                | is applied.                                                          |             |                      |
| >>DL UP TNL Information to be setup List                 |          | 1                                              |                                                |                                                                      | -           |                      |
| >>>DL UP TNL Information to Be Setup Item IEs            |          | 1 .. <maxnoof DLUP TNL Information>            |                                                |                                                                      | -           |                      |
| >>>>DL UP TNL Information                                | M        |                                                | UP Transport Layer Information 9.3.2.1         | gNB-DU endpoint of the F1 transport bearer. For delivery of DL PDUs. | -           |                      |
| >>RLC Status                                             | O        |                                                | 9.3.1.69                                       | Indicates the RLC has been re-established at the gNB-DU.             | YES         | ignore               |
| >>Additional PDCP Duplication TNL List                   |          | 0..1                                           |                                                |                                                                      | YES         | ignore               |
| >>>Additional PDCP Duplication TNL Items                 |          | 1 .. <maxnoof Additional PDCP Duplication TNL> |                                                |                                                                      | EACH        | ignore               |
| >>>>Additional PDCP Duplication UP TNL Information       | M        |                                                | UP Transport Layer Information 9.3.2.1         | gNB-DU endpoint of the F1 transport bearer. For delivery of DL PDUs. | -           |                      |
| >>>>BH Information                                       | O        |                                                | 9.3.1.114                                      | This IE is not used in this version of the specification.            | YES         | ignore               |
| >>Current QoS Parameters Set Index                       | O        |                                                | Alternative QoS Parameters Set Index 9.3.1.123 | Index to the currently fulfilled alternative QoS parameters set.     | YES         | ignore               |
| >>TSC Traffic Characteristics Feedback                   | O        |                                                | 9.3.1.302                                      |                                                                      | YES         | ignore               |
| >>ECN Marking or Congestion Information Reporting Status | O        |                                                | 9.3.1.322                                      |                                                                      | YES         | ignore               |
| SRB Failed to be Setup List                              |          | 0..1                                           |                                                | The List of SRBs which are failed to be established.                 | YES         | ignore               |
| >SRB Failed to be Setup Item IEs                         |          | 1 .. <maxnoof SRBs>                            |                                                |                                                                      | EACH        | ignore               |
| >>SRB ID                                                 | M        |                                                | 9.3.1.7                                        |                                                                      | -           |                      |
| >>Cause                                                  | O        |                                                | 9.3.1.2                                        |                                                                      | -           |                      |
| DRB Failed to be Setup List                              |          | 0..1                                           |                                                | The List of DRBs which are failed to be setup.                       | YES         | ignore               |
| >DRB Failed to be Setup Item IEs                         |          | 1 .. <maxnoof DRBs>                            |                                                |                                                                      | EACH        | ignore               |
| >>DRB ID                                                 | M        |                                                | 9.3.1.8                                        |                                                                      | -           |                      |
| >>Cause                                                  | O        |                                                | 9.3.1.2                                        |                                                                      | -           |                      |
| SCell Failed To Setup List                               |          | 0..1                                           |                                                |                                                                      | YES         | ignore               |
| >SCell Failed to                                         |          | 1 ..                                           |                                                |                                                                      | EACH        | ignore               |

| IE/Group Name                                 | Presence | Range                                          | IE type and reference              | Semantics description                                           | Criticality | Assigned Criticality |
|-----------------------------------------------|----------|------------------------------------------------|------------------------------------|-----------------------------------------------------------------|-------------|----------------------|
| <b>Setup Item</b>                             |          | <i>&lt;maxnoof SCells&gt;</i>                  |                                    |                                                                 |             |                      |
| >>SCell ID                                    | M        |                                                | NR CGI<br>9.3.1.12                 | SCell Identifier in gNB                                         | -           |                      |
| >>Cause                                       | O        |                                                | 9.3.1.2                            |                                                                 | -           |                      |
| <b>DRB Failed to be Modified List</b>         |          | 0..1                                           |                                    | The List of DRBs which are failed to be modified.               | YES         | ignore               |
| <b>&gt;DRB Failed to be Modified Item IEs</b> |          | 1 ..<br><i>&lt;maxnoof DRBs&gt;</i>            |                                    |                                                                 | EACH        | ignore               |
| >>DRB ID                                      | M        |                                                | 9.3.1.8                            |                                                                 | -           |                      |
| >>Cause                                       | O        |                                                | 9.3.1.2                            |                                                                 | -           |                      |
| Inactivity Monitoring Response                | O        |                                                | ENUMERATED<br>(Not-supported, ...) |                                                                 | YES         | reject               |
| Criticality Diagnostics                       | O        |                                                | 9.3.1.3                            |                                                                 | YES         | ignore               |
| C-RNTI                                        | O        |                                                | 9.3.1.32                           | C-RNTI allocated at the gNB-DU                                  | YES         | ignore               |
| Associated SCell List                         | O        |                                                | 9.3.1.77                           |                                                                 | YES         | ignore               |
| <b>SRB Setup List</b>                         |          | 0..1                                           |                                    |                                                                 | YES         | ignore               |
| <b>&gt;SRB Setup Item</b>                     |          | 1 ..<br><i>&lt;maxnoof SRBs&gt;</i>            |                                    |                                                                 | EACH        | ignore               |
| >>SRB ID                                      | M        |                                                | 9.3.1.7                            |                                                                 | -           |                      |
| >>LCID                                        | M        |                                                | 9.3.1.35                           | LCID for the primary path if PDCP duplication is applied        | -           |                      |
| <b>SRB Modified List</b>                      |          | 0..1                                           |                                    |                                                                 | YES         | ignore               |
| <b>&gt;SRB Modified Item</b>                  |          | 1 ..<br><i>&lt;maxnoof SRBs&gt;</i>            |                                    |                                                                 | EACH        | ignore               |
| >>SRB ID                                      | M        |                                                | 9.3.1.7                            |                                                                 | -           |                      |
| >>LCID                                        | M        |                                                | 9.3.1.35                           | LCID for the primary path if PDCP duplication is applied        | -           |                      |
| Full Configuration                            | O        |                                                | ENUMERATED<br>(full, ...)          |                                                                 | YES         | reject               |
| <b>BH RLC Channel Setup List</b>              |          | 0..1                                           |                                    | The list of BH RLC channels which are successfully established. | YES         | ignore               |
| <b>&gt;BH RLC Channel Setup Item</b>          |          | 1 ..<br><i>&lt;maxnoof BHRLLCCh annels&gt;</i> |                                    |                                                                 | EACH        | ignore               |
| >>BH RLC CH ID                                | M        |                                                | BH RLC Channel ID<br>9.3.1.113     |                                                                 | -           |                      |
| <b>BH RLC Channel Modified List</b>           |          | 0..1                                           |                                    | The list of BH RLC channels which are successfully modified.    | YES         | ignore               |
| <b>&gt;BH RLC Channel Modified Item</b>       |          | 1 ..<br><i>&lt;maxnoof BHRLLCCh annels&gt;</i> |                                    |                                                                 | EACH        | ignore               |
| >>BH RLC CH ID                                | M        |                                                | BH RLC Channel ID<br>9.3.1.113     |                                                                 | -           |                      |
| <b>BH RLC Channel Failed to be Setup List</b> |          | 0..1                                           |                                    | The list of BH RLC channels whose setup has failed.             | YES         | ignore               |

| IE/Group Name                              | Presence | Range                                  | IE type and reference             | Semantics description                                                                                              | Criticality | Assigned Criticality |
|--------------------------------------------|----------|----------------------------------------|-----------------------------------|--------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| >BH RLC Channel Failed to be Setup Item    |          | 1 ..<br><maxnoof<br>BHRLCCh<br>annels> |                                   |                                                                                                                    | EACH        | ignore               |
| >>BH RLC CH ID                             | M        |                                        | BH RLC<br>Channel ID<br>9.3.1.113 |                                                                                                                    | -           |                      |
| >>Cause                                    | O        |                                        | 9.3.1.2                           |                                                                                                                    | -           |                      |
| BH RLC Channel Failed to be Modified List  |          | 0..1                                   |                                   | The list of BH RLC channels whose modification has failed.                                                         | YES         | ignore               |
| >BH RLC Channel Failed to be Modified Item |          | 1 ..<br><maxnoof<br>BHRLCCh<br>annels> |                                   |                                                                                                                    | EACH        | ignore               |
| >>BH RLC CH ID                             | M        |                                        | BH RLC<br>Channel ID<br>9.3.1.113 |                                                                                                                    | -           |                      |
| >>Cause                                    | O        |                                        | 9.3.1.2                           |                                                                                                                    | -           |                      |
| SL DRB Setup List                          |          | 0..1                                   |                                   | The List of SL DRBs which are successfully established.                                                            | YES         | ignore               |
| >SL DRB Setup Item IEs                     |          | 1 ..<br><maxnoof<br>SLDRBs>            |                                   |                                                                                                                    | EACH        | ignore               |
| >>SL DRB ID                                | M        |                                        | 9.3.1.120                         |                                                                                                                    | -           |                      |
| SL DRB Modified List                       |          | 0..1                                   |                                   | The List of SL DRBs which are successfully modified.                                                               | YES         | ignore               |
| >SL DRB Modified Item IEs                  |          | 1 ..<br><maxnoof<br>SLDRBs>            |                                   |                                                                                                                    | EACH        | ignore               |
| >>SL DRB ID                                | M        |                                        | 9.3.1.120                         |                                                                                                                    | -           |                      |
| SL DRB Failed To Setup List                |          | 0..1                                   |                                   | The List of SL DRBs which are failed to be setup.                                                                  | YES         | ignore               |
| >SL DRB Failed To Setup Item               |          | 1 ..<br><maxnoof<br>SLDRBs>            |                                   |                                                                                                                    | EACH        | ignore               |
| >>SL DRB ID                                | M        |                                        | 9.3.1.120                         |                                                                                                                    | -           |                      |
| >>Cause                                    | O        |                                        | 9.3.1.2                           |                                                                                                                    | -           |                      |
| SL DRB Failed To be Modified List          |          | 0..1                                   |                                   | The List of SL DRBs which are failed to be modified.                                                               | YES         | ignore               |
| >SL DRB Failed To be Modified Item         |          | 1 ..<br><maxnoof<br>SLDRBs>            |                                   |                                                                                                                    | EACH        | ignore               |
| >>SL DRB ID                                | M        |                                        | 9.3.1.120                         |                                                                                                                    | -           |                      |
| >>cause                                    | O        |                                        | 9.3.1.2                           |                                                                                                                    | -           |                      |
| Requested Target Cell ID                   | O        |                                        | NR CGI<br>9.3.1.12                | Special Cell or PSCell ID in the CPAC MCG Information IE indicated in the UE CONTEXT MODIFICATION REQUEST message. | YES         | reject               |
| SCG Activation Status                      | O        |                                        | 9.3.1.234                         |                                                                                                                    | YES         | ignore               |
| Uu RLC Channel Setup List                  |          | 0..1                                   |                                   |                                                                                                                    | YES         | ignore               |

| IE/Group Name                                            | Presence | Range                                   | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|----------------------------------------------------------|----------|-----------------------------------------|-----------------------|-----------------------|-------------|----------------------|
| <b>&gt;Uu RLC Channel Setup Item IEs</b>                 |          | 1 ..<br><maxnoof<br>UuRLCCh<br>annels>  |                       |                       | -           |                      |
| >>Uu RLC Channel ID                                      | M        |                                         | 9.3.1.266             |                       |             |                      |
| <b>Uu RLC Channel Failed to be Setup List</b>            |          | 0..1                                    |                       |                       | YES         | ignore               |
| <b>&gt;Uu RLC Channel Failed to be Setup Item IEs</b>    |          | 1 ..<br><maxnoof<br>UuRLCCh<br>annels>  |                       |                       | -           |                      |
| >>Uu RLC Channel ID                                      | M        |                                         | 9.3.1.266             |                       | -           |                      |
| >>Cause                                                  | O        |                                         | 9.3.1.2               |                       | -           |                      |
| <b>Uu RLC Channel Modified List</b>                      |          | 0..1                                    |                       |                       | YES         | ignore               |
| <b>&gt;Uu RLC Channel Modified Item IEs</b>              |          | 1 ..<br><maxnoof<br>UuRLCCh<br>annels>  |                       |                       | -           |                      |
| >>Uu RLC Channel ID                                      | M        |                                         | 9.3.1.266             |                       | -           |                      |
| <b>Uu RLC Channel Failed to be Modified List</b>         |          | 0..1                                    |                       |                       | YES         | ignore               |
| <b>&gt;Uu RLC Channel Failed to be Modified Item IEs</b> |          | 1 ..<br><maxnoof<br>UuRLCCh<br>annels>  |                       |                       | -           |                      |
| >>Uu RLC Channel ID                                      | M        |                                         | 9.3.1.266             |                       | -           |                      |
| >>Cause                                                  | O        |                                         | 9.3.1.2               |                       | -           |                      |
| <b>PC5 RLC Channel Setup List</b>                        |          | 0..1                                    |                       |                       | YES         | ignore               |
| <b>&gt;PC5 RLC Channel Setup Item IEs</b>                |          | 1 ..<br><maxnoof<br>PC5RLCC<br>hannels> |                       |                       | -           |                      |
| >>PC5 RLC Channel ID                                     | M        |                                         | 9.3.1.265             |                       | -           |                      |
| >>Remote UE Local ID                                     | O        |                                         | 9.3.1.267             |                       | -           |                      |
| <b>PC5 RLC Channel Failed to be Setup List</b>           |          | 0..1                                    |                       |                       | YES         | ignore               |
| <b>&gt;PC5 RLC Channel Failed to be Setup Item IEs</b>   |          | 1 ..<br><maxnoof<br>PC5RLCC<br>hannels> |                       |                       | -           |                      |
| >>PC5 RLC Channel ID                                     | M        |                                         | 9.3.1.265             |                       | -           |                      |
| >>Remote UE Local ID                                     | O        |                                         | 9.3.1.267             |                       | -           |                      |
| >>Cause                                                  | O        |                                         | 9.3.1.2               |                       | -           |                      |
| <b>PC5 RLC Channel Modified List</b>                     |          | 0..1                                    |                       |                       | YES         | ignore               |
| <b>&gt;PC5 RLC Channel Modified Item IEs</b>             |          | 1 ..<br><maxnoof<br>PC5RLCC<br>hannels> |                       |                       | -           |                      |
| >>PC5 RLC Channel ID                                     | M        |                                         | 9.3.1.265             |                       | -           |                      |
| >>Remote UE Local ID                                     | O        |                                         | 9.3.1.267             |                       | -           |                      |
| <b>PC5 RLC Channel</b>                                   |          | 0..1                                    |                       |                       | YES         | ignore               |

| IE/Group Name                                             | Presence | Range                                   | IE type and reference                 | Semantics description                                                                                               | Criticality | Assigned Criticality |
|-----------------------------------------------------------|----------|-----------------------------------------|---------------------------------------|---------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| <b>Failed to be Modified List</b>                         |          |                                         |                                       |                                                                                                                     |             |                      |
| <b>&gt;PC5 RLC Channel Failed to be Modified Item IEs</b> |          | 1 ..<br><maxnoof<br>PC5RLCC<br>hannels> |                                       |                                                                                                                     | -           |                      |
| >>PC5 RLC Channel ID                                      | M        |                                         | 9.3.1.265                             |                                                                                                                     | -           |                      |
| >>Remote UE Local ID                                      | O        |                                         | 9.3.1.267                             |                                                                                                                     | -           |                      |
| >>Cause                                                   | O        |                                         | 9.3.1.2                               |                                                                                                                     | -           |                      |
| SDT Bearer Configuration Info                             | O        |                                         | 9.3.1.277                             |                                                                                                                     | YES         | ignore               |
| <b>UE Multicast MRB Setup List</b>                        |          | 0..1                                    |                                       |                                                                                                                     | YES         | reject               |
| <b>&gt;UE Multicast MRB Setup Item IEs</b>                |          | 1 ..<br><maxnoof<br>MRBsforU<br>E>      |                                       |                                                                                                                     | EACH        | reject               |
| >>MRB ID                                                  | M        |                                         | 9.3.1.224                             | MRB ID for the UE.                                                                                                  | -           |                      |
| >>Multicast F1-U Context Reference CU                     | M        |                                         | 9.3.2.13                              |                                                                                                                     | -           |                      |
| <b>ServingCellIMO-encoded-in-CGC List</b>                 |          | 0..1                                    |                                       |                                                                                                                     | YES         | ignore               |
| <b>&gt;ServingCellIMO-encoded-in-CGC Item IEs</b>         |          | 1 ..<br><maxNrof<br>BWPs>               |                                       | The servingCellIMO which has been encoded in <i>CellGroupConfig</i> IE.                                             | -           |                      |
| >>servingCellIMO                                          | M        |                                         | INTEGER (1..64, ...)                  |                                                                                                                     | -           |                      |
| >>BWP ID                                                  | M        |                                         | INTEGER (0..4)                        |                                                                                                                     | YES         | ignore               |
| Dedicated SI Delivery Indication                          | O        |                                         | ENUMERATED (true, ...)                |                                                                                                                     | YES         | ignore               |
| <b>Configured BWP List</b>                                |          | 0..1                                    |                                       | This IE is present when the gNB-DU configures at least one BWP with NCD-SSB or without SSB.                         | YES         | ignore               |
| <b>&gt;Configured BWP Item IEs</b>                        |          | 1 ..<br><maxNrof<br>BWPs>               |                                       |                                                                                                                     | EACH        | ignore               |
| >>BWP-Id                                                  | M        |                                         | INTEGER (0..4)                        | The IE is used to refer to one BWP.                                                                                 | -           |                      |
| >>BWP Location And Bandwidth                              | M        |                                         | INTEGER (0..37949)                    | The IE type range is the same as the <i>locationAndBandwidth</i> IE in <i>BWP</i> IE as specified in TS 38.331 [8]. |             |                      |
| <b>Early Sync Information</b>                             |          | 0..1                                    |                                       |                                                                                                                     | YES         | ignore               |
| <b>&gt;TCI States Configurations List</b>                 | M        |                                         | OCTET STRING                          | Includes the <i>LTM-TCI-Info</i> IE, as defined in TS 38.331 [8].                                                   | -           |                      |
| >Early UL Sync Configuration                              | O        |                                         | 9.3.1.328                             |                                                                                                                     | -           |                      |
| >Early UL Sync Configuration for SUL                      | O        |                                         | Early UL Sync Configuration 9.3.1.328 | This IE applies for SUL carrier.                                                                                    | -           |                      |

| IE/Group Name                               | Presence | Range       | IE type and reference      | Semantics description                                                                                      | Criticality | Assigned Criticality |
|---------------------------------------------|----------|-------------|----------------------------|------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| <b>LTM Configuration</b>                    |          | <i>0..1</i> |                            |                                                                                                            | YES         | ignore               |
| >SSB Information                            | M        |             | 9.3.1.202                  | Includes the SSB Information for the requested target cell                                                 | -           |                      |
| >Reference Configuration Information        | O        |             | OCTET STRING               | Includes the <i>CellGroupConfig</i> IE, as defined in TS 38.331 [8].                                       | -           |                      |
| >Complete Candidate Configuration Indicator | O        |             | ENUMERATED (complete, ...) |                                                                                                            | -           |                      |
| >LTM CFRA Resource Configuration            | O        |             | OCTET STRING               | Includes the <i>RACH-ConfigDedicated</i> IE, as defined in TS 38.331 [8].                                  | -           |                      |
| >LTM CFRA Resource Configuration for SUL    | O        |             | OCTET STRING               | Includes the <i>RACH-ConfigDedicated</i> IE, as defined in TS 38.331 [8]. This IE applies for SUL carrier. | -           |                      |
| <b>S-CPAC Configuration</b>                 |          | <i>0..1</i> |                            |                                                                                                            | YES         | ignore               |
| >Reference Configuration Information        | O        |             | OCTET STRING               | Includes the <i>CellGroupConfig</i> IE, as defined in TS 38.331 [8].                                       | -           |                      |
| >Complete Candidate Configuration Indicator | O        |             | ENUMERATED (complete, ...) |                                                                                                            | -           |                      |

| Range bound                         | Explanation                                                                                                                      |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| maxnoofSRBs                         | Maximum no. of SRB allowed towards one UE, the maximum value is 8.                                                               |
| maxnoofDRBs                         | Maximum no. of DRB allowed towards one UE, the maximum value is 64.                                                              |
| maxnoofDLUPTNLInformation           | Maximum no. of DL UP TNL Information allowed towards one DRB, the maximum value is 2.                                            |
| maxnoofSCells                       | Maximum no. of SCells allowed towards one UE, the maximum value is 32.                                                           |
| maxnoofBHRLCChannels                | Maximum no. of BH RLC channels allowed towards one IAB-node, the maximum value is 65536.                                         |
| maxnoofSLDRBs                       | Maximum no. of SL DRB allowed for NR sidelink communication per UE, the maximum value is 512.                                    |
| maxnoofAdditionalPDCPDuplicationTNL | Maximum no. of additional UP TNL Information allowed towards one DRB, the maximum value is 2.                                    |
| maxnoofUuRLCChannels                | Maximum no. of Uu Relay RLC channels for L2 U2N relaying or L2 N3C relaying per Relay UE, the maximum value is 32.               |
| maxnoofPC5RLCChannels               | Maximum no. of PC5 Relay RLC channels allowed for L2 U2N or L2 U2U relaying per Remote UE or Relay UE, the maximum value is 512. |
| maxNrofBWPs                         | Maximum number of BWPs per serving cell, the maximum value is 8.                                                                 |
| maxnoofMRBsforUE                    | Maximum no. of multicast MRB allowed towards one UE, the maximum value is 64.                                                    |

### 9.2.2.9 UE CONTEXT MODIFICATION FAILURE

This message is sent by the gNB-DU to indicate a context modification failure.

Direction: gNB-DU → gNB-CU



| IE/Group Name            | Presence | Range | IE type and reference | Semantics description                                                  | Criticality | Assigned Criticality |
|--------------------------|----------|-------|-----------------------|------------------------------------------------------------------------|-------------|----------------------|
| Message Type             | M        |       | 9.3.1.1               |                                                                        | YES         | reject               |
| gNB-CU UE F1AP ID        | M        |       | 9.3.1.4               |                                                                        | YES         | reject               |
| gNB-DU UE F1AP ID        | M        |       | 9.3.1.5               |                                                                        | YES         | reject               |
| Cause                    | M        |       | 9.3.1.2               |                                                                        | YES         | ignore               |
| Criticality Diagnostics  | O        |       | 9.3.1.3               |                                                                        | YES         | ignore               |
| Requested Target Cell ID | O        |       | NR CGI<br>9.3.1.12    | Special Cell indicated in the UE CONTEXT MODIFICATION REQUEST message. | YES         | reject               |

### 9.2.2.10 UE CONTEXT MODIFICATION REQUIRED

This message is sent by the gNB-DU to request the modification of a UE context.

Direction: gNB-DU → gNB-CU.

| IE/Group Name                                                 | Presence | Range                                             | IE type and reference                     | Semantics description                                                                                                                                                                                                                        | Criticality | Assigned Criticality |
|---------------------------------------------------------------|----------|---------------------------------------------------|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                                                  | M        |                                                   | 9.3.1.1                                   |                                                                                                                                                                                                                                              | YES         | reject               |
| gNB-CU UE F1AP ID                                             | M        |                                                   | 9.3.1.4                                   |                                                                                                                                                                                                                                              | YES         | reject               |
| gNB-DU UE F1AP ID                                             | M        |                                                   | 9.3.1.5                                   |                                                                                                                                                                                                                                              | YES         | reject               |
| Resource Coordination Transfer Container                      | O        |                                                   | OCTET STRING                              | Includes the <i>SgNB Resource Coordination Information</i> IE as defined in subclause 9.2.117 of TS 36.423 [9] for EN-DC case or <i>MR-DC Resource Coordination Information</i> IE as defined in TS 38.423 [28] for NGEN-DC and NE-DC cases. | YES         | ignore               |
| DU To CU RRC Information                                      | O        |                                                   | 9.3.1.26                                  |                                                                                                                                                                                                                                              | YES         | reject               |
| <b>DRB Required to Be Modified List</b>                       |          | <i>0..1</i>                                       |                                           |                                                                                                                                                                                                                                              | YES         | reject               |
| <b>&gt;DRB Required to Be Modified Item IEs</b>               |          | <i>1 .. &lt;maxnoof DRBs&gt;</i>                  |                                           |                                                                                                                                                                                                                                              | EACH        | reject               |
| <b>&gt;&gt;DRB ID</b>                                         | M        |                                                   | 9.3.1.8                                   |                                                                                                                                                                                                                                              | -           |                      |
| <b>&gt;&gt;DL UP TNL Information to be setup List</b>         |          | <i>1</i>                                          |                                           |                                                                                                                                                                                                                                              | -           |                      |
| <b>&gt;&gt;&gt;DL UP TNL Information to Be Setup Item IEs</b> |          | <i>1 .. &lt;maxnoof DLUPTNL Information n&gt;</i> |                                           |                                                                                                                                                                                                                                              | -           |                      |
| <b>&gt;&gt;&gt;&gt;DL UP TNL Information</b>                  | M        |                                                   | UP Transport Layer Information<br>9.3.2.1 | gNB-DU endpoint of the F1 transport bearer. For delivery of DL PDUs.                                                                                                                                                                         | -           |                      |
| <b>&gt;&gt;RLC Status</b>                                     | O        |                                                   | 9.3.1.69                                  | Indicates the RLC has been re-established at the gNB-DU.                                                                                                                                                                                     | YES         | ignore               |
| <b>&gt;&gt;Additional PDCP</b>                                |          | <i>0..1</i>                                       |                                           |                                                                                                                                                                                                                                              | YES         | ignore               |

| IE/Group Name                                      | Presence | Range                                           | IE type and reference                  | Semantics description                                                | Criticality | Assigned Criticality |
|----------------------------------------------------|----------|-------------------------------------------------|----------------------------------------|----------------------------------------------------------------------|-------------|----------------------|
| <b>Duplication TNL List</b>                        |          |                                                 |                                        |                                                                      |             |                      |
| >>>Additional PDCP Duplication TNL Items           |          | 1 ..<br><maxnoof Additional PDCPDuplicationTNL> |                                        |                                                                      | EACH        | ignore               |
| >>>>Additional PDCP Duplication UP TNL Information | M        |                                                 | UP Transport Layer Information 9.3.2.1 | gNB-CU endpoint of the F1 transport bearer. For delivery of DL PDUs. | -           |                      |
| >>>>BH Information                                 | O        |                                                 | 9.3.1.114                              | This IE is not used in this version of the specification.            | YES         | ignore               |
| <b>SRB Required to be Released List</b>            |          | 0..1                                            |                                        |                                                                      | YES         | reject               |
| >SRB Required to be Released List Item IEs         |          | 1 ..<br><maxnoof SRBs>                          |                                        |                                                                      | EACH        | reject               |
| >>SRB ID                                           | M        |                                                 | 9.3.1.7                                |                                                                      | -           |                      |
| <b>DRB Required to be Released List</b>            |          | 0..1                                            |                                        |                                                                      | YES         | reject               |
| >DRB Required to be Released List Item IEs         |          | 1 ..<br><maxnoof DRBs>                          |                                        |                                                                      | EACH        | reject               |
| >>DRB ID                                           | M        |                                                 | 9.3.1.8                                |                                                                      | -           |                      |
| Cause                                              | M        |                                                 | 9.3.1.2                                |                                                                      | YES         | ignore               |
| <b>BH RLC Channel Required to be Released List</b> |          | 0..1                                            |                                        |                                                                      | YES         | reject               |
| >BH RLC Channel Required to be Released Item IEs   |          | 1 ..<br><maxnoof BHRLCChannels>                 |                                        |                                                                      | EACH        | reject               |
| >>BH RLC CH ID                                     | M        |                                                 | BH RLC Channel ID 9.3.1.113            |                                                                      | -           |                      |
| <b>SL DRB Required to Be Modified List</b>         |          | 0..1                                            |                                        |                                                                      | YES         | reject               |
| >SL DRB Required to Be Modified Item IEs           |          | 1 ..<br><maxnoof SLDRBs>                        |                                        |                                                                      | EACH        | reject               |
| >>SL DRB ID                                        | M        |                                                 | 9.3.1.120                              |                                                                      | -           |                      |
| <b>SL DRB Required to be Released List</b>         |          | 0..1                                            |                                        |                                                                      | YES         | reject               |
| >SL DRB Required to be Release Item IEs            |          | 1 ..<br><maxnoof SLDRBs>                        |                                        |                                                                      | EACH        | reject               |
| >>SL DRB ID                                        | M        |                                                 | 9.3.1.120                              |                                                                      | -           |                      |
| <b>Candidate Cells To Be Cancelled List</b>        |          | 0 ..<br><maxnoof CellsinCHO>                    |                                        |                                                                      | YES         | reject               |
| >Target Cell ID                                    | M        |                                                 | NR CGI 9.3.1.12                        |                                                                      | -           |                      |
| <b>Uu RLC Channel Required to be Modified List</b> |          | 0..1                                            |                                        |                                                                      | YES         | reject               |
| >Uu RLC Channel Required to be Modified Item IEs   |          | 1 ..<br><maxnoof UuRLCChannels>                 |                                        |                                                                      | -           |                      |
| >>Uu RLC Channel                                   | M        |                                                 | 9.3.1.266                              |                                                                      | -           |                      |

| IE/Group Name                                      | Presence          | Range                             | IE type and reference           | Semantics description | Criticality | Assigned Criticality |
|----------------------------------------------------|-------------------|-----------------------------------|---------------------------------|-----------------------|-------------|----------------------|
| ID                                                 |                   |                                   |                                 |                       |             |                      |
| Uu RLC Channel Required to be Released List        |                   | 0..1                              |                                 |                       | YES         | reject               |
| >Uu RLC Channel Required to be Released Item IEs   |                   | 1 ..<br><maxnoof UuRLCCh annels>  |                                 |                       | -           |                      |
| >>Uu RLC Channel ID                                | M                 |                                   | 9.3.1.266                       |                       | -           |                      |
| PC5 RLC Channel Required to be Modified List       |                   | 0..1                              |                                 |                       | YES         | reject               |
| >PC5 RLC Channel Required to be Modified Item IEs  |                   | 1 ..<br><maxnoof PC5RLCC hannels> |                                 |                       | -           |                      |
| >>PC5 RLC Channel ID                               | M                 |                                   | 9.3.1.265                       |                       | -           |                      |
| >>Remote UE Local ID                               | O                 |                                   | 9.3.1.267                       |                       | -           |                      |
| PC5 RLC Channel Required to be Released List       |                   | 0..1                              |                                 |                       | YES         | reject               |
| >PC5 RLC Channel Required to be Released Item IEs  |                   | 1 ..<br><maxnoof PC5RLCC hannels> |                                 |                       | -           |                      |
| >>PC5 RLC Channel ID                               | M                 |                                   | 9.3.1.265                       |                       | -           |                      |
| >>Remote UE Local ID                               | O                 |                                   | 9.3.1.267                       |                       | -           |                      |
| UE Multicast MRB Required to Be Modified List      |                   | 0..1                              |                                 |                       | YES         | reject               |
| >UE Multicast MRB Required to Be Modified Item IEs |                   | 1 ..<br><maxnoof MRBsforUE>       |                                 |                       | EACH        | reject               |
| >>MRB ID                                           | M                 |                                   | 9.3.1.224                       | MRB ID for the UE.    | -           |                      |
| >>MRB type reconfiguration                         | O                 |                                   | ENUMERATED (true, ...)          |                       | -           |                      |
| >>MRB Reconfigured RLC mode                        | C-ifMRBTypeReconf |                                   | MRB RLC Configuration 9.3.1.275 |                       | -           |                      |
| >>Multicast F1-U Context Reference CU              | O                 |                                   | 9.3.2.13                        |                       | YES         | reject               |
| UE Multicast MRB Required to Be Released List      |                   | 0..1                              |                                 |                       | YES         | reject               |
| >UE Multicast MRB Required to Be Released Item IEs |                   | 1 ..<br><maxnoof MRBsforUE>       |                                 |                       | EACH        | reject               |
| >>MRB ID                                           | M                 |                                   | 9.3.1.224                       | MRB ID for the UE.    | -           |                      |
| LTM Cells To Be Released List                      | O                 |                                   | 9.3.1.291                       |                       | YES         | reject               |

| Range bound | Explanation                                                         |
|-------------|---------------------------------------------------------------------|
| maxnoofSRBs | Maximum no. of SRB allowed towards one UE, the maximum value is 8.  |
| maxnoofDRBs | Maximum no. of DRB allowed towards one UE, the maximum value is 64. |

| Range bound                         | Explanation                                                                                                                      |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| maxnoofDLUPTNLInformation           | Maximum no. of DL UP TNL Information allowed towards one DRB, the maximum value is 2.                                            |
| maxnoofBHRLCChannels                | Maximum no. of BH RLC channels allowed towards one IAB-node, the maximum value is 65536.                                         |
| maxnoofSLDRBs                       | Maximum no. of SL DRB allowed for NR sidelink communication per UE, the maximum value is 512.                                    |
| maxnoofAdditionalPDCPDuplicationTNL | Maximum no. of additional UP TNL Information allowed towards one DRB, the maximum value is 2.                                    |
| maxnoofCellsInCHO                   | Maximum no. cells that can be prepared for a conditional mobility. Value is 8.                                                   |
| maxnoofUuRLCChannels                | Maximum no. of Uu Relay RLC channels for L2 U2N relaying or L2 N3C relaying per Relay UE, the maximum value is 32.               |
| maxnoofPC5RLCChannels               | Maximum no. of PC5 Relay RLC channels allowed for L2 U2N or L2 U2U relaying per Remote UE or Relay UE, the maximum value is 512. |
| maxnoofMRBsforUE                    | Maximum no. of multicast MRB allowed towards one UE, the maximum value is 64.                                                    |

| Condition       | Explanation                                                             |
|-----------------|-------------------------------------------------------------------------|
| ifMRBTypeReconf | This IE shall be present if the MRB Type Reconfiguration IE is present. |

### 9.2.2.11 UE CONTEXT MODIFICATION CONFIRM

This message is sent by the gNB-CU to inform the gNB-DU the successful modification.

Direction: gNB-CU → gNB-DU.

| IE/Group Name                                 | Presence | Range                              | IE type and reference | Semantics description                                                                                                                                                                                                                        | Criticality | Assigned Criticality |
|-----------------------------------------------|----------|------------------------------------|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                                  | M        |                                    | 9.3.1.1               |                                                                                                                                                                                                                                              | YES         | reject               |
| gNB-CU UE F1AP ID                             | M        |                                    | 9.3.1.4               |                                                                                                                                                                                                                                              | YES         | reject               |
| gNB-DU UE F1AP ID                             | M        |                                    | 9.3.1.5               |                                                                                                                                                                                                                                              | YES         | reject               |
| Resource Coordination Transfer Container      | O        |                                    | OCTET STRING          | Includes the <i>MeNB Resource Coordination Information</i> IE as defined in subclause 9.2.116 of TS 36.423 [9] for EN-DC case or <i>MR-DC Resource Coordination Information</i> IE as defined in TS 38.423 [28] for NGEN-DC and NE-DC cases. | YES         | ignore               |
| DRB Modified List                             |          | 0..1                               |                       | The List of DRBs which are successfully modified.                                                                                                                                                                                            | YES         | ignore               |
| >DRB Modified Item IEs                        |          | 1 .. <maxnoof DRBs>                |                       |                                                                                                                                                                                                                                              | EACH        | ignore               |
| >>DRB ID                                      | M        |                                    | 9.3.1.8               |                                                                                                                                                                                                                                              | -           |                      |
| >>UL UP TNL Information to be setup List      |          | 1                                  |                       |                                                                                                                                                                                                                                              | -           |                      |
| >>>UL UP TNL Information to Be Setup Item IEs |          | 1 .. <maxnoof ULUPTNL Information> |                       |                                                                                                                                                                                                                                              | -           |                      |

| IE/Group Name                                      | Presence | Range                                           | IE type and reference                  | Semantics description                                                                                                 | Criticality | Assigned Criticality |
|----------------------------------------------------|----------|-------------------------------------------------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| >>>>UL UP TNL Information                          | M        |                                                 | UP Transport Layer Information 9.3.2.1 | gNB-CU endpoint of the F1 transport bearer. For delivery of UL PDUs.                                                  | -           |                      |
| >>>>BH Information                                 | O        |                                                 | 9.3.1.114                              |                                                                                                                       | YES         | ignore               |
| >>>>DRB Mapping Info                               | O        |                                                 | Uu RLC Channel ID 9.3.1.266            | This IE is not used in this version of the specification.                                                             | YES         | ignore               |
| >>Additional PDCP Duplication TNL List             |          | 0..1                                            |                                        |                                                                                                                       | YES         | ignore               |
| >>>Additional PDCP Duplication TNL Items           |          | 1 ..<br><maxnoof Additional PDCPDuplicationTNL> |                                        |                                                                                                                       | EACH        | ignore               |
| >>>>Additional PDCP Duplication UP TNL Information | M        |                                                 | UP Transport Layer Information 9.3.2.1 | gNB-DU endpoint of the F1 transport bearer. For delivery of UL PDUs.                                                  | -           |                      |
| >>>>BH Information                                 | O        |                                                 | 9.3.1.114                              |                                                                                                                       | YES         | ignore               |
| RRC-Container                                      | O        |                                                 | 9.3.1.6                                | Includes the <i>DL-DCCH-Message</i> message as defined in subclause 6.2 of TS 38.331 [8], encapsulated in a PDCP PDU. | YES         | ignore               |
| Criticality Diagnostics                            | O        |                                                 | 9.3.1.3                                |                                                                                                                       | YES         | ignore               |
| Execute Duplication                                | O        |                                                 | ENUMERATED (true, ...)                 | This IE may be sent only if duplication has been configured for the UE.                                               | YES         | ignore               |
| Resource Coordination Transfer Information         | O        |                                                 | 9.3.1.73                               |                                                                                                                       | YES         | ignore               |
| SL DRB Modified List                               |          | 0..1                                            |                                        |                                                                                                                       | YES         | ignore               |
| >SL DRB Modified Item IEs                          |          | 1 ..<br><maxnoof SLDRBs>                        |                                        |                                                                                                                       | EACH        | reject               |
| >>SL DRB ID                                        | M        |                                                 | 9.3.1.120                              |                                                                                                                       | -           |                      |
| Uu RLC Channel Modified List                       |          | 0..1                                            |                                        |                                                                                                                       | YES         | reject               |
| >Uu RLC Channel Modified Item IEs                  |          | 1 ..<br><maxnoof UuRLCChannels>                 |                                        |                                                                                                                       | -           |                      |
| >>Uu RLC Channel ID                                | M        |                                                 | 9.3.1.266                              |                                                                                                                       | -           |                      |
| PC5 RLC Channel Modified List                      |          | 0..1                                            |                                        |                                                                                                                       | YES         | reject               |
| >PC5 RLC Channel Modified Item IEs                 |          | 1 ..<br><maxnoof PC5RLCCannels>                 |                                        |                                                                                                                       | -           | -                    |
| >>PC5 RLC Channel ID                               | M        |                                                 | 9.3.1.265                              |                                                                                                                       | -           |                      |
| >>Remote UE Local ID                               | O        |                                                 | 9.3.1.267                              |                                                                                                                       | -           |                      |

| IE/Group Name                                                 | Presence | Range                      | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|---------------------------------------------------------------|----------|----------------------------|-----------------------|-----------------------|-------------|----------------------|
| <b>UE Multicast MRB Confirmed to Be Modified List</b>         |          | 0..1                       |                       |                       | YES         | reject               |
| <b>&gt;UE Multicast MRB Confirmed to Be Modified Item IEs</b> |          | 1..<br><maxnoof MRBsforUE> |                       |                       | EACH        | reject               |
| <b>&gt;&gt;MRB ID</b>                                         | M        |                            | 9.3.1.224             | MRB ID for the UE.    | -           |                      |
| <b>&gt;&gt;MBS PTP Retransmission Tunnel Required</b>         | O        |                            | 9.3.2.10              |                       | -           |                      |

| Range bound                         | Explanation                                                                                                                      |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| maxnoofDRBs                         | Maximum no. of DRB allowed towards one UE, the maximum value is 64.                                                              |
| maxnoofULUPTNLInformation           | Maximum no. of UL UP TNL Information allowed towards one DRB, the maximum value is 2.                                            |
| maxnoofSLDRBs                       | Maximum no. of SL DRB allowed for NR sidelink communication per UE, the maximum value is 512.                                    |
| maxnoofAdditionalPDCPDuplicationTNL | Maximum no. of additional UP TNL Information allowed towards one DRB, the maximum value is 2.                                    |
| maxnoofUuRLCChannels                | Maximum no. of Uu Relay RLC channels for L2 U2N relaying or L2 N3C relaying per Relay UE, the maximum value is 32.               |
| maxnoofPC5RLCChannels               | Maximum no. of PC5 Relay RLC channels allowed for L2 U2N or L2 U2U relaying per Remote UE or Relay UE, the maximum value is 512. |
| maxnoofMRBsforUE                    | Maximum no. of multicast MRB allowed towards one UE, the maximum value is 64.                                                    |

### 9.2.2.11A UE CONTEXT MODIFICATION REFUSE

This message is sent by the gNB-CU to indicate the UE context modification was unsuccessful.

Direction: gNB-CU → gNB-DU.

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU UE F1AP ID       | M        |       | 9.3.1.4               |                       | YES         | reject               |
| gNB-DU UE F1AP ID       | M        |       | 9.3.1.5               |                       | YES         | reject               |
| Cause                   | M        |       | 9.3.1.2               |                       | YES         | ignore               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.2.12 UE INACTIVITY NOTIFICATION

This message is sent by the gNB-DU to provide information about the UE activity to the gNB-CU.

Direction: gNB-DU → gNB-CU

| IE/Group Name                | Presence | Range                 | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|------------------------------|----------|-----------------------|-----------------------|-----------------------|-------------|----------------------|
| Message Type                 | M        |                       | 9.3.1.1               |                       | YES         | ignore               |
| gNB-CU UE F1AP ID            | M        |                       | 9.3.1.4               |                       | YES         | reject               |
| gNB-DU UE F1AP ID            | M        |                       | 9.3.1.5               |                       | YES         | reject               |
| <b>DRB Activity List</b>     |          | 1                     |                       |                       | YES         | reject               |
| <b>&gt;DRB Activity Item</b> |          | 1..<br><maxnoof DRBs> |                       |                       | EACH        | reject               |
| <b>&gt;&gt;DRB ID</b>        | M        |                       | 9.3.1.8               |                       | -           |                      |

| IE/Group Name           | Presence | Range | IE type and reference                                                      | Semantics description                                              | Criticality | Assigned Criticality |
|-------------------------|----------|-------|----------------------------------------------------------------------------|--------------------------------------------------------------------|-------------|----------------------|
| >>DRB Activity          | O        |       | ENUMERATED (Active, Not active)                                            |                                                                    | -           |                      |
| SDT Termination Request | O        |       | ENUMERATED (radio link problem, normal, ..., SDT Volume Threshold Crossed) | Indicate the reason of request for termination of the ongoing SDT. | YES         | ignore               |

| Range bound | Explanation                                                         |
|-------------|---------------------------------------------------------------------|
| maxnoofDRBs | Maximum no. of DRB allowed towards one UE, the maximum value is 64. |

### 9.2.2.13 NOTIFY

This message is sent by the gNB-DU to notify the gNB-CU that the QoS for already established DRBs associated with notification control is not fulfilled any longer or it is fulfilled again.

Direction: gNB-DU → gNB-CU

| IE/Group Name                          | Presence | Range              | IE type and reference                                 | Semantics description                                                                                                                                   | Criticality | Assigned Criticality |
|----------------------------------------|----------|--------------------|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                           | M        |                    | 9.3.1.1                                               |                                                                                                                                                         | YES         | ignore               |
| gNB-CU UE F1AP ID                      | M        |                    | 9.3.1.4                                               |                                                                                                                                                         | YES         | reject               |
| gNB-DU UE F1AP ID                      | M        |                    | 9.3.1.5                                               |                                                                                                                                                         | YES         | reject               |
| <b>DRB Notify List</b>                 |          | <b>1</b>           |                                                       |                                                                                                                                                         | YES         | reject               |
| >DRB Notify Item IEs                   |          | <1 .. maxnoofDRBs> |                                                       |                                                                                                                                                         | EACH        | reject               |
| >>DRB ID                               | M        |                    | 9.3.1.8                                               |                                                                                                                                                         | -           |                      |
| >>Notification Cause                   | M        |                    | ENUMERATED (Fulfilled, Not-Fulfilled, ...)            |                                                                                                                                                         | -           |                      |
| >>Current QoS Parameters Set Index     | O        |                    | Alternative QoS Parameters set Notify Index 9.3.1.124 | Index to the currently fulfilled alternative QoS parameters set. Value 0 indicates that NG-RAN cannot even fulfil the lowest alternative parameter set. | YES         | ignore               |
| >>TSC Traffic Characteristics Feedback | O        |                    | 9.3.1.302                                             |                                                                                                                                                         | YES         | ignore               |

| Range bound | Explanation                                                         |
|-------------|---------------------------------------------------------------------|
| maxnoofDRBs | Maximum no. of DRB allowed towards one UE, the maximum value is 64. |

### 9.2.2.14 ACCESS SUCCESS

This message is sent by the gNB-DU to inform the gNB-CU of which cell the UE has successfully accessed during conditional handover, conditional PSCell addition, conditional PSCell change, LTM, or subsequent CPAC.

Direction: gNB-DU → gNB-CU

| IE/Group Name     | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type      | M        |       | 9.3.1.1               |                       | YES         | ignore               |
| gNB-CU UE F1AP ID | M        |       | 9.3.1.4               |                       | YES         | reject               |
| gNB-DU UE F1AP ID | M        |       | 9.3.1.5               |                       | YES         | reject               |
| NR CGI            | M        |       | 9.3.1.12              |                       | YES         | reject               |

### 9.2.2.15 DU-CU CELL SWITCH NOTIFICATION

This message is sent by the gNB-DU to inform the gNB-CU about the initiation of the cell switch command to the UE.

Direction: gNB-DU → gNB-CU

| IE/Group Name                      | Presence | Range                              | IE type and reference | Semantics description                                                                                                           | Criticality | Assigned Criticality |
|------------------------------------|----------|------------------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                       | M        |                                    | 9.3.1.1               |                                                                                                                                 | YES         | ignore               |
| gNB-CU UE F1AP ID                  | M        |                                    | 9.3.1.4               |                                                                                                                                 | YES         | reject               |
| gNB-DU UE F1AP ID                  | M        |                                    | 9.3.1.5               |                                                                                                                                 | YES         | reject               |
| Cell ID                            | M        |                                    | NR CGI<br>9.3.1.12    |                                                                                                                                 | YES         | reject               |
| <b>LTM Cell Switch Information</b> |          | <i>0..1</i>                        |                       |                                                                                                                                 | YES         | ignore               |
| >Joint or DL TCI State ID          | M        |                                    | OCTET STRING          | Includes the <i>TCI-StateId</i> IE, as defined in TS 38.331 [8].                                                                | -           |                      |
| >UL TCI State ID                   | O        |                                    | OCTET STRING          | Includes the <i>TCI-UL-StateId</i> IE, as defined in TS 38.331 [8].                                                             | -           |                      |
| <b>TA Information List</b>         |          | <i>0..1</i>                        |                       |                                                                                                                                 | YES         | ignore               |
| >TA Information Item IEs           |          | <i>1 .. &lt;maxnoof TAList&gt;</i> |                       |                                                                                                                                 | EACH        | ignore               |
| >>Candidate Cell ID                | M        |                                    | NR CGI<br>9.3.1.12    |                                                                                                                                 | -           |                      |
| >>TA Value                         | M        |                                    | INTEGER (0..4095)     | Indicates the TA value as defined in TS 38.213 [31].                                                                            | -           |                      |
| >>Tag ID Pointer                   | O        |                                    | OCTET STRING          | Includes the <i>tag-Id-ptr</i> contained in the <i>TCI-UL-State</i> IE or the <i>TCI-State</i> IE, as defined in TS 38.331 [8]. | YES         | ignore               |

| Range bound   | Explanation                                                  |
|---------------|--------------------------------------------------------------|
| maxnoofTAList | Maximum no. of TA values to be sent, the maximum value is 8. |

### 9.2.2.16 CU-DU CELL SWITCH NOTIFICATION

This message is sent by the gNB-CU to inform the gNB-DU about the initiation of the cell switch command to the UE.

Direction: gNB-CU → gNB-DU

| IE/Group Name          | Presence | Range       | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|------------------------|----------|-------------|-----------------------|-----------------------|-------------|----------------------|
| Message Type           | M        |             | 9.3.1.1               |                       | YES         | ignore               |
| gNB-CU UE F1AP ID      | M        |             | 9.3.1.4               |                       | YES         | reject               |
| gNB-DU UE F1AP ID      | M        |             | 9.3.1.5               |                       | YES         | reject               |
| Cell ID                | M        |             | NR CGI<br>9.3.1.12    |                       | YES         | reject               |
| <b>LTM Cell Switch</b> |          | <i>0..1</i> |                       |                       | YES         | ignore               |



| IE/Group Name                      | Presence | Range                       | IE type and reference | Semantics description                                                                                                           | Criticality | Assigned Criticality |
|------------------------------------|----------|-----------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| <b>Information</b>                 |          |                             |                       |                                                                                                                                 |             |                      |
| >Joint or DL TCI State ID          | M        |                             | OCTET STRING          | Includes the <i>TCI-StateId</i> IE, as defined in TS 38.331 [8].                                                                | -           |                      |
| >UL TCI State ID                   | O        |                             | OCTET STRING          | Includes the <i>TCI-UL-StateId</i> IE, as defined in TS 38.331 [8].                                                             | -           |                      |
| <b>TA Information List</b>         |          | 0..1                        |                       |                                                                                                                                 | YES         | ignore               |
| <b>&gt;TA Information Item IEs</b> |          | 1 ..<br><maxnoof<br>TAList> |                       |                                                                                                                                 | EACH        | ignore               |
| >>Candidate Cell ID                | M        |                             | NR CGI<br>9.3.1.12    |                                                                                                                                 | -           |                      |
| >>TA Value                         | M        |                             | INTEGER<br>(0..4095)  | Indicates the TA value as defined in TS 38.213 [31].                                                                            | -           |                      |
| >>Tag ID Pointer                   | O        |                             | OCTET STRING          | Includes the <i>tag-Id-ptr</i> contained in the <i>TCI-UL-State</i> IE or the <i>TCI-State</i> IE, as defined in TS 38.331 [8]. | YES         | ignore               |

| Range bound   | Explanation                                                  |
|---------------|--------------------------------------------------------------|
| maxnoofTAList | Maximum no. of TA values to be sent, the maximum value is 8. |

### 9.2.2.17 CU-DU MOBILITY INITIATION REQUEST

This message is sent by the gNB-CU to the gNB-DU to trigger cell switch command and/or early synchronization for the UE.

Direction: gNB-CU → gNB-DU

| IE/Group Name                            | Presence                                | Range | IE type and reference   | Semantics description                                                                                                                                                                                          | Criticality | Assigned Criticality |
|------------------------------------------|-----------------------------------------|-------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                             | M                                       |       | 9.3.1.1                 |                                                                                                                                                                                                                | YES         | ignore               |
| gNB-CU UE F1AP ID                        | M                                       |       | 9.3.1.4                 |                                                                                                                                                                                                                | YES         | reject               |
| gNB-DU UE F1AP ID                        | M                                       |       | 9.3.1.5                 |                                                                                                                                                                                                                | YES         | reject               |
| CHOICE <i>Mobility Initiation</i>        | M                                       |       |                         |                                                                                                                                                                                                                | YES         | reject               |
| > <i>Mobility Trigger</i>                |                                         |       |                         |                                                                                                                                                                                                                |             |                      |
| >>Triggering Indication                  | M                                       |       | BIT STRING<br>(SIZE(8)) | Indicates the triggering of the CU-DU Mobility Initiation procedure. First bit = early UL synchronization, second bit = early DL synchronization, third bit = cell switch, other bits reserved for future use. | -           |                      |
| >>>Cell Switch Information               | C-ifTrigger<br>Indication<br>CellSwitch |       |                         |                                                                                                                                                                                                                | YES         | ignore               |
| >>>>Candidate Cell with Beam Information | M                                       |       | 9.3.1.348               |                                                                                                                                                                                                                | -           |                      |

| IE/Group Name                                | Presence                           | Range                         | IE type and reference            | Semantics description | Criticality | Assigned Criticality |
|----------------------------------------------|------------------------------------|-------------------------------|----------------------------------|-----------------------|-------------|----------------------|
| >>Early UL Sync Information                  | C-ifTrigger Indication EarlyULSync |                               |                                  |                       | YES         | ignore               |
| >>>Candidate Cell with Beam Information List | M                                  |                               | 9.3.1.349                        |                       | -           |                      |
| >>Early DL Sync Information                  | C-ifTrigger Indication EarlyDLSync |                               |                                  |                       | YES         | ignore               |
| >>>Candidate Cell with Beam Information List | M                                  |                               | 9.3.1.349                        |                       | -           |                      |
| >Assistance Information                      |                                    |                               |                                  |                       |             |                      |
| >>Measurement Quantities                     | M                                  |                               |                                  |                       | -           |                      |
| >>>Serving Cell Measurements                 | M                                  |                               |                                  |                       | -           |                      |
| >>>>Serving Cell ID                          | M                                  |                               | NR CGI 9.3.1.12                  |                       | -           |                      |
| >>>>SSB List                                 |                                    | 1..<maxno ofSSBs>             |                                  |                       |             |                      |
| >>>>>SSB Index                               | M                                  |                               | INTEGER (0..63)                  |                       | -           |                      |
| >>>>>Selected Measurement Quantities         | M                                  |                               | Measurement Quantities 9.3.1.350 |                       | -           |                      |
| >>>Candidate Cell ID List                    | M                                  | 1 .. <maxno ofCandidateCells> |                                  |                       | -           |                      |
| >>>>Candidate Cell ID                        | M                                  |                               | NR CGI 9.3.1.12                  |                       | -           |                      |
| >>>>SSB List                                 |                                    | 1..<maxno ofSSBs>             |                                  |                       |             |                      |
| >>>>>SSB Index                               | M                                  |                               | INTEGER (0..63)                  |                       | -           |                      |
| >>>>>Selected Measurement Quantities         | M                                  |                               | Measurement Quantities 9.3.1.350 |                       | -           |                      |

| Condition                         | Explanation                                                                                                     |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------|
| ifTriggeringIndicationCellSwitch  | This IE shall be present if the <i>Triggering Indication</i> IE is set to the value "cell switch".              |
| ifTriggeringIndicationEarlyULSync | This IE shall be present if the <i>Triggering Indication</i> IE is set to the value "early UL synchronization". |
| ifTriggeringIndicationEarlyDLSync | This IE shall be present if the <i>Triggering Indication</i> IE is set to the value "early DL synchronization". |

| Range bound           | Explanation                                                                |
|-----------------------|----------------------------------------------------------------------------|
| maxnoofCandidateCells | Maximum no. of Cells configured towards one UE, the maximum value is 8.    |
| maxnoofSSBs           | Maximum no. of SSBs that can be served by a NG-RAN node cell. Value is 64. |

## 9.2.3 RRC Message Transfer messages

### 9.2.3.1 INITIAL UL RRC MESSAGE TRANSFER

This message is sent by the gNB-DU to transfer the initial layer 3 message to the gNB-CU over the F1 interface.

Direction: gNB-DU →gNB-CU

| IE/Group Name                  | Presence | Range | IE type and reference   | Semantics description                                                                                                                                                                                                            | Criticality | Assigned Criticality |
|--------------------------------|----------|-------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                   | M        |       | 9.3.1.1                 |                                                                                                                                                                                                                                  | YES         | ignore               |
| gNB-DU UE F1AP ID              | M        |       | 9.3.1.5                 |                                                                                                                                                                                                                                  | YES         | reject               |
| NR CGI                         | M        |       | 9.3.1.12                | NG-RAN Cell Global Identifier (NR CGI)                                                                                                                                                                                           | YES         | reject               |
| C-RNTI                         | M        |       | 9.3.1.32                | C-RNTI allocated at the gNB-DU                                                                                                                                                                                                   | YES         | reject               |
| RRC-Container                  | M        |       | 9.3.1.6                 | Includes the <i>UL-CCCH-Message</i> message or <i>UL-CCCH1-Message</i> message as defined in subclause 6.2 of TS 38.331 [8].                                                                                                     | YES         | reject               |
| DU to CU RRC Container         | O        |       | OCTET STRING            | Includes the <i>CellGroupConfig</i> IE as defined in subclause 6.3.2 in TS 38.331 [8]. Required at least to carry SRB1 configuration. The <i>ReconfigurationWithSync</i> field is not included in the <i>CellGroupConfig</i> IE. | YES         | reject               |
| SUL Access Indication          | O        |       | ENUMERATED (true, ...)  |                                                                                                                                                                                                                                  | YES         | ignore               |
| Transaction ID                 | M        |       | 9.3.1.23                |                                                                                                                                                                                                                                  | YES         | ignore               |
| RAN UE ID                      | O        |       | OCTET STRING (SIZE (8)) |                                                                                                                                                                                                                                  | YES         | ignore               |
| RRC-Container-RRCSetupComplete | O        |       | RRC-Container 9.3.1.6   | Includes the <i>UL-DCCH-Message</i> message including the <i>RRCSetupComplete</i> message, as defined in subclause 6.2 of TS 38.331 [8].                                                                                         | YES         | ignore               |
| NR RedCap UE Indication        | O        |       | ENUMERATED (true, ...)  |                                                                                                                                                                                                                                  | YES         | ignore               |
| SDT Information                | O        |       | 9.3.1.262               |                                                                                                                                                                                                                                  | YES         | ignore               |
| Sidelink Relay Configuration   | O        |       | 9.3.1.264               |                                                                                                                                                                                                                                  | YES         | ignore               |
| NR eRedCap UE Indication       | O        |       | ENUMERATED (true, ...)  |                                                                                                                                                                                                                                  | YES         | ignore               |

### 9.2.3.2 DL RRC MESSAGE TRANSFER

This message is sent by the gNB-CU to transfer the layer 3 message to the gNB-DU over the F1 interface.

Direction: gNB-CU →gNB-DU

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|---------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type  | M        |       | 9.3.1.1               |                       | YES         | ignore               |

| IE/Group Name                                     | Presence | Range | IE type and reference        | Semantics description                                                                                                                                                                                    | Criticality | Assigned Criticality |
|---------------------------------------------------|----------|-------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| gNB-CU UE F1AP ID                                 | M        |       | 9.3.1.4                      |                                                                                                                                                                                                          | YES         | reject               |
| gNB-DU UE F1AP ID                                 | M        |       | 9.3.1.5                      |                                                                                                                                                                                                          | YES         | reject               |
| old gNB-DU UE F1AP ID                             | O        |       | gNB-DU UE F1AP ID<br>9.3.1.5 |                                                                                                                                                                                                          | YES         | reject               |
| SRB ID                                            | M        |       | 9.3.1.7                      |                                                                                                                                                                                                          | YES         | reject               |
| Execute Duplication                               | O        |       | ENUMERATED (true, ...)       |                                                                                                                                                                                                          | YES         | ignore               |
| RRC-Container                                     | M        |       | 9.3.1.6                      | Includes the <i>DL-DCCH-Message</i> message as defined in subclause 6.2 of TS 38.331 [8] encapsulated in a PDCP PDU, or the <i>DL-CCCH-Message</i> message as defined in subclause 6.2 of TS 38.331 [8]. | YES         | reject               |
| RAT-Frequency Priority Information                | O        |       | 9.3.1.34                     |                                                                                                                                                                                                          | YES         | reject               |
| RRC Delivery Status Request                       | O        |       | ENUMERATED (true, ...)       | Indicates whether RRC DELIVERY REPORT procedure is requested for the RRC message.                                                                                                                        | YES         | ignore               |
| UE Context not retrievable                        | O        |       | ENUMERATED (true, ...)       |                                                                                                                                                                                                          | YES         | reject               |
| Redirected RRC message                            | O        |       | RRC-Container 9.3.1.6        | Includes the <i>UL-CCCH-Message</i> message as defined in subclause 6.2 of TS 38.331 [8].                                                                                                                | YES         | reject               |
| PLMN Assistance Info for Network Sharing          | O        |       | PLMN Identity 9.3.1.14       | This IE is ignored if the <i>PLMN Index NR Assistance Info for Network Sharing</i> IE is present.                                                                                                        | YES         | ignore               |
| New gNB-CU UE F1AP ID                             | O        |       | gNB-CU UE F1AP ID 9.3.1.4    |                                                                                                                                                                                                          | YES         | reject               |
| Additional RRM Policy Index                       | O        |       | 9.3.1.90                     |                                                                                                                                                                                                          | YES         | ignore               |
| SRB Mapping Info                                  | O        |       | Uu RLC Channel ID 9.3.1.266  | This IE contains the mapped Uu Relay RLC CH ID for the Remote UE's SRB0 or SRB1.                                                                                                                         | YES         | ignore               |
| PLMN Index NR Assistance Info for Network Sharing | O        |       | INTEGER (1..maxnoofBPLMNsNR) | Index of the PLMN or NPN in SIB1.                                                                                                                                                                        | YES         | ignore               |

| Range bound     | Explanation                                               |
|-----------------|-----------------------------------------------------------|
| maxnoofBPLMNsNR | Maximum no. of PLMN Ids.broadcast in a cell. Value is 12. |

### 9.2.3.3 UL RRC MESSAGE TRANSFER

This message is sent by the gNB-DU to transfer the layer 3 message to the gNB-CU over the F1 interface.

Direction: gNB-DU → gNB-CU

| IE/Group Name         | Presence | Range | IE type and reference        | Semantics description                                                                                                                                                                                                                                                    | Criticality | Assigned Criticality |
|-----------------------|----------|-------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type          | M        |       | 9.3.1.1                      |                                                                                                                                                                                                                                                                          | YES         | ignore               |
| gNB-CU UE F1AP ID     | M        |       | 9.3.1.4                      |                                                                                                                                                                                                                                                                          | YES         | reject               |
| gNB-DU UE F1AP ID     | M        |       | 9.3.1.5                      |                                                                                                                                                                                                                                                                          | YES         | reject               |
| SRB ID                | M        |       | 9.3.1.7                      |                                                                                                                                                                                                                                                                          | YES         | reject               |
| RRC-Container         | M        |       | 9.3.1.6                      | Includes the <i>UL-DCCH-Message</i> message as defined in subclause 6.2 of TS 38.331 [8], encapsulated in a PDCP PDU. In case of CG-SDT, may include the <i>UL-CCCH-Message</i> message or <i>UL-CCCH1-Message</i> message as defined in subclause 6.2 of TS 38.331 [8]. | YES         | reject               |
| Selected PLMN ID      | O        |       | PLMN Identity<br>9.3.1.14    |                                                                                                                                                                                                                                                                          | YES         | reject               |
| New gNB-DU UE F1AP ID | O        |       | gNB-DU UE F1AP ID<br>9.3.1.5 |                                                                                                                                                                                                                                                                          | YES         | reject               |

#### 9.2.3.4 RRC DELIVERY REPORT

This message is sent by the gNB-DU to inform the gNB-CU about the delivery status of DL RRC messages.

Direction: gNB-DU → gNB-CU

| IE/Group Name       | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|---------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type        | M        |       | 9.3.1.1               |                       | YES         | ignore               |
| gNB-CU UE F1AP ID   | M        |       | 9.3.1.4               |                       | YES         | reject               |
| gNB-DU UE F1AP ID   | M        |       | 9.3.1.5               |                       | YES         | reject               |
| RRC Delivery Status | M        |       | 9.3.1.71              |                       | YES         | ignore               |
| SRB ID              | M        |       | 9.3.1.7               |                       | YES         | ignore               |

### 9.2.4 Warning Message Transmission Messages

#### 9.2.4.1 WRITE-REPLACE WARNING REQUEST

This message is sent by the gNB-CU to request the start or overwrite of the broadcast of a warning message.

Direction: gNB-CU → gNB-DU

| IE/Group Name  | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|----------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type   | M        |       | 9.3.1.1               |                       | YES         | reject               |
| Transaction ID | M        |       | 9.3.1.23              |                       | YES         | reject               |
| PWS System     | M        |       | 9.3.1.58              | This IE includes      | YES         | reject               |

| IE/Group Name                  | Presence | Range                   | IE type and reference | Semantics description                                                   | Criticality | Assigned Criticality |
|--------------------------------|----------|-------------------------|-----------------------|-------------------------------------------------------------------------|-------------|----------------------|
| Information                    |          |                         |                       | the system information for public warning, as defined in TS 38.331 [8]. |             |                      |
| Repetition Period              | M        |                         | 9.3.1.59              |                                                                         | YES         | reject               |
| Number of Broadcasts Requested | M        |                         | 9.3.1.60              |                                                                         | YES         | reject               |
| Cell To Be Broadcast List      |          | 0..1                    |                       |                                                                         | YES         | reject               |
| >Cell to Be Broadcast Item IEs |          | 1..<br><maxCellingNBdu> |                       |                                                                         | EACH        | reject               |
| >>NR CGI                       | M        |                         | 9.3.1.12              |                                                                         | -           |                      |

| Range bound    | Explanation                                                     |
|----------------|-----------------------------------------------------------------|
| maxCellingNBdu | Maximum no. cells that can be served by a gNB-DU. Value is 512. |

#### 9.2.4.2 WRITE-REPLACE WARNING RESPONSE

This message is sent by the gNB-DU to acknowledge the gNB-CU on the start or overwrite request of a warning message.

Direction: gNB-DU → gNB-CU

| IE/Group Name                         | Presence | Range                   | IE type and reference | Semantics description                                           | Criticality | Assigned Criticality |
|---------------------------------------|----------|-------------------------|-----------------------|-----------------------------------------------------------------|-------------|----------------------|
| Message Type                          | M        |                         | 9.3.1.1               |                                                                 | YES         | reject               |
| Transaction ID                        | M        |                         | 9.3.1.23              |                                                                 | YES         | reject               |
| Cell Broadcast Completed List         |          | 0..1                    |                       |                                                                 | YES         | reject               |
| >Cell Broadcast Completed Item IEs    |          | 1..<br><maxCellingNBdu> |                       |                                                                 | EACH        | reject               |
| >>NR CGI                              | M        |                         | 9.3.1.12              |                                                                 | -           |                      |
| Criticality Diagnostics               | O        |                         | 9.3.1.3               |                                                                 | YES         | ignore               |
| Dedicated SI Delivery Needed UE List  |          | 0..1                    |                       | List of UEs unable to receive system information from broadcast | YES         | ignore               |
| >Dedicated SI Delivery Needed UE Item |          | 1..<br><maxnoofUEIDs>   |                       |                                                                 | EACH        | ignore               |
| >>gNB-CU UE F1AP ID                   | M        |                         | 9.3.1.4               |                                                                 | -           |                      |
| >>NR CGI                              | M        |                         | 9.3.1.12              |                                                                 | -           |                      |

| Range bound    | Explanation                                                     |
|----------------|-----------------------------------------------------------------|
| maxCellingNBdu | Maximum no. cells that can be served by a gNB-DU. Value is 512. |
| maxnoofUEIDs   | Maximum no. of UEs that can be served by a gNB-DU. Value is     |

65536.

### 9.2.4.3 PWS CANCEL REQUEST

This message is forwarded by the gNB-CU to gNB-DU to cancel an already ongoing broadcast of a warning message

Direction: gNB-CU → gNB-DU

| IE/Group Name                                      | Presence | Range                   | IE type and reference  | Semantics description                                                                  | Criticality | Assigned Criticality |
|----------------------------------------------------|----------|-------------------------|------------------------|----------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                                       | M        |                         | 9.3.1.1                |                                                                                        | YES         | reject               |
| Transaction ID                                     | M        |                         | 9.3.1.23               |                                                                                        | YES         | reject               |
| Number of Broadcasts Requested                     | M        |                         | 9.3.1.60               | This IE is not used in this version of the specification                               | YES         | reject               |
| <b>Cell Broadcast To Be Cancelled List</b>         |          | 0..1                    |                        |                                                                                        | YES         | reject               |
| <b>&gt;Cell Broadcast to Be Cancelled Item IEs</b> |          | 1..<br><maxCellingNBdu> |                        |                                                                                        | EACH        | reject               |
| >>NR CGI                                           | M        |                         | 9.3.1.12               |                                                                                        | -           |                      |
| Cancel-all Warning Messages Indicator              | O        |                         | ENUMERATED (true, ...) |                                                                                        | YES         | reject               |
| <b>Notification Information</b>                    | O        |                         |                        | This IE is ignored if the <i>Cancel-all Warning Messages Indicator</i> IE is included. | YES         | reject               |
| >Message Identifier                                | M        |                         | 9.3.1.81               |                                                                                        | -           |                      |
| >Serial Number                                     | M        |                         | 9.3.1.82               |                                                                                        | -           |                      |

| Range bound    | Explanation                                                     |
|----------------|-----------------------------------------------------------------|
| maxCellingNBdu | Maximum no. cells that can be served by a gNB-DU. Value is 512. |

### 9.2.4.4 PWS CANCEL RESPONSE

This message is sent by the gNB-DU to indicate the list of warning areas where cancellation of the broadcast of the identified message was successful and unsuccessful.

Direction: gNB-DU → gNB-CU

| IE/Group Name                                | Presence | Range                   | IE type and reference | Semantics description                                       | Criticality | Assigned Criticality |
|----------------------------------------------|----------|-------------------------|-----------------------|-------------------------------------------------------------|-------------|----------------------|
| Message Type                                 | M        |                         | 9.3.1.1               |                                                             | YES         | reject               |
| Transaction ID                               | M        |                         | 9.3.1.23              |                                                             | YES         | reject               |
| <b>Cell Broadcast Cancelled List</b>         |          | 0..1                    |                       |                                                             | YES         | reject               |
| <b>&gt;Cell Broadcast Cancelled Item IEs</b> |          | 1..<br><maxCellingNBdu> |                       |                                                             | EACH        | reject               |
| >>NR CGI                                     | M        |                         | 9.3.1.12              |                                                             | -           |                      |
| >>Number of Broadcasts                       | M        |                         | INTEGER (0..65535)    | This IE is set to '0' if valid results are not known or not | -           |                      |

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description                                                 | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------------------------------------------------------|-------------|----------------------|
|                         |          |       |                       | available. It is set to 65535 if the counter results have overflowed. |             |                      |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                                                                       | YES         | ignore               |

| Range bound    | Explanation                                                        |
|----------------|--------------------------------------------------------------------|
| maxCellingNBDU | Maximum no. of cells that can be served by a gNB-DU. Value is 512. |

### 9.2.4.5 PWS RESTART INDICATION

This message is sent by the gNB-DU to inform the gNB-CU that PWS information for some or all cells of the gNB-DU are available if needed.

Direction: gNB-DU → gNB-CU

| IE/Group Name                     | Presence | Range               | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-----------------------------------|----------|---------------------|-----------------------|-----------------------|-------------|----------------------|
| Message Type                      | M        |                     | 9.3.1.1               |                       | YES         | ignore               |
| Transaction ID                    | M        |                     | 9.3.1.23              |                       | YES         | reject               |
| NR CGI List for Restart List      |          | 1                   |                       |                       | YES         | reject               |
| >NR CGI List for Restart Item IEs |          | 1..<maxCellingNBDU> |                       |                       | EACH        | reject               |
| >>NR CGI                          | M        |                     | 9.3.1.12              |                       | -           |                      |

| Range bound    | Explanation                                                        |
|----------------|--------------------------------------------------------------------|
| maxCellingNBDU | Maximum no. of cells that can be served by a gNB-DU. Value is 512. |

### 9.2.4.6 PWS FAILURE INDICATION

This message is sent by the gNB-DU to inform the gNB-CU that ongoing PWS operation for one or more cells of the gNB-DU has failed.

Direction: gNB-DU → gNB-CU

| IE/Group Name               | Presence | Range               | IE type and reference | Semantics description                                    | Criticality | Assigned Criticality |
|-----------------------------|----------|---------------------|-----------------------|----------------------------------------------------------|-------------|----------------------|
| Message Type                | M        |                     | 9.3.1.1               |                                                          | YES         | ignore               |
| Transaction ID              | M        |                     | 9.3.1.23              |                                                          | YES         | reject               |
| PWS failed NR CGI List      |          | 0..1                |                       |                                                          | YES         | reject               |
| >PWS failed NR CGI Item IEs |          | 1..<maxCellingNBDU> |                       |                                                          | EACH        | reject               |
| >>NR CGI                    | M        |                     | 9.3.1.12              |                                                          | -           |                      |
| >>Number of Broadcasts      | M        |                     | INTEGER (0..65535)    | This IE is not used in the specification and is ignored. | -           |                      |



| Range bound    | Explanation                                                        |
|----------------|--------------------------------------------------------------------|
| maxCellingNBDU | Maximum no. of cells that can be served by a gNB-DU. Value is 512. |

## 9.2.5 System Information messages

### 9.2.5.1 SYSTEM INFORMATION DELIVERY COMMAND

This message is sent by the gNB-CU and is used to request the gNB-DU to broadcast the requested *SystemInformation* messages including the Other SI.

Direction: gNB-CU → gNB-DU

| IE/Group Name   | Presence | Range | IE type and reference        | Semantics description | Criticality | Assigned Criticality |
|-----------------|----------|-------|------------------------------|-----------------------|-------------|----------------------|
| Message Type    | M        |       | 9.3.1.1                      |                       | YES         | ignore               |
| Transaction ID  | M        |       | 9.3.1.23                     |                       | YES         | reject               |
| NR CGI          | M        |       | 9.3.1.12                     | NR cell identifier    | YES         | reject               |
| SIType List     | M        |       | 9.3.1.62                     |                       | YES         | reject               |
| Confirmed UE ID | M        |       | gNB-DU UE F1AP ID<br>9.3.1.5 |                       | YES         | reject               |

## 9.2.6 Paging messages

### 9.2.6.1 PAGING

This message is sent by the gNB-CU and is used to request the gNB-DU to page UEs.

Direction: gNB-CU → gNB-DU

| IE/Group Name                        | Presence | Range                            | IE type and reference     | Semantics description                                                           | Criticality | Assigned Criticality |
|--------------------------------------|----------|----------------------------------|---------------------------|---------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                         | M        |                                  | 9.3.1.1                   |                                                                                 | YES         | ignore               |
| UE Identity Index value              | M        |                                  | 9.3.1.39                  |                                                                                 | YES         | reject               |
| CHOICE <i>Paging Identity</i>        | M        |                                  |                           |                                                                                 | YES         | reject               |
| >RAN UE <i>Paging identity</i>       |          |                                  |                           |                                                                                 |             |                      |
| >>RAN UE <i>Paging identity</i>      | M        |                                  | 9.3.1.43                  |                                                                                 | -           |                      |
| >CN UE <i>paging identity</i>        |          |                                  |                           |                                                                                 |             |                      |
| >>CN UE <i>paging identity</i>       | M        |                                  | 9.3.1.44                  |                                                                                 | -           |                      |
| Paging DRX                           | O        |                                  | 9.3.1.40                  | It is defined as the minimum between the RAN UE Paging DRX and CN UE Paging DRX | YES         | ignore               |
| Paging Priority                      | O        |                                  | 9.3.1.41                  |                                                                                 | YES         | ignore               |
| <b>Paging Cell List</b>              |          | <b>1</b>                         |                           |                                                                                 | YES         | ignore               |
| >Paging Cell Item IEs                |          | 1 ..<br><maxnoof<br>PagingCells> |                           |                                                                                 | EACH        | ignore               |
| >>NR CGI                             | M        |                                  | 9.3.1.12                  |                                                                                 | -           |                      |
| >>Last Used Cell Indication          | O        |                                  | ENUMERATED<br>(true, ...) |                                                                                 | YES         | ignore               |
| >>PEI Subgrouping Support Indication | O        |                                  | ENUMERATED<br>(true, ...) |                                                                                 | YES         | ignore               |
| >>Recommended                        |          | 0 .. 1                           |                           |                                                                                 | YES         | ignore               |

| IE/Group Name                                    | Presence | Range                    | IE type and reference   | Semantics description                                                        | Criticality | Assigned Criticality |
|--------------------------------------------------|----------|--------------------------|-------------------------|------------------------------------------------------------------------------|-------------|----------------------|
| <b>SSBs List</b>                                 |          |                          |                         |                                                                              |             |                      |
| >>>Recommended SSBs List Item                    |          | 1 .. < maxnoofSSBAreas > |                         |                                                                              | YES         | ignore               |
| >>>>SSB Index                                    | M        |                          | INTEGER (0..63)         | Identifier of the recommended SSB beam for paging.                           | -           |                      |
| Paging Origin                                    | O        |                          | 9.3.1.79                |                                                                              | YES         | ignore               |
| RAN UE Paging DRX                                | O        |                          | Paging DRX 9.3.1.40     | This IE indicates the RAN paging cycle as defined in TS 38.304 [24].         | YES         | ignore               |
| CN UE Paging DRX                                 | O        |                          | Paging DRX 9.3.1.40     | This IE indicates the UE specific paging cycle as defined in TS 38.304 [24]. | YES         | ignore               |
| NR Paging eDRX Information                       | O        |                          | 9.3.1.258               |                                                                              | YES         | ignore               |
| NR Paging eDRX Information for RRC INACTIVE      | O        |                          | 9.3.1.259               |                                                                              | YES         | ignore               |
| Paging Cause                                     | O        |                          | ENUMERATED (voice, ...) | This IE indicates the paging cause is IMS voice, refer to TS 23.501[21].     | YES         | ignore               |
| PEIPS Assistance Information                     | O        |                          | 9.3.1.269               |                                                                              | YES         | ignore               |
| UE Paging Capability                             | O        |                          | 9.3.1.270               |                                                                              | YES         | ignore               |
| Extended UE Identity Index Value                 | O        |                          | 9.3.1.285               |                                                                              | YES         | ignore               |
| Hashed UE Identity Index Value                   | O        |                          | 9.3.1.286               |                                                                              | YES         | ignore               |
| MT-SDT Information                               | O        |                          | 9.3.1.289               |                                                                              | YES         | ignore               |
| NR Paging Long eDRX Information for RRC INACTIVE | O        |                          | 9.3.1.325               |                                                                              | YES         | ignore               |

| Range bound        | Explanation                                                      |
|--------------------|------------------------------------------------------------------|
| maxnoofPagingCells | Maximum no. of paging cells, the maximum value is 512.           |
| maxnoofSSBAreas    | Maximum no. SSB Areas that can be served by a cell. Value is 64. |

## 9.2.7 Trace Messages

### 9.2.7.1 TRACE START

This message is sent by the gNB-CU to initiate a trace session for a UE.

Direction: gNB-CU → gNB-DU

| IE/Group Name     | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type      | M        |       | 9.3.1.1               |                       | YES         | ignore               |
| gNB-CU UE F1AP ID | M        |       | 9.3.1.4               |                       | YES         | reject               |
| gNB-DU UE F1AP ID | M        |       | 9.3.1.5               |                       | YES         | reject               |
| Trace Activation  | M        |       | 9.3.1.88              |                       | YES         | ignore               |

### 9.2.7.2 DEACTIVATE TRACE

This message is sent by the gNB-CU to deactivate a trace session.

Direction: gNB-CU → gNB-DU

| IE/Group Name     | Presence | Range | IE type and reference  | Semantics description                         | Criticality | Assigned Criticality |
|-------------------|----------|-------|------------------------|-----------------------------------------------|-------------|----------------------|
| Message Type      | M        |       | 9.3.1.1                |                                               | YES         | ignore               |
| gNB-CU UE F1AP ID | M        |       | 9.3.1.4                |                                               | YES         | reject               |
| gNB-DU UE F1AP ID | M        |       | 9.3.1.5                |                                               | YES         | reject               |
| Trace ID          | M        |       | OCTET STRING (SIZE(8)) | As per Trace ID in <i>Trace Activation</i> IE | YES         | ignore               |

### 9.2.7.3 CELL TRAFFIC TRACE

This message is sent by the gNB-DU to transfer trace specific information.

Direction: gNB-DU → gNB-CU

| IE/Group Name                      | Presence | Range | IE type and reference                       | Semantics description                                                                                                                                                                                                                  | Criticality | Assigned Criticality |
|------------------------------------|----------|-------|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                       | M        |       | 9.3.1.1                                     |                                                                                                                                                                                                                                        | YES         | ignore               |
| gNB-CU UE F1AP ID                  | M        |       | 9.3.1.4                                     |                                                                                                                                                                                                                                        | YES         | reject               |
| gNB-DU UE F1AP ID                  | M        |       | 9.3.1.5                                     |                                                                                                                                                                                                                                        | YES         | reject               |
| Trace ID                           | M        |       | OCTET STRING (SIZE(8))                      | This IE is composed of the following:<br>Trace Reference defined in TS 32.422 [29] (leftmost 6 octets, with PLMN information encoded as in 9.3.1.14), and Trace Recording Session Reference defined in TS 32.422 [29] (last 2 octets). | YES         | ignore               |
| Trace Collection Entity IP Address | M        |       | Transport Layer Address 9.3.2.3             | For File based Reporting. Defined in TS 32.422 [29]. Should be ignored if URI is present                                                                                                                                               | YES         | ignore               |
| Privacy Indicator                  | O        |       | ENUMERATED (Immediate MDT, Logged MDT, ...) |                                                                                                                                                                                                                                        | YES         | ignore               |
| Trace Collection Entity URI        | O        |       | URI 9.3.2.6                                 | For Streaming based Reporting. Defined in TS 32.422 [29] Replaces Trace Collection Entity IP Address if present                                                                                                                        | YES         | ignore               |

## 9.2.8 Radio Information Transfer messages

### 9.2.8.1 DU-CU RADIO INFORMATION TRANSFER

This message is sent by a gNB-DU to a gNB-CU, to convey radio-related information.

Direction: gNB-DU → gNB-CU.

| IE/Group Name                       | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type                        | M        |       | 9.3.1.1               |                       | YES         | ignore               |
| Transaction ID                      | M        |       | 9.3.1.23              |                       | YES         | reject               |
| CHOICE DU-CU Radio Information Type | M        |       |                       |                       | YES         | ignore               |
| >RIM                                |          |       |                       |                       |             |                      |
| >>DU-CU RIM Information             | M        |       | 9.3.1.91              |                       | -           |                      |

## 9.2.8.2 CU-DU RADIO INFORMATION TRANSFER

This message is sent by a gNB-CU to a gNB-DU, to convey radio-related information.

Direction: gNB-CU → gNB-DU.

| IE/Group Name                       | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type                        | M        |       | 9.3.1.1               |                       | YES         | ignore               |
| Transaction ID                      | M        |       | 9.3.1.23              |                       | YES         | reject               |
| CHOICE CU-DU Radio Information Type | M        |       |                       |                       | YES         | ignore               |
| >RIM                                |          |       |                       |                       |             |                      |
| >>CU-DU RIM Information             | M        |       | 9.3.1.92              |                       | -           |                      |

## 9.2.9 IAB messages

### 9.2.9.1 BAP MAPPING CONFIGURATION

This message is sent by the gNB-CU to provide the backhaul routing information and/or traffic mapping information to the gNB-DU.

Direction: gNB-CU → gNB-DU

| IE/Group Name                                     | Presence | Range                                  | IE type and reference     | Semantics description                                                                                                       | Criticality | Assigned Criticality |
|---------------------------------------------------|----------|----------------------------------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                                      | M        |                                        | 9.3.1.1                   |                                                                                                                             | YES         | reject               |
| Transaction ID                                    | M        |                                        | 9.3.1.23                  |                                                                                                                             | YES         | reject               |
| BH Routing Information Added List                 |          | 0...1                                  |                           |                                                                                                                             | YES         | ignore               |
| >BH Routing Information Added List Item           |          | 1..<br><maxnoof<br>RoutingEn<br>tries> |                           |                                                                                                                             | EACH        | ignore               |
| >>BAP Routing ID                                  | M        |                                        | 9.3.1.110                 |                                                                                                                             | -           |                      |
| >>Next-Hop BAP Address                            | M        |                                        | BAP Address<br>9.3.1.111  | Indicates the BAP address of the next hop IAB-node or IAB-donor-DU.                                                         | -           |                      |
| >>Non-F1-Terminating IAB-donor Topology Indicator | O        |                                        | ENUMERATED<br>(true, ...) | If present, indicates that the routing entry applies to the non-F1-terminating IAB-donor topology of the boundary IAB-node. | YES         | ignore               |
| BH Routing                                        |          | 0...1                                  |                           |                                                                                                                             | YES         | ignore               |

| IE/Group Name                                       | Presence | Range                                  | IE type and reference              | Semantics description                                                                                                                                                          | Criticality | Assigned Criticality |
|-----------------------------------------------------|----------|----------------------------------------|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| <b>Information Removed List</b>                     |          |                                        |                                    |                                                                                                                                                                                |             |                      |
| <b>&gt;BH Routing Information Removed List Item</b> |          | 1..<br><maxnoof<br>RoutingEn<br>tries> |                                    |                                                                                                                                                                                | EACH        | ignore               |
| >>BAP Routing ID                                    | M        |                                        | 9.3.1.110                          |                                                                                                                                                                                | -           |                      |
| Traffic Mapping Information                         | O        |                                        | 9.3.1.95                           |                                                                                                                                                                                | YES         | ignore               |
| Buffer Size Threshold                               | O        |                                        | INTEGER<br>(0..2 <sup>24</sup> -1) | The buffer size threshold (in kilobytes) for DL local rerouting, triggered by hop-by-hop flow control feedback.                                                                | YES         | ignore               |
| <b>BAP Header Rewriting Added List</b>              |          | 0...1                                  |                                    |                                                                                                                                                                                | YES         | ignore               |
| <b>&gt;BAP Header Rewriting Added List Item</b>     |          | 1..<br><maxnoof<br>RoutingEn<br>tries> |                                    |                                                                                                                                                                                | EACH        | ignore               |
| >>Ingress BAP Routing ID                            | M        |                                        | BAP Routing ID<br>9.3.1.110        |                                                                                                                                                                                | -           |                      |
| >>Egress BAP Routing ID                             | M        |                                        | BAP Routing ID<br>9.3.1.110        |                                                                                                                                                                                | -           |                      |
| >>Non-F1-terminating IAB-donor Topology Indicator   | O        |                                        | ENUMERATED<br>(true, ...)          | If present, indicates that the egress BAP Routing ID in the present BAP header rewriting entry pertains to the non-F1-terminating IAB-donor topology of the boundary IAB-node. | -           |                      |
| Re-routing Enable Indicator                         | O        |                                        | ENUMERATED<br>(true, false, ...)   |                                                                                                                                                                                | YES         | ignore               |
| <b>BAP Header Rewriting Removed List</b>            |          | 0...1                                  |                                    |                                                                                                                                                                                | YES         | ignore               |
| <b>&gt;BAP Header Rewriting Removed List Item</b>   |          | 1..<br><maxnoof<br>RoutingEn<br>tries> |                                    |                                                                                                                                                                                | EACH        | ignore               |
| >>Ingress BAP Routing ID                            | M        |                                        | BAP Routing ID<br>9.3.1.110        |                                                                                                                                                                                | -           |                      |

| Range bound           | Explanation                                                |
|-----------------------|------------------------------------------------------------|
| maxnoofRoutingEntries | Maximum no. of routing entries, the maximum value is 1024. |

### 9.2.9.2 BAP MAPPING CONFIGURATION ACKNOWLEDGE

This message is sent by the gNB-DU as a response to a BAP MAPPING CONFIGURATION message.

Direction: gNB-DU → gNB-CU

| IE/Group Name  | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|----------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type   | M        |       | 9.3.1.1               |                       | YES         | reject               |
| Transaction ID | M        |       | 9.3.1.23              |                       | YES         | reject               |

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.9.2A BAP MAPPING CONFIGURATION FAILURE

This message is sent by the gNB-DU to indicate a BAP Mapping Configuration Update failure.

Direction: gNB-DU → gNB-CU

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| Transaction ID          | M        |       | 9.3.1.23              |                       | YES         | reject               |
| Cause                   | M        |       | 9.3.1.2               |                       | YES         | ignore               |
| Time to wait            | O        |       | 9.3.1.13              |                       | YES         | ignore               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.9.3 GNB-DU RESOURCE CONFIGURATION

This message is sent by the gNB-CU to provide the resource configuration for an gNB-DU.

Direction: gNB-CU → gNB-DU

| IE/Group Name                                      | Presence | Range                                | IE type and reference | Semantics description                                                                                                                                                                                                                                                                 | Criticality | Assigned Criticality |
|----------------------------------------------------|----------|--------------------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                                       | M        |                                      | 9.3.1.1               |                                                                                                                                                                                                                                                                                       | YES         | reject               |
| Transaction ID                                     | M        |                                      | 9.3.1.23              |                                                                                                                                                                                                                                                                                       | YES         | reject               |
| <b>Activated Cells to Be Updated List</b>          |          | 0..1                                 |                       | List of activated cells served by the IAB-DU or the IAB-donor-DU whose resource configuration is updated                                                                                                                                                                              | YES         | reject               |
| <b>&gt;Activated Cells To Be Updated List Item</b> |          | 1 ..<br><maxnoof ServedCel<br>IsIAB> |                       |                                                                                                                                                                                                                                                                                       | EACH        | reject               |
| >>NR CGI                                           | M        |                                      | 9.3.1.12              |                                                                                                                                                                                                                                                                                       | -           |                      |
| >>IAB-DU Cell Resource Configuration-Mode-Info     | M        |                                      | 9.3.1.279             | In the current version of this specification, for FDD, this IE only contains the <i>gNB-DU Cell Resource Configuration-FDD-UL</i> IE and the <i>gNB-DU Cell Resource Configuration-FDD-DL</i> IE, for TDD, this IE only contains the <i>gNB-DU Cell Resource Configuration-TDD</i> IE | -           |                      |
| <b>Child-Nodes List</b>                            |          | 0..1                                 |                       | List of child IAB-nodes served by the IAB-DU or IAB-donor-DU.                                                                                                                                                                                                                         | YES         | reject               |
| <b>&gt;Child-Nodes List</b>                        |          | 1 ..                                 |                       |                                                                                                                                                                                                                                                                                       | EACH        | reject               |

| IE/Group Name                                    | Presence | Range                                       | IE type and reference | Semantics description                                                                                                                             | Criticality | Assigned Criticality |
|--------------------------------------------------|----------|---------------------------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| <b>Item</b>                                      |          | <i>&lt;maxnoof ChildIABNodes&gt;</i>        |                       |                                                                                                                                                   |             |                      |
| >>gNB-CU UE F1AP ID                              | M        |                                             | 9.3.1.4               | Identifier of a descendant node IAB-MT at the IAB-donor-CU.                                                                                       | YES         | reject               |
| >>gNB-DU UE F1AP ID                              | M        |                                             | 9.3.1.5               | Identifier of a child-node IAB-MT at an IAB-DU or IAB-donor-DU.                                                                                   | YES         | reject               |
| >>Child-Node Cells List                          |          | 0..1                                        |                       | List of cells served by the child-node IAB-DU whose resource configuration is updated.                                                            | YES         | reject               |
| >>>Child-Node Cells List Item                    |          | 1 .. <i>&lt;maxnoof ServedCellsIAB &gt;</i> |                       |                                                                                                                                                   | EACH        | reject               |
| >>>>NR CGI                                       | M        |                                             | 9.3.1.12              |                                                                                                                                                   | -           |                      |
| >>>>IAB-DU Cell Resource Configuration-Mode-Info | O        |                                             | 9.3.1.279             |                                                                                                                                                   | -           |                      |
| >>>>IAB STC Info                                 | O        |                                             | 9.3.1.109             | STC configuration of child-node IAB-DU's cell.                                                                                                    | -           |                      |
| >>>>RACH Config Common                           | O        |                                             | OCTET STRING          | Includes the <i>rach-ConfigCommon</i> contained in the <i>BWP-UplinkCommon</i> IE as defined in subclause 6.3.2 of TS 38.331 [8].                 | -           |                      |
| >>>>RACH Config Common IAB                       | O        |                                             | OCTET STRING          | Includes the IAB-specific <i>rach-ConfigCommonIAB</i> contained in the <i>BWP-UplinkCommon</i> IE as defined in subclause 6.3.2 of TS 38.331 [8]. | -           |                      |
| >>>>CSI-RS Configuration                         | O        |                                             | OCTET STRING          | Includes the <i>NZP-CSI-RS-Resource</i> IE as defined in subclause 6.3.2 of TS 38.331 [8].                                                        | -           |                      |
| >>>>SR Configuration                             | O        |                                             | OCTET STRING          | Includes the <i>SchedulingRequestResourceConfig</i> IE as defined in subclause 6.3.2 of TS 38.331 [8].                                            | -           |                      |
| >>>>PDCCH Configuration SIB1                     | O        |                                             | OCTET STRING          | Includes the <i>PDCCH-ConfigSIB1</i> IE as defined in subclause 6.3.2 of TS 38.331 [8].                                                           | -           |                      |
| >>>>SCS Common                                   | O        |                                             | OCTET STRING          | Includes the <i>subCarrierSpacingCommon</i>                                                                                                       | -           |                      |

| IE/Group Name                                  | Presence | Range                               | IE type and reference  | Semantics description                                                                                                                                                                                        | Criticality | Assigned Criticality |
|------------------------------------------------|----------|-------------------------------------|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                                                |          |                                     |                        | contained in the <i>MIB</i> message as defined in subclause 6.2.2 of TS 38.331 [8].                                                                                                                          |             |                      |
| >>>>Multiplexing Info                          | O        |                                     | 9.3.1.108              | Contains information on multiplexing with cells configured for co-located IAB-MT.                                                                                                                            | -           |                      |
| <b>Neighbour-Node Cells List</b>               |          | 0..1                                |                        | List of neighbor node cells.                                                                                                                                                                                 | YES         | reject               |
| <b>&gt;Neighbour-Node Cells List Item</b>      |          | 1 .. <maxnoofNeighbourNodeCellsIAB> |                        |                                                                                                                                                                                                              | EACH        | reject               |
| >>NR CGI                                       | M        |                                     | 9.3.1.12               |                                                                                                                                                                                                              | -           |                      |
| >>gNB-CU UE F1AP ID                            | O        |                                     | 9.3.1.4                | Identifier of a child-node IAB-MT at an IAB-donor-CU.                                                                                                                                                        | -           |                      |
| >>gNB-DU UE F1AP ID                            | O        |                                     | 9.3.1.5                | Identifier of a child-node IAB-MT at an IAB-DU or IAB-donor-DU.                                                                                                                                              | -           |                      |
| >>Peer Parent-Node Indicator                   | O        |                                     | ENUMERATED (true, ...) | Indicates if the cell belongs to the peer parent IAB-node of the dual connected IAB-node.                                                                                                                    | -           |                      |
| >>IAB-DU Cell Resource Configuration-Mode-Info | O        |                                     | 9.3.1.279              |                                                                                                                                                                                                              | -           |                      |
| >>IAB STC Info                                 | O        |                                     | 9.3.1.109              | STC configuration of peer parent-node IAB-DU's cell.                                                                                                                                                         | -           |                      |
| >>RACH Config Common                           | O        |                                     | OCTET STRING           | Common RACH Configuration of peer parent node IAB-DU's cell. Includes the <i>rach-ConfigCommon</i> contained in the <i>BWP-UplinkCommon</i> IE as defined in subclause 6.3.2 of TS 38.331 [8].               | -           |                      |
| >>RACH Config Common IAB                       | O        |                                     | OCTET STRING           | IAB specific common RACH Configuration of peer parent node IAB-DU's cell. Includes the IAB-specific <i>rach-ConfigCommonIAB</i> contained in the <i>BWP-UplinkCommon</i> IE as defined in subclause 6.3.2 of | -           |                      |



| IE/Group Name                                            | Presence | Range                      | IE type and reference                        | Semantics description                                                                                                                                                         | Criticality | Assigned Criticality |
|----------------------------------------------------------|----------|----------------------------|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                                                          |          |                            |                                              | TS 38.331 [8].                                                                                                                                                                |             |                      |
| >>CSI-RS Configuration                                   | O        |                            | OCTET STRING                                 | CSI-RS configuration of peer parent node IAB-DU's cell. Includes the <i>NZP-CSI-RS-Resource</i> as defined in subclause 6.3.2 of TS 38.331 [8].                               | -           |                      |
| >>SR Configuration                                       | O        |                            | OCTET STRING                                 | SR configuration of peer parent node IAB-DU's cell. Includes the <i>SchedulingRequestResourceConfig</i> IE as defined in subclause 6.3.2 of TS 38.331 [8].                    | -           |                      |
| >>PDCCH Configuration SIB1                               | O        |                            | OCTET STRING                                 | PDCCH configuration SIB1 of peer parent node IAB-DU's cell. Includes the <i>PDCCH-ConfigSIB1</i> IE as defined in subclause 6.3.2 of TS 38.331 [8].                           | -           |                      |
| >>SCS Common                                             | O        |                            | OCTET STRING                                 | SCS Common of peer parent node IAB-DU's cell. Includes the <i>subCarrierSpacingCommon</i> contained in the <i>MIB</i> message as defined in subclause 6.2.2 of TS 38.331 [8]. | -           |                      |
| <b>Serving Cells List</b>                                |          | 0..1                       |                                              | List of serving cells of the co-located IAB-MT.                                                                                                                               | YES         | reject               |
| <b>&gt;Serving Cells List Item</b>                       |          | 1 .. <maxnoofServingCells> |                                              |                                                                                                                                                                               | EACH        | reject               |
| >>NR CGI                                                 | M        |                            | 9.3.1.12                                     |                                                                                                                                                                               | -           |                      |
| >>CHOICE IAB-MT Cell NA Resource Configuration-Mode-Info | O        |                            |                                              |                                                                                                                                                                               | -           |                      |
| >>>FDD                                                   |          |                            |                                              |                                                                                                                                                                               |             |                      |
| >>>>FDD Info                                             |          | 1                          |                                              |                                                                                                                                                                               | -           |                      |
| >>>>gNB-DU Cell NA Resource Configuration-FDD-UL         | M        |                            | gNB-DU Cell Resource Configuration 9.3.1.107 | Contains FDD UL NA resource configuration of parent IAB-node's cell for the co-located IAB-MT.                                                                                | -           |                      |
| >>>>gNB-DU Cell NA Resource Configuration-FDD-DL         | M        |                            | gNB-DU Cell Resource Configuration 9.3.1.107 | Contains FDD DL NA resource configuration of parent IAB-node's cell for the co-                                                                                               | -           |                      |

| IE/Group Name                                  | Presence | Range | IE type and reference                           | Semantics description                                                                       | Criticality | Assigned Criticality |
|------------------------------------------------|----------|-------|-------------------------------------------------|---------------------------------------------------------------------------------------------|-------------|----------------------|
|                                                |          |       |                                                 | located IAB-MT.                                                                             |             |                      |
| >>>>>UL Frequency Info                         | O        |       | NR Frequency Info<br>9.3.1.17                   |                                                                                             | -           |                      |
| >>>>>UL Transmission Bandwidth                 | O        |       | Transmission Bandwidth<br>9.3.1.15              |                                                                                             | -           |                      |
| >>>>>UL Carrier List                           | O        |       | NR Carrier List<br>9.3.1.137                    | If included, the <i>UL Transmission Bandwidth</i> IE shall be ignored.                      | -           |                      |
| >>>>>DL Frequency Info                         | O        |       | NR Frequency Info<br>9.3.1.17                   |                                                                                             | -           |                      |
| >>>>>DL Transmission Bandwidth                 | O        |       | Transmission Bandwidth<br>9.3.1.15              |                                                                                             | -           |                      |
| >>>>>DL Carrier List                           | O        |       | NR Carrier List<br>9.3.1.137                    | If included, the <i>DL Transmission Bandwidth</i> IE shall be ignored.                      | -           |                      |
| >>>TDD                                         |          |       |                                                 |                                                                                             | -           |                      |
| >>>>TDD Info                                   |          | 1     |                                                 |                                                                                             | -           |                      |
| >>>>>gNB-DU Cell NA Resource Configuration-TDD | M        |       | gNB-DU Cell Resource Configuration<br>9.3.1.107 | Contains TDD NA resource configuration of parent IAB-node's cell for the co-located IAB-MT. | -           |                      |
| >>>>>NR Frequency Info                         | O        |       | 9.3.1.17                                        |                                                                                             | -           |                      |
| >>>>>Transmission Bandwidth                    | O        |       | 9.3.1.15                                        |                                                                                             | -           |                      |
| >>>>>Carrier List                              | O        |       | NR Carrier List<br>9.3.1.137                    | If included, the <i>Transmission Bandwidth</i> IE shall be ignored.                         | -           |                      |

| Range bound                  | Explanation                                                                       |
|------------------------------|-----------------------------------------------------------------------------------|
| maxnoofChildIABNodes         | Maximum number of child nodes served by an IAB-DU or IAB-donor-DU. Value is 1024. |
| maxnoofServedCellsIAB        | Maximum number of cells served by an IAB-DU or IAB-donor-DU. Value is 512.        |
| maxnoofNeighbourNodeCellsIAB | Maximum no. of neighbour cells. Value is 1024.                                    |
| MaxnoofServingCells          | Maximum no. of serving cells for IAB-MT. Value is 32                              |

#### 9.2.9.4 GNB-DU RESOURCE CONFIGURATION ACKNOWLEDGE

This message is sent by the gNB-DU to acknowledge the reception of an GNB-DU RESOURCE CONFIGURATION message.

Direction: gNB-DU → gNB-CU

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| Transaction ID          | M        |       | 9.3.1.23              |                       | YES         | reject               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

#### 9.2.9.4A GNB-DU RESOURCE CONFIGURATION FAILURE

This message is sent by the gNB-DU to indicate a gNB-DU Resource Configuration Update failure.

Direction: gNB-DU → gNB-CU

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| Transaction ID          | M        |       | 9.3.1.23              |                       | YES         | reject               |
| Cause                   | M        |       | 9.3.1.2               |                       | YES         | ignore               |
| Time to wait            | O        |       | 9.3.1.13              |                       | YES         | ignore               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.9.5 IAB TNL ADDRESS REQUEST

This message is sent by the gNB-CU to request the allocation of IP addresses for IAB-node(s).

Direction: gNB-CU → gNB-DU.

| IE/Group Name                         | Presence | Range                | IE type and reference                 | Semantics description | Criticality | Assigned Criticality |
|---------------------------------------|----------|----------------------|---------------------------------------|-----------------------|-------------|----------------------|
| Message Type                          | M        |                      | 9.3.1.1                               |                       | YES         | reject               |
| Transaction ID                        | M        |                      | 9.3.1.23                              |                       | YES         | reject               |
| IAB IPv4 Addresses Requested          | O        |                      | IAB TNL Addresses Requested 9.3.1.101 |                       | YES         | reject               |
| CHOICE <i>IAB IPv6 Request Type</i>   | O        |                      |                                       |                       | YES         | reject               |
| >IPv6 Address                         |          |                      |                                       |                       | -           |                      |
| >>IAB IPv6 Addresses Requested        | M        |                      | IAB TNL Addresses Requested 9.3.1.101 |                       | -           |                      |
| >IPv6 Prefix                          |          |                      |                                       |                       | -           |                      |
| >>IAB IPv6 Address Prefixes Requested | M        |                      | IAB TNL Addresses Requested 9.3.1.101 |                       | -           |                      |
| IAB TNL Addresses To Remove List      |          | 0..1                 |                                       |                       | YES         | reject               |
| >IAB TNL Addresses To Remove Item     |          | 1..<maxno ofTLAsIAB> |                                       |                       | EACH        | reject               |
| >>IAB TNL Address                     | M        |                      | 9.3.1.102                             |                       | -           |                      |
| IAB TNL Address Exception             | O        |                      | 9.3.1.229                             |                       | YES         | reject               |

| Range bound    | Explanation                                                                                                                                 |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| maxnoofTLAsIAB | Maximum no. of individual IPv4/IPv6 addresses or IPv6 address prefixes that can be allocated in one procedure execution. The value is 1024. |

### 9.2.9.6 IAB TNL ADDRESS RESPONSE

This message is sent by the gNB-DU to indicate the TNL addresses allocated to IAB-node(s).

Direction: gNB-DU → gNB-CU.

| IE/Group Name  | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|----------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type   | M        |       | 9.3.1.1               |                       | YES         | reject               |
| Transaction ID | M        |       | 9.3.1.23              |                       | YES         | reject               |

| IE/Group Name                   | Presence | Range                | IE type and reference                | Semantics description                                                   | Criticality | Assigned Criticality |
|---------------------------------|----------|----------------------|--------------------------------------|-------------------------------------------------------------------------|-------------|----------------------|
| IAB Allocated TNL Address List  |          | 1                    |                                      |                                                                         | YES         | reject               |
| >IAB Allocated TNL Address Item |          | 1..<maxno ofTLAsIAB> |                                      |                                                                         | EACH        | reject               |
| >>IAB TNL Address               | M        |                      | 9.3.1.102                            |                                                                         | -           |                      |
| >>IAB TNL Address Usage         | O        |                      | ENUMERATED (F1-C, F1-U, Non-F1, ...) | The usage of the allocated IPv4 or IPv6 address or IPv6 address prefix. | -           |                      |

| Range bound    | Explanation                                                                                                                                                  |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| maxnoofTLAsIAB | Maximum no. of IPv6 addresses or IPv6 address prefixes and/or individual IPv4 addresses that can be allocated in one procedure execution. The value is 1024. |

### 9.2.9.6A IAB TNL ADDRESS FAILURE

This message is sent by the gNB-DU to indicate an IAB TNL Address Allocation failure.

Direction: gNB-DU → gNB-CU

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| Transaction ID          | M        |       | 9.3.1.23              |                       | YES         | reject               |
| Cause                   | M        |       | 9.3.1.2               |                       | YES         | ignore               |
| Time to wait            | O        |       | 9.3.1.13              |                       | YES         | ignore               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.9.7 IAB UP CONFIGURATION UPDATE REQUEST

This message is sent by the gNB-CU to provide the updated UL BH Information or the updated UL UP TNL Information/Address to the gNB-DU.

Direction: gNB-CU → gNB-DU

| IE/Group Name                                  | Presence | Range                                  | IE type and reference                  | Semantics description                                                            | Criticality | Assigned Criticality |
|------------------------------------------------|----------|----------------------------------------|----------------------------------------|----------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                                   | M        |                                        | 9.3.1.1                                |                                                                                  | YES         | reject               |
| Transaction ID                                 | M        |                                        | 9.3.1.23                               |                                                                                  | YES         | reject               |
| UL UP TNL Information to Update List           |          | 0..1                                   |                                        |                                                                                  | YES         | ignore               |
| >UL UP TNL Information to Update List Item IEs |          | 1.. <maxnoofULUPTNLInformationf orIAB> |                                        |                                                                                  | EACH        | ignore               |
| >>UL UP TNL Information                        | M        |                                        | UP Transport Layer Information 9.3.2.1 | This field indicates the UL UP TNL Information used before configuration update. | -           |                      |
| >>New UL UP TNL Information                    | O        |                                        | UP Transport Layer Information 9.3.2.1 | If present, this field indicates the new UL UP TNL Information used              | -           |                      |

| IE/Group Name                                        | Presence | Range                       | IE type and reference           | Semantics description                                                                                        | Criticality | Assigned Criticality |
|------------------------------------------------------|----------|-----------------------------|---------------------------------|--------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                                                      |          |                             |                                 | after configuration update.                                                                                  |             |                      |
| >>BH Information                                     | M        |                             | 9.3.1.114                       |                                                                                                              | -           |                      |
| <b>UL UP TNL Address to Update List</b>              |          | 0..1                        |                                 |                                                                                                              | YES         | ignore               |
| <b>&gt;UL UP TNL Address to Update List Item IEs</b> |          | 1.. <maxnoofUPTNLAddresses> |                                 |                                                                                                              | EACH        | ignore               |
| >>Old TNL Address                                    | M        |                             | Transport Layer Address 9.3.2.3 | The old UL UP Transport Layer Address of gNB-CU used for UL F1-U GTP Tunnel before the configuration update. | -           |                      |
| >>New TNL Address                                    | M        |                             | Transport Layer Address 9.3.2.3 | The corresponding new UL UP Transport Layer Address that replaces the old one.                               | -           |                      |

| Range bound                     | Explanation                                                                                    |
|---------------------------------|------------------------------------------------------------------------------------------------|
| maxnoofULUPTNLInformationforIAB | Maximum no. of UL UP TNL Information allowed towards one IAB node, the maximum value is 32768. |
| maxnoofUPTNLAddresses           | Maximum no. of TNL addresses for F1-U. Value is 8.                                             |

### 9.2.9.8 IAB UP CONFIGURATION UPDATE RESPONSE

This message is sent by the gNB-DU to provide the updated TNL address(es) of the DL F1-U GTP tunnels to the gNB-CU.

Direction: gNB-DU → gNB-CU

| IE/Group Name                                        | Presence | Range                       | IE type and reference           | Semantics description                                                                                        | Criticality | Assigned Criticality |
|------------------------------------------------------|----------|-----------------------------|---------------------------------|--------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                                         | M        |                             | 9.3.1.1                         |                                                                                                              | YES         | reject               |
| Transaction ID                                       | M        |                             | 9.3.1.23                        |                                                                                                              | YES         | reject               |
| Criticality Diagnostics                              | O        |                             | 9.3.1.3                         |                                                                                                              | YES         | ignore               |
| <b>DL UP TNL Address to Update List</b>              |          | 0..1                        |                                 |                                                                                                              | YES         | ignore               |
| <b>&gt;DL UP TNL Address to Update List Item IEs</b> |          | 1.. <maxnoofUPTNLAddresses> |                                 |                                                                                                              | EACH        | ignore               |
| >>Old TNL Address                                    | M        |                             | Transport Layer Address 9.3.2.3 | The old DL UP Transport Layer Address of gNB-DU used for DL F1-U GTP tunnel before the configuration update. | -           |                      |
| >>New TNL Address                                    | M        |                             | Transport Layer Address 9.3.2.3 | The corresponding new Transport Layer Address used to replace the old one.                                   | -           |                      |

| Range bound           | Explanation                                        |
|-----------------------|----------------------------------------------------|
| maxnoofUPTNLAddresses | Maximum no. of TNL addresses for F1-U. Value is 8. |

### 9.2.9.9 IAB UP CONFIGURATION UPDATE FAILURE

This message is sent by the gNB-DU to indicate an IAB UP Configuration Update failure.

Direction: gNB-DU → gNB-CU

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| Transaction ID          | M        |       | 9.3.1.23              |                       | YES         | reject               |
| Cause                   | M        |       | 9.3.1.2               |                       | YES         | ignore               |
| Time to wait            | O        |       | 9.3.1.13              |                       | YES         | ignore               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.9.10 MIAB F1 SETUP TRIGGERING

This message is sent by the gNB-CU to trigger F1 interface setup from the gNB-DU's co-located target logical gNB-DU to the target F1-terminating IAB-donor-CU.

Direction: gNB-CU → gNB-DU

| IE/Group Name          | Presence | Range | IE type and reference              | Semantics description | Criticality | Assigned Criticality |
|------------------------|----------|-------|------------------------------------|-----------------------|-------------|----------------------|
| Message Type           | M        |       | 9.3.1.1                            |                       | YES         | reject               |
| Transaction ID         | M        |       | 9.3.1.23                           |                       | YES         | reject               |
| Target gNB ID          | M        |       | Global gNB ID<br>9.3.1.305         |                       | YES         | reject               |
| Target gNB IP Address  | O        |       | Transport Layer<br>Address 9.3.2.3 |                       | YES         | ignore               |
| Target SeGW IP Address | O        |       | Transport Layer<br>Address 9.3.2.3 |                       | YES         | ignore               |

### 9.2.9.11 MIAB F1 SETUP OUTCOME NOTIFICATION

This message is sent by the gNB-DU to notify the gNB-CU about the outcome of F1 interface setup between the gNB-DU's co-located target logical gNB-DU and a target F1-terminating IAB-donor-CU.

Direction: gNB-DU → gNB-CU

| IE/Group Name                                    | Presence | Range                        | IE type and reference                 | Semantics description                                                                           | Criticality | Assigned Criticality |
|--------------------------------------------------|----------|------------------------------|---------------------------------------|-------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                                     | M        |                              | 9.3.1.1                               |                                                                                                 | YES         | reject               |
| Transaction ID                                   | M        |                              | 9.3.1.23                              |                                                                                                 | YES         | reject               |
| F1 Setup Outcome                                 | M        |                              | ENUMERATED<br>(success, failure, ...) |                                                                                                 | YES         | reject               |
| <b>Activated Cells Mapping List</b>              |          | 0..1                         |                                       |                                                                                                 | YES         | ignore               |
| <b>&gt;Activated Cells List Mapping Item IEs</b> |          | 1..<br><maxCells<br>ngNB-DU> |                                       | List of activated cells.                                                                        | EACH        | ignore               |
| >>NR CGI for Target Logical gNB-DU               | M        |                              | NR CGI<br>9.3.1.12                    | The identity of an activated cell belonging to the target logical gNB-DU of the mobile IAB-node | -           |                      |
| >>NR CGI for Source                              | M        |                              | NR CGI                                | The identity of an                                                                              | -           |                      |

| IE/Group Name                          | Presence | Range | IE type and reference   | Semantics description                                                                                                                                                                       | Criticality | Assigned Criticality |
|----------------------------------------|----------|-------|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Logical gNB-DU                         |          |       | 9.3.1.12                | activated cell belonging to the source logical gNB-DU of the mobile IAB-node                                                                                                                |             |                      |
| Target F1 Terminating IAB-Donor gNB ID | O        |       | Global gNB ID 9.3.1.305 | The Global gNB ID of an IAB donor terminates F1 connection towards the target logical gNB-DU of the mobile IAB-node. This IE is present if the mobile IAB-DU migration is triggered by OAM. | YES         | reject               |

| Range bound    | Explanation                                                     |
|----------------|-----------------------------------------------------------------|
| maxCellingNBDU | Maximum no. cells that can be served by a gNB-DU. Value is 512. |

## 9.2.10 Self Optimisation Support Messages

### 9.2.10.1 ACCESS AND MOBILITY INDICATION

This message is sent by gNB-CU to gNB-DU to provide access and mobility information to the gNB-DU.

Direction: gNB-CU → gNB-DU.

| IE/Group Name                          | Presence | Range                           | IE type and reference     | Semantics description                                                                                                    | Criticality | Assigned Criticality |
|----------------------------------------|----------|---------------------------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                           | M        |                                 | 9.3.1.1                   |                                                                                                                          | YES         | ignore               |
| Transaction ID                         | M        |                                 | 9.3.1.23                  |                                                                                                                          | YES         | reject               |
| <b>RA Report List</b>                  |          | 0..1                            |                           |                                                                                                                          | YES         | ignore               |
| <b>&gt;RA Report Item</b>              |          | 1 ..<br><maxnoof<br>RAReports>  |                           |                                                                                                                          | -           |                      |
| >>RA Report Container                  | M        |                                 | OCTET STRING              | Includes the <i>RA-ReportList-r16</i> IE as defined in subclause 6.2.2 in TS 38.331 [8].                                 | -           |                      |
| >>UE Assistant Identifier              | O        |                                 | gNB-DU UE F1AP ID 9.3.1.5 |                                                                                                                          | -           |                      |
| <b>RLF Report Information List</b>     |          | 0..1                            |                           |                                                                                                                          | YES         | ignore               |
| <b>&gt;RLF Report Information Item</b> |          | 1 ..<br><maxnoof<br>RLFReports> |                           |                                                                                                                          | -           |                      |
| >>NR UE RLF Report Container           | M        |                                 | OCTET STRING              | Includes the <i>nr-RLF-Report-r16</i> IE contained in the <i>UEInformationResponse</i> message defined in TS 38.331 [8]. | -           |                      |
| >>UE Assistant Identifier              | O        |                                 | gNB-DU UE F1AP ID         |                                                                                                                          | -           |                      |

| IE/Group Name                                               | Presence | Range                                                     | IE type and reference | Semantics description                                                                   | Criticality | Assigned Criticality |
|-------------------------------------------------------------|----------|-----------------------------------------------------------|-----------------------|-----------------------------------------------------------------------------------------|-------------|----------------------|
|                                                             |          |                                                           | 9.3.1.5               |                                                                                         |             |                      |
| <b>Successful HO Report Information List</b>                |          | 0..1                                                      |                       |                                                                                         | YES         | ignore               |
| <b>&gt;Successful HO Report Information Item</b>            |          | 1 ..<br><maxnoof<br>Successful<br>HO Reports>             |                       |                                                                                         | -           |                      |
| <b>&gt;&gt;Successful HO Report Container</b>               | M        |                                                           | OCTET STRING          | Includes the <i>SuccessHO-Report</i> IE as defined in subclause 6.2.2 in TS 38.331 [8]. | -           |                      |
| <b>Successful PSCell Change Report Information List</b>     |          | 0..1                                                      |                       |                                                                                         | YES         | ignore               |
| <b>&gt;Successful PSCell Change Report information Item</b> |          | 1..<maxno<br>ofSuccessful<br>PSCell<br>ChangeRe<br>ports> |                       |                                                                                         | -           |                      |
| <b>&gt;&gt;Successful PSCell Change Report Container</b>    | M        |                                                           | OCTET STRING          | Includes the <i>SuccessPSCell-Report</i> IE as defined in TS 38.331 [8].                | -           |                      |

| Range bound                          | Explanation                                                    |
|--------------------------------------|----------------------------------------------------------------|
| maxnoofRAReports                     | Maximum no. of RA Reports, the maximum value is 64.            |
| maxnoofRLFReports                    | Maximum no. of RLF Reports, the maximum value is 64.           |
| maxnoofSuccessfulHOReports           | Maximum no. of Successful HO Reports, the maximum value is 64. |
| maxnoofSuccessfulPSCellChangeReports | Maximum no. of Successful PSCell Change Reports. Value is 64.  |

### 9.2.10.2 DU-CU ACCESS AND MOBILITY INDICATION

This message is sent by the gNB-DU to provide access and mobility information to the gNB-CU.

Direction: gNB-DU → gNB-CU.

| IE/Group Name                               | Presence | Range                                          | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|---------------------------------------------|----------|------------------------------------------------|-----------------------|-----------------------|-------------|----------------------|
| Message Type                                | M        |                                                | 9.3.1.1               |                       | YES         | ignore               |
| Transaction ID                              | M        |                                                | 9.3.1.23              |                       | YES         | reject               |
| <b>DL LBT Failure Information List</b>      |          | 0..1                                           |                       |                       | YES         | ignore               |
| <b>&gt; DL LBT Failure Information Item</b> |          | 1 ..<br><maxnoof<br>LBTFailure<br>Information> |                       |                       | -           |                      |
| <b>&gt;&gt;DL LBT Failure Information</b>   | M        |                                                | 9.3.1.327             |                       | -           |                      |

| Range bound                  | Explanation                                                                                |
|------------------------------|--------------------------------------------------------------------------------------------|
| maxnoofLBTFailureInformation | Maximum no. of UEs for which LBT Failure Information is provided, the maximum value is 64. |



## 9.2.11 Reference Time Information Reporting messages

### 9.2.11.1 REFERENCE TIME INFORMATION REPORTING CONTROL

This message is sent by the gNB-CU and is used to request the gNB-DU to deliver the accurate reference time information.

Direction: gNB-CU → gNB-DU

| IE/Group Name          | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type           | M        |       | 9.3.1.1               |                       | YES         | ignore               |
| Transaction ID         | M        |       | 9.3.1.23              |                       | YES         | reject               |
| Reporting Request Type | M        |       | 9.3.1.147             |                       | YES         | reject               |

### 9.2.11.2 REFERENCE TIME INFORMATION REPORT

This message is sent by the gNB-DU and is used to report the accurate reference time information to the gNB-CU.

Direction: gNB-DU → gNB-CU

| IE/Group Name              | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|----------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type               | M        |       | 9.3.1.1               |                       | YES         | ignore               |
| Transaction ID             | M        |       | 9.3.1.23              |                       | YES         | ignore               |
| Time Reference Information | M        |       | 9.3.1.148             |                       | YES         | ignore               |

## 9.2.12 Messages for Positioning Procedures

### 9.2.12.1 POSITIONING ASSISTANCE INFORMATION CONTROL

This message is sent by the gNB-CU to transfer positioning assistance information.

Direction: gNB-CU → gNB-DU.

| IE/Group Name                      | Presence | Range | IE type and reference         | Semantics description                                                       | Criticality | Assigned Criticality |
|------------------------------------|----------|-------|-------------------------------|-----------------------------------------------------------------------------|-------------|----------------------|
| Message Type                       | M        |       | 9.3.1.1                       |                                                                             | YES         | ignore               |
| Transaction ID                     | M        |       | 9.3.1.23                      |                                                                             | YES         | reject               |
| Positioning Assistance Information | O        |       | OCTET STRING                  | Contains the <i>Assistance Information</i> IE as defined in TS 38.455 [37]. | YES         | reject               |
| Broadcast                          | O        |       | ENUMERATED (start, stop, ...) |                                                                             | YES         | reject               |
| Positioning Broadcast Cells        | O        |       | 9.3.1.191                     |                                                                             | YES         | reject               |
| Routing ID                         | O        |       | OCTET STRING                  |                                                                             | YES         | reject               |

### 9.2.12.2 POSITIONING ASSISTANCE INFORMATION FEEDBACK

This message is sent by the gNB-DU to give feedback on positioning assistance information broadcasting.

Direction: gNB-DU → gNB-CU.

| IE/Group Name                                   | Presence | Range | IE type and reference | Semantics description                                                                                           | Criticality | Assigned Criticality |
|-------------------------------------------------|----------|-------|-----------------------|-----------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                                    | M        |       | 9.3.1.1               |                                                                                                                 | YES         | ignore               |
| Transaction ID                                  | M        |       | 9.3.1.23              |                                                                                                                 | YES         | reject               |
| Positioning Assistance Information Failure List | O        |       | OCTET STRING          | Contains the <i>Assistance Information Failure List</i> IE as defined in TS 38.455 [37].                        | YES         | reject               |
| Positioning Broadcast Cells                     | O        |       | 9.3.1.191             | The cells associated to the feedback provided in the <i>Positioning Assistance Information Failure List</i> IE. | YES         | reject               |
| Routing ID                                      | O        |       | OCTET STRING          |                                                                                                                 | YES         | reject               |
| Criticality Diagnostics                         | O        |       | 9.3.1.3               |                                                                                                                 | YES         | ignore               |

### 9.2.12.3 POSITIONING MEASUREMENT REQUEST

This message is sent by the gNB-CU to request the gNB-DU to configure a positioning measurement.

Direction: gNB-CU → gNB-DU.

| IE/Group Name                           | Presence                              | Range                  | IE type and reference                                                                            | Semantics description                                                                               | Criticality | Assigned Criticality |
|-----------------------------------------|---------------------------------------|------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                            | M                                     |                        | 9.3.1.1                                                                                          |                                                                                                     | YES         | reject               |
| Transaction ID                          | M                                     |                        | 9.3.1.23                                                                                         |                                                                                                     | YES         | reject               |
| LMF Measurement ID                      | M                                     |                        | INTEGER (1..65536, ...)                                                                          |                                                                                                     | YES         | reject               |
| RAN Measurement ID                      | M                                     |                        | INTEGER (1..65536, ...)                                                                          |                                                                                                     | YES         | reject               |
| <b>TRP Measurement Request List</b>     |                                       | 1                      |                                                                                                  |                                                                                                     | YES         | reject               |
| <b>&gt;TRP Measurement Request Item</b> |                                       | 1..<maxno of MeasTRPs> |                                                                                                  |                                                                                                     | -           |                      |
| >>TRP ID                                | M                                     |                        | 9.3.1.197                                                                                        |                                                                                                     | -           |                      |
| >>Search Window Information             | O                                     |                        | 9.3.1.204                                                                                        |                                                                                                     | -           |                      |
| >>NR CGI                                | O                                     |                        | 9.3.1.12                                                                                         | The Cell ID of the TRP identified by the <i>TRP ID</i> IE.                                          | YES         | ignore               |
| >>AoA Search Window Information         | O                                     |                        | UL-AoA Assistance Information 9.3.1.238                                                          |                                                                                                     | YES         | ignore               |
| >>Number of TRP Rx TEGs                 | O                                     |                        | ENUMERATED (2, 3, 4, 6, 8, ...)                                                                  |                                                                                                     | YES         | ignore               |
| >>Number of TRP RxTx TEGs               | O                                     |                        | ENUMERATED (2, 3, 4, 6, 8, ...)                                                                  |                                                                                                     | YES         | ignore               |
| Positioning Report Characteristics      | M                                     |                        | ENUMERATED (OnDemand, Periodic, ...)                                                             |                                                                                                     | YES         | reject               |
| Positioning Measurement Periodicity     | C-<br>ifReportCharacteristicsPeriodic |                        | ENUMERATED (120ms, 240ms, 480ms, 640ms, 1024ms, 2048ms, 5120ms, 10240ms, 1min, 6min, 12min, ...) | The codepoint 120ms, 240ms, 480ms, 1024ms, 2048ms, 1min, 6min, 12min, and 30min are not applicable. | YES         | reject               |

| IE/Group Name                                      | Presence       | Range                | IE type and reference                                                                             | Semantics description                                                                                                 | Criticality | Assigned Criticality |
|----------------------------------------------------|----------------|----------------------|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                                                    |                |                      | 30min, ..., 20480ms, 40960ms, extended)                                                           |                                                                                                                       |             |                      |
| <b>Positioning Measurement Quantities</b>          |                | 1                    |                                                                                                   |                                                                                                                       | YES         | reject               |
| <b>&gt;Positioning Measurement Quantities Item</b> |                | 1..<maxno ofPosMeas> |                                                                                                   |                                                                                                                       | EACH        |                      |
| >>Positioning Measurement Type                     | M              |                      | ENUMERATED (gNB RX-TX, UL-SRS-RSRP, UL AoA, UL RTOA, ..., Multiple UL AoA, UL SRS-RSRPP, UL-RSCP) | The UL-RSCP measurement is applicable only when the UL-RTOA and/or gNB-RxTxTimeDiff measurement(s) is also requested. | -           |                      |
| >>Timing Reporting Granularity Factor              | O              |                      | INTEGER (0..5)                                                                                    | TS 38.133 [38]<br><br>This IE is ignored when the <i>Timing Reporting Granularity Factor Extended</i> IE is included. | -           |                      |
| >>Timing Reporting Granularity Factor Extended     | O              |                      | INTEGER (-6..-1, ...)                                                                             | Value -6 corresponds to kminus6, value -5 corresponds to kminus5, and so on, see TS 38.133 [38].                      | YES         | ignore               |
| SFN Initialisation Time                            | O              |                      | Relative Time 1900 9.3.1.183                                                                      | If this IE is not present, the TRP may assume that the value is same as its own SFN initialisation time.              | YES         | ignore               |
| SRS Configuration                                  | O              |                      | 9.3.1.192                                                                                         |                                                                                                                       | YES         | ignore               |
| Measurement Beam Information Request               | O              |                      | ENUMERATED (true, ...)                                                                            | This IE is ignored when the Measurement characteristics Request Indicator IE is included.                             | YES         | ignore               |
| System Frame Number                                | O              |                      | INTEGER(0..1023)                                                                                  |                                                                                                                       | YES         | ignore               |
| Slot Number                                        | O              |                      | INTEGER(0..79)                                                                                    |                                                                                                                       | YES         | ignore               |
| Measurement Periodicity Extended                   | C-ifMeasPerExt |                      | ENUMERATED (160ms, 320ms, 1280ms, 2560ms, 61440ms, 81920ms, 368640ms, 737280ms, 1843200ms, ...)   |                                                                                                                       | YES         | reject               |
| Response Time                                      | O              |                      | 9.3.1.242                                                                                         | This IE is ignored when the <i>Positioning Report Characteristics</i> IE is set to "Periodic".                        | YES         | ignore               |
| Measurement                                        | O              |                      | 9.3.1.254                                                                                         |                                                                                                                       | YES         | ignore               |

| IE/Group Name                            | Presence | Range | IE type and reference                  | Semantics description                                                                                                                                     | Criticality | Assigned Criticality |
|------------------------------------------|----------|-------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Characteristics Request Indicator        |          |       |                                        |                                                                                                                                                           |             |                      |
| Measurement Time Occasion                | O        |       | ENUMERATED (01, 04,...)                |                                                                                                                                                           | YES         | ignore               |
| Positioning Measurement Amount           | O        |       | ENUMERATED (0, 1, 2, 4, 8, 16, 32, 64) | This IE is ignored if the <i>Positioning Report Characteristics</i> IE is set to 'OnDemand'. Value 0 represents an infinite number of periodic reporting. | YES         | ignore               |
| Time Window Information Measurement List | O        |       | 9.3.1.334                              |                                                                                                                                                           | YES         | ignore               |

| Range bound     | Explanation                                                                                              |
|-----------------|----------------------------------------------------------------------------------------------------------|
| maxnoofPosMeas  | Maximum no. of measured quantities that can be configured and reported with one message. Value is 16384. |
| maxnoofMeasTRPs | Maximum no. of TRPs that can be included within one measurement message. Value is 64.                    |

| Condition                       | Explanation                                                                                                   |
|---------------------------------|---------------------------------------------------------------------------------------------------------------|
| ifReportCharacteristicsPeriodic | This IE shall be present if the <i>Positioning Report Characteristics</i> IE is set to the value "Periodic".  |
| ifMeasPerExt                    | This IE shall be present if the <i>Positioning Measurement Periodicity</i> IE is set to the value "extended". |

## 9.2.12.4 POSITIONING MEASUREMENT RESPONSE

This message is sent by the gNB-DU to report positioning measurements.

Direction: gNB-DU → gNB-CU.

| IE/Group Name                                       | Presence | Range                | IE type and reference   | Semantics description                               | Criticality | Assigned Criticality |
|-----------------------------------------------------|----------|----------------------|-------------------------|-----------------------------------------------------|-------------|----------------------|
| Message Type                                        | M        |                      | 9.3.1.1                 |                                                     | YES         | reject               |
| Transaction ID                                      | M        |                      | 9.3.1.23                |                                                     | YES         | reject               |
| LMF Measurement ID                                  | M        |                      | INTEGER (1..65536, ...) |                                                     | YES         | reject               |
| RAN Measurement ID                                  | M        |                      | INTEGER (1..65536, ...) |                                                     | YES         | reject               |
| <b>Positioning Measurement Result List</b>          |          | 0..1                 |                         |                                                     | YES         | reject               |
| <b>&gt;Positioning Measurement Result List Item</b> |          | 1..<maxnoofMeasTRPs> |                         |                                                     | -           |                      |
| >>Positioning Measurement Result                    | M        |                      | 9.3.1.166               |                                                     | -           |                      |
| >>TRP ID                                            | M        |                      | 9.3.1.197               |                                                     | -           |                      |
| >>NR CGI                                            | O        |                      | 9.3.1.12                | The Cell ID of the TRP identified by the TRP ID IE. | YES         | ignore               |
| Criticality Diagnostics                             | O        |                      | 9.3.1.3                 |                                                     | YES         | ignore               |

| Range bound | Explanation |
|-------------|-------------|
|-------------|-------------|

|                 |                                                                                       |
|-----------------|---------------------------------------------------------------------------------------|
| maxnoofMeasTRPs | Maximum no. of TRP measurements that can be included within one message. Value is 64. |
|-----------------|---------------------------------------------------------------------------------------|

### 9.2.12.5 POSITIONING MEASUREMENT FAILURE

This message is sent by the gNB-DU to report measurement failure.

Direction: gNB-DU → gNB-CU.

| IE/Group Name           | Presence | Range | IE type and reference   | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-------------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1                 |                       | YES         | reject               |
| Transaction ID          | M        |       | 9.3.1.23                |                       | YES         | reject               |
| LMF Measurement ID      | M        |       | INTEGER (1..65536, ...) |                       | YES         | reject               |
| RAN Measurement ID      | M        |       | INTEGER (1..65536, ...) |                       | YES         | reject               |
| Cause                   | M        |       | 9.3.1.2                 |                       | YES         | ignore               |
| Criticality Diagnostics | O        |       | 9.3.1.3                 |                       | YES         | ignore               |

### 9.2.12.6 POSITIONING MEASUREMENT REPORT

This message is sent by the gNB-DU to report positioning measurements for the target UE.

Direction: gNB-DU → gNB-CU.

| IE/Group Name                             | Presence | Range                | IE type and reference   | Semantics description                                      | Criticality | Assigned Criticality |
|-------------------------------------------|----------|----------------------|-------------------------|------------------------------------------------------------|-------------|----------------------|
| Message Type                              | M        |                      | 9.3.1.1                 |                                                            | YES         | ignore               |
| Transaction ID                            | M        |                      | 9.3.1.23                |                                                            | YES         | reject               |
| LMF Measurement ID                        | M        |                      | INTEGER (1..65536, ...) |                                                            | YES         | reject               |
| RAN Measurement ID                        | M        |                      | INTEGER (1..65536, ...) |                                                            | YES         | reject               |
| Positioning Measurement Result List       |          | 1                    |                         |                                                            | YES         | reject               |
| >Positioning Measurement Result List Item |          | 1..<maxnoofMeasTRPs> |                         |                                                            | EACH        |                      |
| >>Positioning Measurement Result          | M        |                      | 9.3.1.166               |                                                            | -           |                      |
| >>TRP ID                                  | M        |                      | 9.3.1.197               |                                                            | -           |                      |
| >>NR CGI                                  | O        |                      | 9.3.1.12                | The Cell ID of the TRP identified by the <i>TRP ID</i> IE. | YES         | ignore               |

| Range bound     | Explanation                                                                           |
|-----------------|---------------------------------------------------------------------------------------|
| maxnoofMeasTRPs | Maximum no. of TRP measurements that can be included within one message. Value is 64. |

### 9.2.12.7 POSITIONING MEASUREMENT ABORT

This message is sent by the gNB-CU to request the gNB-DU to abort a positioning measurement.

Direction: gNB-CU → gNB-DU.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|---------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type  | M        |       | 9.3.1.1               |                       | YES         | ignore               |

| IE/Group Name      | Presence | Range | IE type and reference  | Semantics description | Criticality | Assigned Criticality |
|--------------------|----------|-------|------------------------|-----------------------|-------------|----------------------|
| Transaction ID     | M        |       | 9.3.1.23               |                       | YES         | reject               |
| LMF Measurement ID | M        |       | INTEGER (1..65536,...) |                       | YES         | reject               |
| RAN Measurement ID | M        |       | INTEGER (1..65536,...) |                       | YES         | reject               |

### 9.2.12.8 POSITIONING MEASUREMENT FAILURE INDICATION

This message is sent by the gNB-DU to indicate that the previously requested positioning measurements can no longer be reported.

Direction: gNB-DU → gNB-CU.

| IE/Group Name      | Presence | Range | IE type and reference  | Semantics description | Criticality | Assigned Criticality |
|--------------------|----------|-------|------------------------|-----------------------|-------------|----------------------|
| Message Type       | M        |       | 9.3.1.1                |                       | YES         | ignore               |
| Transaction ID     | M        |       | 9.3.1.23               |                       | YES         | reject               |
| LMF Measurement ID | M        |       | INTEGER (1..65536,...) |                       | YES         | reject               |
| RAN Measurement ID | M        |       | INTEGER (1..65536,...) |                       | YES         | reject               |
| Cause              | M        |       | 9.3.1.2                |                       | YES         | ignore               |

### 9.2.12.9 POSITIONING MEASUREMENT UPDATE

This message is sent by the gNB-CU to update a previously configured measurement.

Direction: gNB-CU → gNB-DU.

| IE/Group Name                                 | Presence | Range                  | IE type and reference                      | Semantics description | Criticality | Assigned Criticality |
|-----------------------------------------------|----------|------------------------|--------------------------------------------|-----------------------|-------------|----------------------|
| Message Type                                  | M        |                        | 9.3.1.1                                    |                       | YES         | ignore               |
| Transaction ID                                | M        |                        | 9.3.1.23                                   |                       | YES         | reject               |
| LMF Measurement ID                            | M        |                        | INTEGER (1..65536,...)                     |                       | YES         | reject               |
| RAN Measurement ID                            | M        |                        | INTEGER (1..65536,...)                     |                       | YES         | reject               |
| SRS Configuration                             | O        |                        | 9.3.1.192                                  |                       | YES         | ignore               |
| <b>TRP Measurement Update List</b>            |          | 0..1                   |                                            |                       | YES         | reject               |
| <b>&gt;TRP Measurement Update Item</b>        |          | 1..<maxno of MeasTRPs> |                                            |                       | EACH        | reject               |
| >>TRP ID                                      | M        |                        | 9.3.1.197                                  |                       | -           |                      |
| >>AoA Search Window Information               | O        |                        | UL-AoA Assistance Information<br>9.3.1.238 |                       | -           |                      |
| >>Number of TRP Rx TEGs                       | O        |                        | ENUMERATED (2, 3, 4, 6, 8, ...)            |                       | YES         | ignore               |
| >>Number of TRP RxTx TEGs                     | O        |                        | ENUMERATED (2, 3, 4, 6, 8, ...)            |                       | YES         | ignore               |
| Measurement Characteristics Request Indicator | O        |                        | 9.3.1.254                                  |                       | YES         | ignore               |
| Measurement Time Occasion                     | O        |                        | ENUMERATED (o1, o4, ...)                   |                       | YES         | ignore               |

| Range bound     | Explanation                                                               |
|-----------------|---------------------------------------------------------------------------|
| maxnoofMeasTRPs | Maximum no. of TRPs that can be included within one message. Value is 64. |

### 9.2.12.10 TRP INFORMATION REQUEST

This message is sent by a gNB-CU to request information for TRPs hosted by a gNB-DU.

Direction: gNB-CU → gNB-DU.

| IE/Group Name                            | Presence | Range                                    | IE type and reference                                                                                                                                                                                            | Semantics description | Criticality | Assigned Criticality |
|------------------------------------------|----------|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-------------|----------------------|
| Message Type                             | M        |                                          | 9.3.1.1                                                                                                                                                                                                          |                       | YES         | reject               |
| Transaction ID                           | M        |                                          | 9.3.1.23                                                                                                                                                                                                         |                       | YES         | reject               |
| <b>TRP list</b>                          |          | <i>0..1</i>                              |                                                                                                                                                                                                                  |                       | YES         | ignore               |
| <b>&gt;TRP list Item</b>                 |          | <i>1..&lt;maxno ofTRPs&gt;</i>           |                                                                                                                                                                                                                  |                       | EACH        | ignore               |
| <b>&gt;&gt;TRP ID</b>                    | M        |                                          | 9.3.1.197                                                                                                                                                                                                        |                       | -           |                      |
| <b>TRP Information Type List</b>         |          | <i>1</i>                                 |                                                                                                                                                                                                                  |                       | YES         | reject               |
| <b>&gt;TRP Information Type Item</b>     |          | <i>1 .. &lt;maxnoof TRPInfoTypes&gt;</i> |                                                                                                                                                                                                                  |                       | EACH        | reject               |
| <b>&gt;&gt;TRP Information Type Item</b> | M        |                                          | ENUMERATED (nr pci, ng-ran cgi, nr arfcn, prs config, ssb config, sfn init time, spatial direction info, geo-coordinates, ..., trp type, on-demand prs, trp Tx teg, beam antenna info, mobile TRP location info) |                       | -           |                      |

| Range bound         | Explanation                                                                                           |
|---------------------|-------------------------------------------------------------------------------------------------------|
| maxnoofTRPInfoTypes | Maximum no of TRP information types that can be requested and reported with one message. Value is 64. |
| maxnoofTRPs         | Maximum no. of TRPs in a gNB. Value is 65535.                                                         |

### 9.2.12.11 TRP INFORMATION RESPONSE

This message is sent by a gNB-DU to convey TRP information to a gNB-CU.

Direction: gNB-DU → gNB-CU.

| IE/Group Name                   | Presence | Range                            | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|---------------------------------|----------|----------------------------------|-----------------------|-----------------------|-------------|----------------------|
| Message Type                    | M        |                                  | 9.3.1.1               |                       | YES         | reject               |
| Transaction ID                  | M        |                                  | 9.3.1.23              |                       | YES         | reject               |
| <b>TRP Information List</b>     |          | <i>1</i>                         |                       |                       | YES         | ignore               |
| <b>&gt;TRP Information Item</b> |          | <i>1 .. &lt;maxnoof TRPs&gt;</i> |                       |                       | EACH        | ignore               |
| <b>&gt;&gt;TRP Information</b>  | M        |                                  | 9.3.1.176             |                       | -           |                      |
| Criticality Diagnostics         | O        |                                  | 9.3.1.3               |                       | YES         | ignore               |

| Range bound | Explanation                                      |
|-------------|--------------------------------------------------|
| maxnoofTRPs | Maximum no. of TRPs in a gNB-DU. Value is 65535. |

### 9.2.12.12 TRP INFORMATION FAILURE

This message is sent by a gNB-DU node to indicate that the requested TRP information cannot be provided to a gNB-CU.

Direction: gNB-DU → gNB-CU.

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| Transaction ID          | M        |       | 9.3.1.23              |                       | YES         | reject               |
| Cause                   | M        |       | 9.3.1.2               |                       | YES         | ignore               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.12.13 POSITIONING INFORMATION REQUEST

This message is sent by the gNB-CU to indicate to the gNB-DU the need to configure the UE to transmit SRS signals for uplink positioning measurement and also to retrieve the SRS configuration from the gNB-DU.

Direction: gNB-CU → gNB-DU.

| IE/Group Name                                       | Presence | Range | IE type and reference  | Semantics description                                                                  | Criticality | Assigned Criticality |
|-----------------------------------------------------|----------|-------|------------------------|----------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                                        | M        |       | 9.3.1.1                |                                                                                        | YES         | reject               |
| gNB-CU UE F1AP ID                                   | M        |       | 9.3.1.4                |                                                                                        | YES         | reject               |
| gNB-DU UE F1AP ID                                   | M        |       | 9.3.1.5                |                                                                                        | YES         | reject               |
| Requested SRS Transmission Characteristics          | O        |       | 9.3.1.175              |                                                                                        | YES         | ignore               |
| UE Reporting Information                            | O        |       | 9.3.1.255              |                                                                                        | YES         | ignore               |
| SRS Positioning INACTIVE Query Indication           | O        |       | ENUMERATED (true, ...) | Applicable only if the <i>Requested SRS Transmission Characteristics</i> IE is present | YES         | ignore               |
| Time Window Information SRS List                    | O        |       | 9.3.1.333              |                                                                                        | YES         | ignore               |
| Requested SRS Preconfiguration Characteristics List | O        |       | 9.3.1.340              |                                                                                        | YES         | ignore               |

### 9.2.12.14 POSITIONING INFORMATION RESPONSE

This message is sent by the gNB-DU to provide the configured SRS information to the gNB-CU.

Direction: gNB-DU → gNB-CU.

| IE/Group Name           | Presence | Range | IE type and reference           | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|---------------------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1                         |                       | YES         | reject               |
| gNB-CU UE F1AP ID       | M        |       | 9.3.1.4                         |                       | YES         | reject               |
| gNB-DU UE F1AP ID       | M        |       | 9.3.1.5                         |                       | YES         | reject               |
| SRS Configuration       | O        |       | 9.3.1.192                       |                       | YES         | ignore               |
| SFN Initialisation Time | O        |       | Relative Time 1900<br>9.3.1.183 |                       | YES         | ignore               |
| Criticality Diagnostics | O        |       | 9.3.1.3                         |                       | YES         | ignore               |



| IE/Group Name                         | Presence | Range | IE type and reference | Semantics description                                                                     | Criticality | Assigned Criticality |
|---------------------------------------|----------|-------|-----------------------|-------------------------------------------------------------------------------------------|-------------|----------------------|
| SRS-PosRRC-InactiveConfig             | O        |       | OCTET STRING          | Includes the <i>SRS-PosRRC-InactiveConfig</i> IE as defined in TS 38.331 [8]              | YES         | ignore               |
| SRS-PosRRC-InactiveValidityAreaConfig | O        |       | OCTET STRING          | Includes the <i>SRS-PosRRC-InactiveValidityAreaConfig</i> IE as defined in TS 38.331 [8]. | YES         | ignore               |
| SRS Preconfiguration List             | O        |       | 9.3.1.341             |                                                                                           | YES         | ignore               |

### 9.2.12.15 POSITIONING INFORMATION FAILURE

This message is sent by the gNB-DU to indicate that no SRS transmissions could be configured for the UE for uplink positioning measurement.

Direction: gNB-DU → gNB-CU.

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU UE F1AP ID       | M        |       | 9.3.1.4               |                       | YES         | reject               |
| gNB-DU UE F1AP ID       | M        |       | 9.3.1.5               |                       | YES         | reject               |
| Cause                   | M        |       | 9.3.1.2               |                       | YES         | ignore               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.12.16 POSITIONING ACTIVATION REQUEST

This message is sent by the gNB-CU to cause the gNB-DU to activate/trigger UL SRS transmission by the UE.

Direction: gNB-CU → gNB-DU.

| IE/Group Name                                   | Presence | Range | IE type and reference                     | Semantics description                                                                              | Criticality | Assigned Criticality |
|-------------------------------------------------|----------|-------|-------------------------------------------|----------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                                    | M        |       | 9.3.1.1                                   |                                                                                                    | YES         | reject               |
| gNB-CU UE F1AP ID                               | M        |       | 9.3.1.4                                   |                                                                                                    | YES         | reject               |
| gNB-DU UE F1AP ID                               | M        |       | 9.3.1.5                                   |                                                                                                    | YES         | reject               |
| CHOICE <i>SRS type</i>                          | M        |       |                                           |                                                                                                    | YES         | reject               |
| > <i>Semi-persistent</i>                        |          |       |                                           |                                                                                                    |             |                      |
| >>SRS Resource Set ID                           | M        |       | 9.3.1.180                                 | This IE is ignored if the <i>Aggregated Positioning SRS Resource Set List</i> IE below is present. | -           |                      |
| >>SRS Spatial Relation                          | O        |       | Spatial Relation Information<br>9.3.1.181 | This IE is ignored if the <i>Spatial Relation Information per SRS Resource Set</i> IE is present.  | -           |                      |
| >>Spatial Relation Information per SRS Resource | O        |       | 9.3.1.210                                 |                                                                                                    | YES         | ignore               |
| >>Aggregated Positioning SRS Resource Set List  | O        |       | 9.3.1.337                                 |                                                                                                    | YES         | ignore               |
| > <i>Aperiodic</i>                              |          |       |                                           |                                                                                                    |             |                      |
| >>Aperiodic                                     | M        |       | ENUMERATED                                |                                                                                                    | -           |                      |

| IE/Group Name                                  | Presence | Range | IE type and reference           | Semantics description                                         | Criticality | Assigned Criticality |
|------------------------------------------------|----------|-------|---------------------------------|---------------------------------------------------------------|-------------|----------------------|
|                                                |          |       | (true, ...)                     |                                                               |             |                      |
| >>SRS Resource Trigger                         | O        |       | 9.3.1.182                       |                                                               | -           |                      |
| >>Aggregated Positioning SRS Resource Set List | O        |       | 9.3.1.337                       |                                                               | YES         | ignore               |
| Activation Time                                | O        |       | Relative Time 1900<br>9.3.1.183 | Indicates the start time when the SRS activation is requested | YES         | ignore               |

### 9.2.12.17 POSITIONING ACTIVATION RESPONSE

This message is sent by the gNB-DU to confirm successful UL SRS activation in the UE.

Direction: gNB-DU → gNB-CU.

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU UE F1AP ID       | M        |       | 9.3.1.4               |                       | YES         | reject               |
| gNB-DU UE F1AP ID       | M        |       | 9.3.1.5               |                       | YES         | reject               |
| System Frame Number     | O        |       | INTEGER(0..1023)      |                       | YES         | ignore               |
| Slot Number             | O        |       | INTEGER(0..79)        |                       | YES         | ignore               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.12.18 POSITIONING ACTIVATION FAILURE

This message is sent by the gNB-DU to indicate that activation of UL SRS transmission in the UE was unsuccessful.

Direction: gNB-DU → gNB-CU.

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU UE F1AP ID       | M        |       | 9.3.1.4               |                       | YES         | reject               |
| gNB-DU UE F1AP ID       | M        |       | 9.3.1.5               |                       | YES         | reject               |
| Cause                   | M        |       | 9.3.1.2               |                       | YES         | ignore               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.12.19 POSITIONING DEACTIVATION

This message is sent by the gNB-CU to cause the NG RAN node to deactivate UL SRS transmission or release all the transmission by the UE.

Direction: gNB-CU → gNB-DU.

| IE/Group Name                     | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-----------------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type                      | M        |       | 9.3.1.1               |                       | YES         | ignore               |
| gNB-CU UE F1AP ID                 | M        |       | 9.3.1.4               |                       | YES         | reject               |
| gNB-DU UE F1AP ID                 | M        |       | 9.3.1.5               |                       | YES         | reject               |
| CHOICE Abort Transmission         | M        |       |                       |                       | YES         | ignore               |
| >SRS Resource Set ID deactivation |          |       |                       |                       |             |                      |
| >>SRS Resource Set                | M        |       | 9.3.1.180             |                       | -           |                      |

|                                                |   |  |           |  |     |        |
|------------------------------------------------|---|--|-----------|--|-----|--------|
| ID                                             |   |  |           |  |     |        |
| >Release ALL                                   |   |  | NULL      |  |     |        |
| >Deactivate aggregated SRS Resource Set        |   |  |           |  |     |        |
| >>Aggregated Positioning SRS Resource Set List | M |  | 9.3.1.337 |  | YES | ignore |

## 9.2.12.20 E-CID MEASUREMENT INITIATION REQUEST

This message is sent by gNB-CU to initiate E-CID measurements.

Direction: gNB-CU → gNB-DU.

| IE/Group Name                       | Presence                                                       | Range                    | IE type and reference                                                                                                               | Semantics description                                                                                                                                                  | Criticality | Assigned Criticality |
|-------------------------------------|----------------------------------------------------------------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                        | M                                                              |                          | 9.3.1.1                                                                                                                             |                                                                                                                                                                        | YES         | reject               |
| gNB-CU UE F1AP ID                   | M                                                              |                          | 9.3.1.4                                                                                                                             |                                                                                                                                                                        | YES         | reject               |
| gNB-DU UE F1AP ID                   | M                                                              |                          | 9.3.1.5                                                                                                                             |                                                                                                                                                                        | YES         | reject               |
| LMF UE Measurement ID               | M                                                              |                          | INTEGER (1..256, ...)                                                                                                               |                                                                                                                                                                        | YES         | reject               |
| RAN UE Measurement ID               | M                                                              |                          | INTEGER (1..256, ...)                                                                                                               |                                                                                                                                                                        | YES         | reject               |
| E-CID Report Characteristics        | M                                                              |                          | ENUMERATED (OnDemand, Periodic, ...)                                                                                                |                                                                                                                                                                        | YES         | reject               |
| E-CID Measurement Periodicity       | C-ifReportCharacteristicsPeriodic                              |                          | ENUMERATED (120ms, 240ms, 480ms, 640ms, 1024ms, 2048ms, 5120ms, 10240ms, 1min, 6min, 12min, 30min, ..., 20480ms, 40960ms, extended) | The codepoint "extended" is not applicable.<br><br>This IE is not applicable to NR Angle of Arrival.                                                                   | YES         | reject               |
| <b>E-CID Measurement Quantities</b> |                                                                | 1 .. <maxnoof MeasE-CID> |                                                                                                                                     |                                                                                                                                                                        | EACH        | reject               |
| >E-CID Measurement Quantities Item  | M                                                              |                          | ENUMERATED (Default, NR Angle of Arrival, ..., NR Timing Advance)                                                                   | If "Default" is the only requested measurement quantity, it indicates that the <i>Measured Results List</i> IE need not be included in response or reporting messages. | -           |                      |
| Measurement Periodicity NR-AoA      | C-ifReportCharacteristicsPeriodicAndMeasurementQuantityItemAoA |                          | ENUMERATED (160ms, 320ms, 640ms, 1280ms, 2560ms, 5120ms, 10240ms, 20480ms, 40960ms, 61440ms, 81920ms, 368640ms,                     |                                                                                                                                                                        | YES         | reject               |

| IE/Group Name | Presence | Range | IE type and reference     | Semantics description | Criticality | Assigned Criticality |
|---------------|----------|-------|---------------------------|-----------------------|-------------|----------------------|
|               |          |       | 737280ms, 1843200ms, ...) |                       |             |                      |

| Range bound      | Explanation                                                                                                 |
|------------------|-------------------------------------------------------------------------------------------------------------|
| maxnoofMeasE-CID | Maximum no. of E-CID measured quantities that can be configured and reported with one message. Value is 64. |

| Condition                                             | Explanation                                                                                                                                                                            |
|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ifReportCharacteristicsPeriodic                       | This IE shall be present if the E-CID Report Characteristics IE is set to the value "Periodic".                                                                                        |
| ifReportCharacteristicsPeriodicAndMeasQuantityItemAoA | This IE shall be present if the E-CID Report Characteristics IE is set to the value "Periodic" and the E-CID Measurement Quantities Item IE is set to the value "NR Angle of Arrival". |

### 9.2.12.21 E-CID MEASUREMENT INITIATION RESPONSE

This message is sent by gNB-DU to indicate that the requested E-CID measurement is successfully initiated.

Direction: gNB-DU → gNB-CU.

| IE/Group Name            | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|--------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type             | M        |       | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU UE F1AP ID        | M        |       | 9.3.1.4               |                       | YES         | reject               |
| gNB-DU UE F1AP ID        | M        |       | 9.3.1.5               |                       | YES         | reject               |
| LMF UE Measurement ID    | M        |       | INTEGER (1..256, ...) |                       | YES         | reject               |
| RAN UE Measurement ID    | M        |       | INTEGER (1..256, ...) |                       | YES         | reject               |
| E-CID Measurement Result | O        |       | 9.3.1.199             |                       | YES         | ignore               |
| Cell Portion ID          | O        |       | 9.3.1.200             |                       | YES         | ignore               |
| Criticality Diagnostics  | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.12.22 E-CID MEASUREMENT INITIATION FAILURE

This message is sent by gNB-DU to indicate that the requested E-CID measurement cannot be initiated.

Direction: gNB-DU → gNB-CU.

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU UE F1AP ID       | M        |       | 9.3.1.4               |                       | YES         | reject               |
| gNB-DU UE F1AP ID       | M        |       | 9.3.1.5               |                       | YES         | reject               |
| LMF UE Measurement ID   | M        |       | INTEGER (1..256, ...) |                       | YES         | reject               |
| RAN UE Measurement ID   | M        |       | INTEGER (1..256, ...) |                       | YES         | reject               |
| Cause                   | M        |       | 9.3.1.2               |                       | YES         | ignore               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.12.23 E-CID MEASUREMENT FAILURE INDICATION

This message is sent by gNB-DU to indicate that the previously requested E-CID measurement can no longer be reported.

Direction: gNB-DU → gNB-CU.

| IE/Group Name         | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-----------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type          | M        |       | 9.3.1.1               |                       | YES         | ignore               |
| gNB-CU UE F1AP ID     | M        |       | 9.3.1.4               |                       | YES         | reject               |
| gNB-DU UE F1AP ID     | M        |       | 9.3.1.5               |                       | YES         | reject               |
| LMF UE Measurement ID | M        |       | INTEGER (1..256, ...) |                       | YES         | reject               |
| RAN UE Measurement ID | M        |       | INTEGER (1..256, ...) |                       | YES         | reject               |
| Cause                 | M        |       | 9.3.1.2               |                       | YES         | ignore               |

#### 9.2.12.24 E-CID MEASUREMENT REPORT

This message is sent by gNB-DU to report the results of the requested E-CID measurement.

Direction: gNB-DU → gNB-CU.

| IE/Group Name            | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|--------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type             | M        |       | 9.3.1.1               |                       | YES         | ignore               |
| gNB-CU UE F1AP ID        | M        |       | 9.3.1.4               |                       | YES         | reject               |
| gNB-DU UE F1AP ID        | M        |       | 9.3.1.5               |                       | YES         | reject               |
| LMF UE Measurement ID    | M        |       | INTEGER (1..256, ...) |                       | YES         | reject               |
| RAN UE Measurement ID    | M        |       | INTEGER (1..256, ...) |                       | YES         | reject               |
| E-CID Measurement Result | M        |       | 9.3.1.199             |                       | YES         | ignore               |
| Cell Portion ID          | O        |       | 9.3.1.200             |                       | YES         | ignore               |

#### 9.2.12.25 E-CID MEASUREMENT TERMINATION COMMAND

This message is sent by the gNB-CU to terminate the requested E-CID measurement.

Direction: gNB-CU → gNB-DU.

| IE/Group Name         | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-----------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type          | M        |       | 9.3.1.1               |                       | YES         | ignore               |
| gNB-CU UE F1AP ID     | M        |       | 9.3.1.4               |                       | YES         | reject               |
| gNB-DU UE F1AP ID     | M        |       | 9.3.1.5               |                       | YES         | reject               |
| LMF UE Measurement ID | M        |       | INTEGER (1..256, ...) |                       | YES         | reject               |
| RAN UE Measurement ID | M        |       | INTEGER (1..256, ...) |                       | YES         | reject               |

#### 9.2.12.26 POSITIONING INFORMATION UPDATE

This message is sent by the gNB-DU to indicate that a change in the SRS configuration has occurred.

Direction: gNB-DU → gNB-CU.

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | ignore               |
| gNB-CU UE F1AP ID       | M        |       | 9.3.1.4               |                       | YES         | reject               |
| gNB-DU UE F1AP ID       | M        |       | 9.3.1.5               |                       | YES         | reject               |
| SRS configuration       | O        |       | 9.3.1.192             |                       | YES         | ignore               |
| SFN Initialisation Time | O        |       | Relative Time 1900    |                       | YES         | ignore               |

|  |  |  |           |  |  |  |
|--|--|--|-----------|--|--|--|
|  |  |  | 9.3.1.183 |  |  |  |
|--|--|--|-----------|--|--|--|

### 9.2.12.27 PRS CONFIGURATION REQUEST

This message is sent by a gNB-CU to request a gNB-DU to configure or update PRS transmissions.

Direction: gNB-CU → gNB-DU.

| IE/Group Name                                   | Presence | Range                                | IE type and reference               | Semantics description | Criticality | Assigned Criticality |
|-------------------------------------------------|----------|--------------------------------------|-------------------------------------|-----------------------|-------------|----------------------|
| Message Type                                    | M        |                                      | 9.3.1.1                             |                       | YES         | reject               |
| Transaction ID                                  | M        |                                      | 9.3.1.23                            |                       | YES         | reject               |
| PRS Configuration Request Type                  | M        |                                      | ENUMERATED<br>(configure, off, ...) |                       | YES         | reject               |
| <b>PRS TRP List</b>                             |          | <b>1</b>                             |                                     |                       | YES         | ignore               |
| <b>&gt;PRS TRP Item</b>                         |          | <b>1 ..<br/>&lt;maxnoof TRPs&gt;</b> |                                     |                       | EACH        | ignore               |
| >>TRP ID                                        | M        |                                      | 9.3.1.197                           |                       | -           |                      |
| >>Requested DL PRS Transmission Characteristics | C-ifConf |                                      | 9.3.1.235                           |                       | -           |                      |
| >>PRS Transmission Off Information              | C-ifOff  |                                      | 9.3.1.237                           |                       | -           |                      |

| Range bound | Explanation                                    |
|-------------|------------------------------------------------|
| maxnoofTRPs | Maximum no. of TRPs in a gNB-DU Value is 65535 |

| Condition | Explanation                                                                                               |
|-----------|-----------------------------------------------------------------------------------------------------------|
| ifConf    | This IE shall be present if the <i>PRS Configuration Request Type</i> IE is set to the value "configure". |
| ifOff     | This IE shall be present if the <i>PRS Configuration Request Type</i> IE is set to the value "off".       |

### 9.2.12.28 PRS CONFIGURATION RESPONSE

This message is sent by a gNB-DU to acknowledge configuring or updating the PRS transmissions.

Direction: gNB-DU → gNB-CU.

| IE/Group Name                        | Presence | Range                                | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|--------------------------------------|----------|--------------------------------------|-----------------------|-----------------------|-------------|----------------------|
| Message Type                         | M        |                                      | 9.3.1.1               |                       | YES         | reject               |
| Transaction ID                       | M        |                                      | 9.3.1.23              |                       | YES         | reject               |
| <b>PRS Transmission TRP List</b>     |          | <b>0..1</b>                          |                       |                       | YES         | ignore               |
| <b>&gt;PRS Transmission TRP Item</b> |          | <b>1 ..<br/>&lt;maxnoof TRPs&gt;</b> |                       |                       | EACH        | ignore               |
| >>TRP ID                             | M        |                                      | 9.3.1.197             |                       | -           |                      |
| >>PRS Configuration                  | M        |                                      | 9.3.1.177             |                       | -           |                      |
| Criticality Diagnostics              | O        |                                      | 9.3.1.3               |                       | YES         | ignore               |

| Range bound | Explanation                                     |
|-------------|-------------------------------------------------|
| maxnoofTRPs | Maximum no. of TRPs in a gNB-DU Value is 65535. |

### 9.2.12.29 PRS CONFIGURATION FAILURE

This message is sent by the gNB-DU to indicate that it cannot configure any PRS transmission.

Direction: gNB-DU → gNB-CU.

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| Transaction ID          | M        |       | 9.3.1.23              |                       | YES         | reject               |
| Cause                   | M        |       | 9.3.1.2               |                       | YES         | ignore               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.12.30 MEASUREMENT PRECONFIGURATION REQUIRED

This message is sent by a gNB-CU to provide the PRS configuration information of multiple TRPs to a gNB-DU and request to configure measurement gap or PRS processing window of the UE.

Direction: gNB-CU → gNB-DU.

| IE/Group Name             | Presence | Range                | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|---------------------------|----------|----------------------|-----------------------|-----------------------|-------------|----------------------|
| Message Type              | M        |                      | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU UE F1AP ID         | M        |                      | 9.3.1.4               |                       | YES         | reject               |
| gNB-DU UE F1AP ID         | M        |                      | 9.3.1.5               |                       | YES         | reject               |
| TRP PRS Information List  |          | 1                    |                       |                       | YES         | ignore               |
| >TRP PRS Information Item |          | 1 .. <maxno of TRPs> |                       |                       | EACH        | ignore               |
| >>TRP ID                  | M        |                      | 9.3.1.197             |                       | -           |                      |
| >>NR PCI                  | M        |                      | INTEGER (0..1007)     |                       | -           |                      |
| >>NR CGI                  | O        |                      | 9.3.1.12              |                       | -           |                      |
| >>PRS Configuration       | M        |                      | 9.3.1.177             |                       | -           |                      |

| Range bound   | Explanation                                                    |
|---------------|----------------------------------------------------------------|
| maxno of TRPs | Maximum no. of TRPs for on-demand PRS in a gNB-DU Value is 256 |

### 9.2.12.31 MEASUREMENT PRECONFIGURATION CONFIRM

This message is sent by an gNB-DU to gNB-CU to confirm successful configuration of measurement gap or PRS processing window of the UE.

Direction: gNB-DU → gNB-CU.

| IE/Group Name                     | Presence | Range | IE type and reference | Semantics description                                                               | Criticality | Assigned Criticality |
|-----------------------------------|----------|-------|-----------------------|-------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                      | M        |       | 9.3.1.1               |                                                                                     | YES         | reject               |
| gNB-CU UE F1AP ID                 | M        |       | 9.3.1.4               |                                                                                     | YES         | reject               |
| gNB-DU UE F1AP ID                 | M        |       | 9.3.1.5               |                                                                                     | YES         | reject               |
| PosMeasGapPreConfigList           |          | 0..1  |                       |                                                                                     | YES         | ignore               |
| >PosMeasGapPreConfigToAddModList  | O        |       | OCTET STRING          | Includes the <i>PosMeasGapPreConfigToAddModList</i> IE as defined in TS 38.331 [8]  | YES         | ignore               |
| >PosMeasGapPreConfigToReleaseList | O        |       | OCTET STRING          | Includes the <i>PosMeasGapPreConfigToReleaseList</i> IE as defined in TS 38.331 [8] | YES         | ignore               |

|                         |   |  |         |  |     |        |
|-------------------------|---|--|---------|--|-----|--------|
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |
|-------------------------|---|--|---------|--|-----|--------|

### 9.2.12.32 MEASUREMENT PRECONFIGURATION REFUSE

This message is sent by gNB-DU to indicate configuration of measurement gap or PRS processing window of the UE was unsuccessful.

Direction: gNB-DU → gNB-CU.

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU UE F1AP ID       | M        |       | 9.3.1.4               |                       | YES         | reject               |
| gNB-DU UE F1AP ID       | M        |       | 9.3.1.5               |                       | YES         | reject               |
| Cause                   | M        |       | 9.3.1.2               |                       | YES         | ignore               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.12.33 MEASUREMENT ACTIVATION

This message is sent by the gNB-CU to request the gNB-DU to activate or deactivate the preconfigured measurement gap or PRS processing window for the UE.

Direction: gNB-CU → gNB-DU.

| IE/Group Name              | Presence | Range                    | IE type and reference                                                | Semantics description                        | Criticality | Assigned Criticality |
|----------------------------|----------|--------------------------|----------------------------------------------------------------------|----------------------------------------------|-------------|----------------------|
| Message Type               | M        |                          | 9.3.1.1                                                              |                                              | YES         | ignore               |
| gNB-CU UE F1AP ID          | M        |                          | 9.3.1.4                                                              |                                              | YES         | reject               |
| gNB-DU UE F1AP ID          | M        |                          | 9.3.1.5                                                              |                                              | YES         | reject               |
| Request Type               | M        |                          | ENUMERATED<br>(activate, deactivate, ...)                            |                                              | YES         | reject               |
| PRS Measurement Info List  |          | 0..1                     |                                                                      |                                              | YES         | ignore               |
| >PRS Measurement Info Item |          | 1 .. <<br>maxFreqLayers> |                                                                      |                                              | -           |                      |
| >>Point A                  | M        |                          | INTEGER<br>(0..3279165)                                              |                                              | -           |                      |
| >>MeasPRS Periodicity      | M        |                          | ENUMERATED<br>(ms20, ms40, ms80, ms160, ...)                         | Measurement gap periodicity in units of ms   | -           |                      |
| >>MeasPRS Offset           | M        |                          | INTEGER<br>(0..159, ...)                                             | Measurement gap offset in units of subframes | -           |                      |
| >>Measurement PRS Length   | M        |                          | ENUMERATED<br>{ms1dot5, ms3, ms3dot5, ms4, ms5dot5, ms6, ms10, ms20} |                                              | -           |                      |

| Range bound   | Explanation                                 |
|---------------|---------------------------------------------|
| maxFreqLayers | Maximum no. of frequency layers. Value is 4 |

### 9.2.12.34 POSITIONING SYSTEM INFORMATION DELIVERY COMMAND

This message is sent by the gNB-CU and is used to request the gNB-DU to broadcast the indicated positioning SI message.



Direction: gNB-CU → gNB-DU

| IE/Group Name   | Presence | Range | IE type and reference        | Semantics description | Criticality | Assigned Criticality |
|-----------------|----------|-------|------------------------------|-----------------------|-------------|----------------------|
| Message Type    | M        |       | 9.3.1.1                      |                       | YES         | ignore               |
| Transaction ID  | M        |       | 9.3.1.23                     |                       | YES         | reject               |
| NR CGI          | M        |       | 9.3.1.12                     | NR cell identifier    | YES         | reject               |
| PosSIType List  | M        |       | 9.3.1.278                    |                       | YES         | reject               |
| Confirmed UE ID | M        |       | gNB-DU UE F1AP ID<br>9.3.1.5 |                       | YES         | reject               |

### 9.2.12.35 SRS INFORMATION RESERVATION NOTIFICATION

This message is sent by the gNB-CU to notify the gNB-DU to reserve or release SRS resources in a Validity Area.

Direction: gNB-CU → gNB-DU.

| IE/Group Name                 | Presence | Range | IE type and reference                                            | Semantics description | Criticality | Assigned Criticality |
|-------------------------------|----------|-------|------------------------------------------------------------------|-----------------------|-------------|----------------------|
| Message Type                  | M        |       | 9.3.1.1                                                          |                       | YES         | reject               |
| Transaction ID                | M        |       | 9.3.1.23                                                         |                       | -           |                      |
| SRS Reservation Type          | M        |       | ENUMERATED (reserve, release, ...)                               |                       | YES         | reject               |
| SRS Information               | O        |       | Requested SRS Transmission Characteristics<br>9.3.1.175          |                       | YES         | ignore               |
| Preconfigured SRS Information | O        |       | Requested SRS Preconfiguration Characteristics List<br>9.3.1.340 |                       | YES         | ignore               |

## 9.2.13 Broadcast Context Management messages

### 9.2.13.1 BROADCAST CONTEXT SETUP REQUEST

This message is sent by the gNB-CU to request the setup of an MBS session context for a broadcast session, and establish an MBS-associated logical F1-connection.

Direction: gNB-CU → gNB-DU.

| IE/Group Name                       | Presence | Range               | IE type and reference         | Semantics description | Criticality | Assigned Criticality |
|-------------------------------------|----------|---------------------|-------------------------------|-----------------------|-------------|----------------------|
| Message Type                        | M        |                     | 9.3.1.1                       |                       | YES         | reject               |
| gNB-CU MBS F1AP ID                  | M        |                     | 9.3.1.219                     |                       | YES         | reject               |
| MBS Session ID                      | M        |                     | 9.3.1.218                     |                       | YES         | reject               |
| MBS Service Area                    | O        |                     | 9.3.1.222                     |                       | YES         | reject               |
| MBS CU to DU RRC Information        | M        |                     | 9.3.1.225                     |                       | YES         | reject               |
| S-NSSAI                             | M        |                     | 9.3.1.38                      |                       | YES         | reject               |
| Broadcast MRB To Be Setup List      |          | 1                   |                               |                       | YES         | reject               |
| >Broadcast MRB to Be Setup Item IEs |          | 1 .. <maxnoof MRBs> |                               |                       | EACH        | reject               |
| >>MRB ID                            | M        |                     | 9.3.1.224                     |                       | -           |                      |
| >>MRB QoS Information               | M        |                     | QoS Flow Level QoS Parameters |                       | -           |                      |

| IE/Group Name                           | Presence | Range                            | IE type and reference                      | Semantics description                                                              | Criticality | Assigned Criticality |
|-----------------------------------------|----------|----------------------------------|--------------------------------------------|------------------------------------------------------------------------------------|-------------|----------------------|
|                                         |          |                                  | 9.3.1.45                                   |                                                                                    |             |                      |
| >>MBS QoS Flows Mapped to MRB Item      |          | 1 ..<br><maxnoof<br>MBSQoSFlows> |                                            |                                                                                    | -           |                      |
| >>>MBS QoS Flow Identifier              | M        |                                  | QoS Flow Identifier<br>9.3.1.63            |                                                                                    | -           |                      |
| >>>>MBS QoS Flow Level QoS Parameters   | M        |                                  | QoS Flow Level QoS Parameters<br>9.3.1.45  |                                                                                    | -           |                      |
| >>BC Bearer Context F1-U TNL Info at CU | M        |                                  | BC Bearer Context F1-U TNL Info<br>9.3.2.7 | gNB-CU endpoint(s) of the F1 transport bearer(s). For delivery of F1-U PDU Type 1. | -           |                      |
| Supported UE Type List                  | O        |                                  | 9.3.1.290                                  |                                                                                    | YES         | ignore               |
| Associated Session ID                   | O        |                                  | 9.3.1.309                                  |                                                                                    | YES         | ignore               |
| RAN Sharing Assistance Information      | O        |                                  | 9.3.1.345                                  |                                                                                    | YES         | ignore               |

| Range bound        | Explanation                                                                          |
|--------------------|--------------------------------------------------------------------------------------|
| maxnoofMRBs        | Maximum no. of MRB allowed to be setup for one MBS Session, the maximum value is 32. |
| maxnoofMBSQoSFlows | Maximum no. of flows allowed to be mapped to one MRB, the maximum value is 64.       |

### 9.2.13.2 BROADCAST CONTEXT SETUP RESPONSE

This message is sent by the gNB-DU to confirm the setup of a broadcast context.

Direction: gNB-DU → gNB-CU.

| IE/Group Name                              | Presence | Range                     | IE type and reference                      | Semantics description                                                        | Criticality | Assigned Criticality |
|--------------------------------------------|----------|---------------------------|--------------------------------------------|------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                               | M        |                           | 9.3.1.1                                    |                                                                              | YES         | reject               |
| gNB-CU MBS F1AP ID                         | M        |                           | 9.3.1.219                                  |                                                                              | YES         | reject               |
| gNB-DU MBS F1AP ID                         | M        |                           | 9.3.1.220                                  |                                                                              | YES         | reject               |
| Broadcast MRB Setup List                   |          | 1                         |                                            |                                                                              | YES         | reject               |
| >Broadcast MRB Setup Item IEs              |          | 1 ..<br><maxnoof<br>MRBs> |                                            |                                                                              | EACH        | reject               |
| >>MRB ID                                   | M        |                           | 9.3.1.224                                  |                                                                              | -           |                      |
| >>BC Bearer Context F1-U TNL Info at DU    | M        |                           | BC Bearer Context F1-U TNL Info<br>9.3.2.7 | gNB-DU endpoint(s) of the F1-U transport bearer(s). For delivery of DL PDUs. | -           |                      |
| Broadcast MRB Failed To Be Setup List      |          | 0..1                      |                                            |                                                                              | YES         | ignore               |
| >Broadcast MRB Failed To Be Setup Item IEs |          | 1 ..<br><maxnoof<br>MRBs> |                                            |                                                                              | EACH        | ignore               |
| >>MRB ID                                   | M        |                           | 9.3.1.224                                  |                                                                              | -           |                      |
| >>Cause                                    | O        |                           | 9.3.1.2                                    |                                                                              | -           |                      |
| Broadcast Area Scope                       | O        |                           | 9.3.1.287                                  |                                                                              | YES         | ignore               |
| Criticality Diagnostics                    | O        |                           | 9.3.1.3                                    |                                                                              | YES         | ignore               |

| Range bound        | Explanation                                                                          |
|--------------------|--------------------------------------------------------------------------------------|
| <i>maxnoofMRBs</i> | Maximum no. of MRB allowed to be setup for one MBS Session, the maximum value is 32. |

### 9.2.13.3 BROADCAST CONTEXT SETUP FAILURE

This message is sent by the gNB-DU to indicate that the setup of the broadcast context was unsuccessful.

Direction: gNB-DU → gNB-CU

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU MBS F1AP ID      | M        |       | 9.3.1.219             |                       | YES         | reject               |
| gNB-DU MBS F1AP ID      | O        |       | 9.3.1.220             |                       | YES         | ignore               |
| Cause                   | M        |       | 9.3.1.2               |                       | YES         | ignore               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.13.4 BROADCAST CONTEXT RELEASE COMMAND

This message is sent by the gNB-CU to request the gNB-DU to release the broadcast context for a given broadcast service.

Direction: gNB-CU → gNB-DU

| IE/Group Name      | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|--------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type       | M        |       | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU MBS F1AP ID | M        |       | 9.3.1.219             |                       | YES         | reject               |
| gNB-DU MBS F1AP ID | M        |       | 9.3.1.220             |                       | YES         | reject               |
| Cause              | M        |       | 9.3.1.2               |                       | YES         | ignore               |

### 9.2.13.5 BROADCAST CONTEXT RELEASE COMPLETE

This message is sent by the gNB-DU to confirm the release of the broadcast context for a given broadcast service.

Direction: gNB-DU → gNB-CU

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU MBS F1AP ID      | M        |       | 9.3.1.219             |                       | YES         | reject               |
| gNB-DU MBS F1AP ID      | M        |       | 9.3.1.220             |                       | YES         | reject               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.13.5a BROADCAST CONTEXT RELEASE REQUEST

This message is sent by the gNB-DU to request the gNB-CU to trigger the Broadcast Context Release procedure.

Direction: gNB-DU → gNB-CU

| IE/Group Name      | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|--------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type       | M        |       | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU MBS F1AP ID | M        |       | 9.3.1.219             |                       | YES         | reject               |
| gNB-DU MBS F1AP ID | M        |       | 9.3.1.220             |                       | YES         | reject               |
| Cause              | M        |       | 9.3.1.2               |                       | YES         | ignore               |

### 9.2.13.6 BROADCAST CONTEXT MODIFICATION REQUEST

This message is sent by the gNB-CU to request the gNB-DU to modify broadcast context information.

Direction: gNB-CU → gNB-DU

| IE/Group Name                                    | Presence | Range                         | IE type and reference                      | Semantics description                                                              | Criticality | Assigned Criticality |
|--------------------------------------------------|----------|-------------------------------|--------------------------------------------|------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                                     | M        |                               | 9.3.1.1                                    |                                                                                    | YES         | reject               |
| gNB-CU MBS F1AP ID                               | M        |                               | 9.3.1.219                                  |                                                                                    | YES         | reject               |
| gNB-DU MBS F1AP ID                               | M        |                               | 9.3.1.220                                  |                                                                                    | YES         | reject               |
| MBS Service Area                                 | O        |                               | 9.3.1.222                                  | Overwrites any previously received MBS Service Area information                    | YES         | reject               |
| MBS CU to DU RRC Information                     | M        |                               | 9.3.1.225                                  |                                                                                    | YES         | reject               |
| <b>Broadcast MRB To Be Setup List</b>            |          | 0..1                          |                                            |                                                                                    | YES         | reject               |
| <b>&gt;Broadcast MRB to Be Setup Item IEs</b>    |          | 1 ..<br><maxnoof MRBs>        |                                            |                                                                                    | EACH        | reject               |
| >>MRB ID                                         | M        |                               | 9.3.1.224                                  |                                                                                    | -           |                      |
| >>MRB QoS Information                            | M        |                               | QoS Flow Level QoS Parameters<br>9.3.1.45  |                                                                                    | -           |                      |
| <b>&gt;&gt;MBS QoS Flows Mapped to MRB Item</b>  |          | 1 ..<br><maxnoof MBSQoSFlows> |                                            |                                                                                    | -           |                      |
| >>>MBS QoS Flow Identifier                       | M        |                               | QoS Flow Identifier<br>9.3.1.63            |                                                                                    | -           |                      |
| >>>MBS QoS Flow Level QoS Parameters             | M        |                               | QoS Flow Level QoS Parameters<br>9.3.1.45  |                                                                                    | -           |                      |
| >>BC Bearer Context F1-U TNL Info at CU          | M        |                               | BC Bearer Context F1-U TNL Info<br>9.3.2.7 | gNB-CU endpoint(s) of the F1 transport bearer(s). For delivery of F1-U PDU Type 1. | -           |                      |
| <b>Broadcast MRB To Be Modified List</b>         |          | 0..1                          |                                            |                                                                                    | YES         | reject               |
| <b>&gt;Broadcast MRB to Be Modified Item IEs</b> |          | 1 ..<br><maxnoof MRBs>        |                                            |                                                                                    | EACH        | reject               |
| >>MRB ID                                         | M        |                               | 9.3.1.224                                  |                                                                                    | -           |                      |
| >>MRB QoS Information                            | O        |                               | QoS Flow Level QoS Parameters<br>9.3.1.45  |                                                                                    | -           |                      |
| <b>&gt;&gt;MBS QoS Flows Mapped to MRB Item</b>  |          | 0 ..<br><maxnoof MBSQoSFlows> |                                            |                                                                                    | -           |                      |
| >>>MBS QoS Flow Identifier                       | M        |                               | QoS Flow Identifier<br>9.3.1.63            |                                                                                    | -           |                      |
| >>>MBS QoS Flow Level QoS Parameters             | M        |                               | QoS Flow Level QoS Parameters              |                                                                                    | -           |                      |

| IE/Group Name                                    | Presence | Range                  | IE type and reference                               | Semantics description                                                                      | Criticality | Assigned Criticality |
|--------------------------------------------------|----------|------------------------|-----------------------------------------------------|--------------------------------------------------------------------------------------------|-------------|----------------------|
| >>BC Bearer Context F1-U TNL Info at CU          | O        |                        | 9.3.1.45<br>BC Bearer Context F1-U TNL Info 9.3.2.7 | Updated gNB-CU endpoint(s) of the F1 transport bearer(s). For delivery of F1-U PDU Type 1. | -           |                      |
| <b>Broadcast MRB To Be Released List</b>         |          | 0..1                   |                                                     |                                                                                            | YES         | reject               |
| <b>&gt;Broadcast MRB to Be Released Item IEs</b> |          | 1 ..<br><maxnoof MRBs> |                                                     |                                                                                            | YES         | reject               |
| >>MRB ID                                         | M        |                        | 9.3.1.224                                           |                                                                                            | -           |                      |
| Supported UE Type List                           | O        |                        | 9.3.1.290                                           |                                                                                            | YES         | ignore               |

| Range bound               | Explanation                                                                          |
|---------------------------|--------------------------------------------------------------------------------------|
| <i>maxnoofMRBs</i>        | Maximum no. of MRB allowed to be setup for one MBS Session, the maximum value is 32. |
| <i>maxnoofMBSQoSFlows</i> | Maximum no. of flows allowed to be mapped to one MRB, the maximum value is 64.       |

### 9.2.13.7 BROADCAST CONTEXT MODIFICATION RESPONSE

This message is sent by the gNB-DU to confirm the modification of a broadcast context.

Direction: gNB-DU → gNB-CU.

| IE/Group Name                                        | Presence | Range                  | IE type and reference                   | Semantics description                                                          | Criticality | Assigned Criticality |
|------------------------------------------------------|----------|------------------------|-----------------------------------------|--------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                                         | M        |                        | 9.3.1.1                                 |                                                                                | YES         | reject               |
| gNB-CU MBS F1AP ID                                   | M        |                        | 9.3.1.219                               |                                                                                | YES         | reject               |
| gNB-DU MBS F1AP ID                                   | M        |                        | 9.3.1.220                               |                                                                                | YES         | reject               |
| <b>Broadcast MRB Setup List</b>                      |          | 0..1                   |                                         |                                                                                | YES         | reject               |
| <b>&gt;Broadcast MRB Setup Item IEs</b>              |          | 1 ..<br><maxnoof MRBs> |                                         |                                                                                | EACH        | reject               |
| >>MRB ID                                             | M        |                        | 9.3.1.224                               |                                                                                | -           |                      |
| >>BC Bearer Context F1-U TNL Info at DU              | M        |                        | BC Bearer Context F1-U TNL Info 9.3.2.7 | gNB-DU endpoint(s) of the F1-U transport bearer(s). For delivery of DL PDUs.   | -           |                      |
| <b>Broadcast MRB Failed To Be Setup List</b>         |          | 0..1                   |                                         |                                                                                | YES         | ignore               |
| <b>&gt;Broadcast MRB Failed To Be Setup Item IEs</b> |          | 1 ..<br><maxnoof MRBs> |                                         |                                                                                | EACH        | ignore               |
| >>MRB ID                                             | M        |                        | 9.3.1.224                               |                                                                                | -           |                      |
| >>Cause                                              | O        |                        | 9.3.1.2                                 |                                                                                | -           |                      |
| <b>Broadcast MRB Modified List</b>                   |          | 0..1                   |                                         |                                                                                | YES         | reject               |
| <b>&gt;Broadcast MRB Modified Item IEs</b>           |          | 1 ..<br><maxnoof MRBs> |                                         |                                                                                | EACH        | reject               |
| >>MRB ID                                             | M        |                        | 9.3.1.224                               |                                                                                | -           |                      |
| >>BC Bearer Context F1-U TNL Info at DU              | O        |                        | BC Bearer Context F1-U TNL Info 9.3.2.7 | Updated gNB-DU endpoint(s) of the F1-U transport bearer(s). For delivery of DL | -           |                      |

| IE/Group Name                                           | Presence | Range                  | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|---------------------------------------------------------|----------|------------------------|-----------------------|-----------------------|-------------|----------------------|
|                                                         |          |                        |                       | PDUs.                 |             |                      |
| <b>Broadcast MRB Failed To Be Modified List</b>         |          | 0..1                   |                       |                       | YES         | ignore               |
| <b>&gt;Broadcast MRB Failed To Be Modified Item IEs</b> |          | 1 ..<br><maxnoof MRBs> |                       |                       | EACH        | ignore               |
| >>MRB ID                                                | M        |                        | 9.3.1.224             |                       | -           |                      |
| >>Cause                                                 | O        |                        | 9.3.1.2               |                       | -           |                      |
| Criticality Diagnostics                                 | O        |                        | 9.3.1.3               |                       | YES         | ignore               |
| Broadcast Area Scope                                    | O        |                        | 9.3.1.287             |                       | YES         | ignore               |

| Range bound | Explanation                                                                          |
|-------------|--------------------------------------------------------------------------------------|
| maxnoofMRBs | Maximum no. of MRB allowed to be setup for one MBS Session, the maximum value is 32. |

### 9.2.13.8 BROADCAST CONTEXT MODIFICATION FAILURE

This message is sent by the gNB-DU to indicate a broadcast context modification failure.

Direction: gNB-DU → gNB-CU

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU MBS F1AP ID      | M        |       | 9.3.1.219             |                       | YES         | reject               |
| gNB-DU MBS F1AP ID      | M        |       | 9.3.1.220             |                       | YES         | reject               |
| Cause                   | M        |       | 9.3.1.2               |                       | YES         | ignore               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.13.9 BROADCAST TRANSPORT RESOURCE REQUEST

This message is sent by the gNB-DU to request the gNB-CU to establish the F1-U resources for the broadcast Session.

Direction: gNB-DU → gNB-CU

| IE/Group Name                                       | Presence | Range                  | IE type and reference                      | Semantics description                                                        | Criticality | Assigned Criticality |
|-----------------------------------------------------|----------|------------------------|--------------------------------------------|------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                                        | M        |                        | 9.3.1.1                                    |                                                                              | YES         | reject               |
| gNB-CU MBS F1AP ID                                  | M        |                        | 9.3.1.219                                  |                                                                              | YES         | reject               |
| gNB-DU MBS F1AP ID                                  | M        |                        | 9.3.1.220                                  |                                                                              | YES         | reject               |
| <b>Broadcast MRB Transport Request List</b>         |          | 0..1                   |                                            |                                                                              | YES         | reject               |
| <b>&gt;Broadcast MRB Transport Request Item IEs</b> |          | 1 ..<br><maxnoof MRBs> |                                            |                                                                              | EACH        | reject               |
| >>MRB ID                                            | M        |                        | 9.3.1.224                                  |                                                                              | -           |                      |
| >>BC Bearer Context F1-U TNL Info at DU             | M        |                        | BC Bearer Context F1-U TNL Info<br>9.3.2.7 | gNB-DU endpoint(s) of the F1-U transport bearer(s). For delivery of DL PDUs. | -           |                      |
| F1-U Path Failure                                   | O        |                        | ENUMERATED (true, ...)                     |                                                                              | YES         | ignore               |

| Range bound | Explanation                                                                          |
|-------------|--------------------------------------------------------------------------------------|
| maxnoofMRBs | Maximum no. of MRB allowed to be setup for one MBS Session, the maximum value is 32. |

## 9.2.14 Multicast Context Management messages

### 9.2.14.1 MULTICAST GROUP PAGING

This message is sent by the gNB-CU and is used to request the gNB-DU to multicast group page UEs.

Direction: gNB-CU → gNB-DU

| IE/Group Name                                   | Presence | Range                         | IE type and reference  | Semantics description                                                                                       | Criticality | Assigned Criticality |
|-------------------------------------------------|----------|-------------------------------|------------------------|-------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                                    | M        |                               | 9.3.1.1                |                                                                                                             | YES         | ignore               |
| MBS Session ID                                  | M        |                               | 9.3.1.218              |                                                                                                             | YES         | reject               |
| <b>UE Identity List for Paging</b>              |          | 0..1                          |                        |                                                                                                             | YES         | ignore               |
| <b>&gt;UE Identity for Paging Item</b>          |          | 1..<maxno of UEID for Paging> |                        |                                                                                                             | EACH        | ignore               |
| >>UE Identity Index value                       | M        |                               | 9.3.1.39               |                                                                                                             | -           |                      |
| >>Paging DRX                                    | O        |                               | 9.3.1.40               |                                                                                                             | -           |                      |
| <b>MC Paging Cell List</b>                      |          | 0..1                          |                        |                                                                                                             | YES         | ignore               |
| <b>&gt;MC Paging Cell Item IEs</b>              |          | 1 .. <maxno of Paging Cells>  |                        |                                                                                                             | EACH        | ignore               |
| >>NR CGI                                        | M        |                               | 9.3.1.12               |                                                                                                             | -           |                      |
| Indication for Multicast RRC_INACTIVE Reception | O        |                               | ENUMERATED (true, ...) | Corresponds to information contained in the <i>inactiveReception Allowed</i> as specified in TS 38.331 [8]. | YES         | ignore               |

| Range bound              | Explanation                                                     |
|--------------------------|-----------------------------------------------------------------|
| maxno of UEID for Paging | Maximum no. of UE ID for multicast group paging. Value is 4096. |
| maxno of Paging Cells    | Maximum no. of paging cells, the maximum value is 512.          |

### 9.2.14.2 MULTICAST CONTEXT SETUP REQUEST

This message is sent by the gNB-CU to request the setup of an MBS session context for a multicast session, and establish an MBS-associated logical F1-connection.

Direction: gNB-CU → gNB-DU.

| IE/Group Name                                  | Presence | Range                | IE type and reference         | Semantics description | Criticality | Assigned Criticality |
|------------------------------------------------|----------|----------------------|-------------------------------|-----------------------|-------------|----------------------|
| Message Type                                   | M        |                      | 9.3.1.1                       |                       | YES         | reject               |
| gNB-CU MBS F1AP ID                             | M        |                      | 9.3.1.219                     |                       | YES         | reject               |
| MBS Session ID                                 | M        |                      | 9.3.1.218                     |                       | YES         | reject               |
| MBS Service Area                               | O        |                      | 9.3.1.222                     |                       | YES         | reject               |
| S-NSSAI                                        | M        |                      | 9.3.1.38                      |                       | YES         | reject               |
| <b>Multicast MRBs To Be Setup List</b>         |          | 1                    |                               |                       | YES         | reject               |
| <b>&gt;Multicast MRBs to Be Setup Item IEs</b> |          | 1 .. <maxno of MRBs> |                               |                       | EACH        | reject               |
| >>MRB ID                                       | M        |                      | 9.3.1.224                     |                       | -           |                      |
| >>MRB QoS Information                          | M        |                      | QoS Flow Level QoS Parameters |                       | -           |                      |

| IE/Group Name                         | Presence | Range                            | IE type and reference                     | Semantics description | Criticality | Assigned Criticality |
|---------------------------------------|----------|----------------------------------|-------------------------------------------|-----------------------|-------------|----------------------|
|                                       |          |                                  | 9.3.1.45                                  |                       |             |                      |
| >>MBS QoS Flows Mapped to MRB Item    |          | 1 ..<br><maxnoof<br>MBSQoSFlows> |                                           |                       | -           |                      |
| >>>MBS QoS Flow Identifier            | M        |                                  | QoS Flow Identifier<br>9.3.1.63           |                       | -           |                      |
| >>>MBS QoS Flow Level QoS Parameters  | M        |                                  | QoS Flow Level QoS Parameters<br>9.3.1.45 |                       | -           |                      |
| >>DL PDCP SN Length                   | M        |                                  | ENUMERATED<br>(12bits, 18bits, ...)       |                       | -           |                      |
| Multicast CU to DU RRC Information    | O        |                                  | 9.3.1.310                                 |                       | YES         | reject               |
| MBS Multicast Session Reception State | O        |                                  | 9.3.1.317                                 |                       | YES         | reject               |

| Range bound               | Explanation                                                                          |
|---------------------------|--------------------------------------------------------------------------------------|
| <i>maxnoofMRBs</i>        | Maximum no. of MRB allowed to be setup for one MBS Session, the maximum value is 32. |
| <i>maxnoofMBSQoSFlows</i> | Maximum no. of flows allowed to be mapped to one MRB, the maximum value is 64.       |

### 9.2.14.3 MULTICAST CONTEXT SETUP RESPONSE

This message is sent by the gNB-DU to confirm the setup of a multicast context.

Direction: gNB-DU → gNB-CU.

| IE/Group Name                              | Presence | Range                     | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|--------------------------------------------|----------|---------------------------|-----------------------|-----------------------|-------------|----------------------|
| Message Type                               | M        |                           | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU MBS F1AP ID                         | M        |                           | 9.3.1.219             |                       | YES         | reject               |
| gNB-DU MBS F1AP ID                         | M        |                           | 9.3.1.220             |                       | YES         | reject               |
| Multicast MRB Setup List                   |          | 1                         |                       |                       | YES         | reject               |
| >Multicast MRB Setup Item IEs              |          | 1 ..<br><maxnoof<br>MRBs> |                       |                       | EACH        | reject               |
| >>MRB ID                                   | M        |                           | 9.3.1.224             |                       | -           |                      |
| Multicast MRB Failed To Be Setup List      |          | 0..1                      |                       |                       | YES         | ignore               |
| >Multicast MRB Failed To Be Setup Item IEs |          | 1 ..<br><maxnoof<br>MRBs> |                       |                       | EACH        | ignore               |
| >>MRB ID                                   | M        |                           | 9.3.1.224             |                       | -           |                      |
| >>Cause                                    | O        |                           | 9.3.1.2               |                       | -           |                      |
| Criticality Diagnostics                    | O        |                           | 9.3.1.3               |                       | YES         | ignore               |
| Multicast DU to CU RRC Information         | O        |                           | 9.3.1.311             |                       | YES         | reject               |

| Range bound        | Explanation                                                                          |
|--------------------|--------------------------------------------------------------------------------------|
| <i>maxnoofMRBs</i> | Maximum no. of MRB allowed to be setup for one MBS Session, the maximum value is 32. |



#### 9.2.14.4 MULTICAST CONTEXT SETUP FAILURE

This message is sent by the gNB-DU to indicate that the setup of the multicast context was unsuccessful.

Direction: gNB-DU → gNB-CU

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU MBS F1AP ID      | M        |       | 9.3.1.219             |                       | YES         | reject               |
| gNB-DU MBS F1AP ID      | O        |       | 9.3.1.220             |                       | YES         | ignore               |
| Cause                   | M        |       | 9.3.1.2               |                       | YES         | ignore               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

#### 9.2.14.5 MULTICAST CONTEXT RELEASE COMMAND

This message is sent by the gNB-CU to request the gNB-DU to release the multicast context for a given multicast service.

Direction: gNB-CU → gNB-DU

| IE/Group Name      | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|--------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type       | M        |       | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU MBS F1AP ID | M        |       | 9.3.1.219             |                       | YES         | reject               |
| gNB-DU MBS F1AP ID | M        |       | 9.3.1.220             |                       | YES         | reject               |
| Cause              | M        |       | 9.3.1.2               |                       | YES         | ignore               |

#### 9.2.14.6 MULTICAST CONTEXT RELEASE COMPLETE

This message is sent by the gNB-DU to confirm the release of the multicast context for a given multicast service.

Direction: gNB-DU → gNB-CU

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU MBS F1AP ID      | M        |       | 9.3.1.219             |                       | YES         | reject               |
| gNB-DU MBS F1AP ID      | M        |       | 9.3.1.220             |                       | YES         | reject               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

#### 9.2.14.6a MULTICAST CONTEXT RELEASE REQUEST

This message is sent by the gNB-DU to request the gNB-CU to trigger the Multicast Context Release procedure.

Direction: gNB-DU → gNB-CU

| IE/Group Name      | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|--------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type       | M        |       | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU MBS F1AP ID | M        |       | 9.3.1.219             |                       | YES         | reject               |
| gNB-DU MBS F1AP ID | M        |       | 9.3.1.220             |                       | YES         | reject               |
| Cause              | M        |       | 9.3.1.2               |                       | YES         | ignore               |

#### 9.2.14.7 MULTICAST CONTEXT MODIFICATION REQUEST

This message is sent by the gNB-CU to request the gNB-DU to modify multicast context information.

Direction: gNB-CU → gNB-DU

| IE/Group Name                                    | Presence | Range                         | IE type and reference                     | Semantics description | Criticality | Assigned Criticality |
|--------------------------------------------------|----------|-------------------------------|-------------------------------------------|-----------------------|-------------|----------------------|
| Message Type                                     | M        |                               | 9.3.1.1                                   |                       | YES         | reject               |
| gNB-CU MBS F1AP ID                               | M        |                               | 9.3.1.219                                 |                       | YES         | reject               |
| gNB-DU MBS F1AP ID                               | M        |                               | 9.3.1.220                                 |                       | YES         | reject               |
| MBS Service Area                                 | O        |                               | 9.3.1.222                                 |                       | YES         | reject               |
| <b>Multicast MRB To Be Setup List</b>            |          | 0..1                          |                                           |                       | YES         | reject               |
| <b>&gt;Multicast MRB to Be Setup Item IEs</b>    |          | 1 ..<br><maxnoof MRBs>        |                                           |                       | EACH        | reject               |
| >>MRB ID                                         | M        |                               | 9.3.1.224                                 |                       | -           |                      |
| >>MRB QoS Information                            | M        |                               | QoS Flow Level QoS Parameters<br>9.3.1.45 |                       | -           |                      |
| <b>&gt;&gt;MBS QoS Flows Mapped to MRB Item</b>  |          | 1 ..<br><maxnoof MBSQoSFlows> |                                           |                       | -           |                      |
| >>>MBS QoS Flow Identifier                       | M        |                               | QoS Flow Identifier<br>9.3.1.63           |                       | -           |                      |
| >>>MBS QoS Flow Level QoS Parameters             | M        |                               | QoS Flow Level QoS Parameters<br>9.3.1.45 |                       | -           |                      |
| >>DL PDCP SN Length                              | M        |                               | ENUMERATED (12bits, 18bits, ...)          |                       | -           |                      |
| <b>Multicast MRB To Be Modified List</b>         |          | 0..1                          |                                           |                       | YES         | reject               |
| <b>&gt;Multicast MRB to Be Modified Item IEs</b> |          | 1 ..<br><maxnoof MRBs>        |                                           |                       | EACH        | reject               |
| >>MRB ID                                         | M        |                               | 9.3.1.224                                 |                       | -           |                      |
| >>MRB QoS Information                            | O        |                               | QoS Flow Level QoS Parameters<br>9.3.1.45 |                       | -           |                      |
| <b>&gt;&gt;MBS QoS Flows Mapped to MRB Item</b>  |          | 0 ..<br><maxnoof MBSQoSFlows> |                                           |                       | -           |                      |
| >>>MBS QoS Flow Identifier                       | M        |                               | QoS Flow Identifier<br>9.3.1.63           |                       | -           |                      |
| >>>MBS QoS Flow Level QoS Parameters             | M        |                               | QoS Flow Level QoS Parameters<br>9.3.1.45 |                       | -           |                      |
| >>DL PDCP SN Length                              | O        |                               | ENUMERATED (12bits, 18bits, ...)          |                       | -           |                      |
| <b>Multicast MRB To Be Released List</b>         |          | 0..1                          |                                           |                       | YES         | reject               |
| <b>&gt;Multicast MRB to Be Released Item IEs</b> |          | 1 ..<br><maxnoof MRBs>        |                                           |                       | YES         | reject               |
| >>MRB ID                                         | M        |                               | 9.3.1.224                                 |                       | -           |                      |
| Multicast CU to DU RRC Information               | O        |                               | 9.3.1.310                                 |                       | YES         | reject               |
| MBS Multicast Session Reception State            | O        |                               | 9.3.1.317                                 |                       | YES         | reject               |

| Range bound | Explanation |
|-------------|-------------|
|-------------|-------------|

|                           |                                                                                      |
|---------------------------|--------------------------------------------------------------------------------------|
| <i>maxnoofMRBs</i>        | Maximum no. of MRB allowed to be setup for one MBS Session, the maximum value is 32. |
| <i>maxnoofMBSQoSFlows</i> | Maximum no. of flows allowed to be mapped to one MRB, the maximum value is 64.       |

### 9.2.14.8 MULTICAST CONTEXT MODIFICATION RESPONSE

This message is sent by the gNB-DU to confirm the modification of a multicast context.

Direction: gNB-DU → gNB-CU.

| IE/Group Name                                   | Presence | Range                  | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------------------------------|----------|------------------------|-----------------------|-----------------------|-------------|----------------------|
| Message Type                                    | M        |                        | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU MBS F1AP ID                              | M        |                        | 9.3.1.219             |                       | YES         | reject               |
| gNB-DU MBS F1AP ID                              | M        |                        | 9.3.1.220             |                       | YES         | reject               |
| <b>Multicast MRB Setup List</b>                 |          | 0..1                   |                       |                       | YES         | reject               |
| >Multicast MRB Setup Item IEs                   |          | 1 ..<br><maxnoof MRBs> |                       |                       | EACH        | reject               |
| >>MRB ID                                        | M        |                        | 9.3.1.224             |                       | -           |                      |
| <b>Multicast MRB Failed To Be Setup List</b>    |          | 0..1                   |                       |                       | YES         | ignore               |
| >Multicast MRB Failed To Be Setup Item IEs      |          | 1 ..<br><maxnoof MRBs> |                       |                       | EACH        | ignore               |
| >>MRB ID                                        | M        |                        | 9.3.1.224             |                       | -           |                      |
| >>Cause                                         | O        |                        | 9.3.1.2               |                       | -           |                      |
| <b>Multicast MRB Modified List</b>              |          | 0..1                   |                       |                       | YES         | reject               |
| >Multicast MRB Modified Item IEs                |          | 1 ..<br><maxnoof MRBs> |                       |                       | EACH        | reject               |
| >>MRB ID                                        | M        |                        | 9.3.1.224             |                       | -           |                      |
| <b>Multicast MRB Failed To Be Modified List</b> |          | 0..1                   |                       |                       | YES         | ignore               |
| >Multicast MRB Failed To Be Modified Item IEs   |          | 1 ..<br><maxnoof MRBs> |                       |                       | EACH        | ignore               |
| >>MRB ID                                        | M        |                        | 9.3.1.224             |                       | -           |                      |
| >>Cause                                         | O        |                        | 9.3.1.2               |                       | -           |                      |
| Criticality Diagnostics                         | O        |                        | 9.3.1.3               |                       | YES         | ignore               |
| Multicast DU to CU RRC Information              | O        |                        | 9.3.1.311             |                       | YES         | reject               |

| Range bound        | Explanation                                                                          |
|--------------------|--------------------------------------------------------------------------------------|
| <i>maxnoofMRBs</i> | Maximum no. of MRB allowed to be setup for one MBS Session, the maximum value is 32. |

### 9.2.14.9 MULTICAST CONTEXT MODIFICATION FAILURE

This message is sent by the gNB-DU to indicate a multicast context modification failure.

Direction: gNB-DU → gNB-CU

| IE/Group Name      | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|--------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type       | M        |       | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU MBS F1AP ID | M        |       | 9.3.1.219             |                       | YES         | reject               |
| gNB-DU MBS F1AP ID | M        |       | 9.3.1.220             |                       | YES         | reject               |
| Cause              | M        |       | 9.3.1.2               |                       | YES         | ignore               |

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.14.10 MULTICAST DISTRIBUTION SETUP REQUEST

This message is sent by the gNB-DU to request the setup of a Multicast F1-U Context.

Direction: gNB-DU → gNB-CU.

| IE/Group Name                                      | Presence              | Range               | IE type and reference                     | Semantics description                         | Criticality | Assigned Criticality |
|----------------------------------------------------|-----------------------|---------------------|-------------------------------------------|-----------------------------------------------|-------------|----------------------|
| Message Type                                       | M                     |                     | 9.3.1.1                                   |                                               | YES         | reject               |
| gNB-CU MBS F1AP ID                                 | M                     |                     | 9.3.1.219                                 |                                               | YES         | reject               |
| gNB-DU MBS F1AP ID                                 | M                     |                     | 9.3.1.220                                 |                                               | YES         | reject               |
| MBS Multicast F1-U Context Descriptor              | M                     |                     | 9.3.2.8                                   |                                               | YES         | reject               |
| <b>Multicast F1-U Context To Be Setup List</b>     |                       | 1                   |                                           |                                               | YES         | reject               |
| <b>&gt;Multicast F1-U Context To Be Setup Item</b> |                       | 1 .. <maxnoof MRBs> |                                           |                                               | EACH        | reject               |
| >>MRB ID                                           | M                     |                     | 9.3.1.224                                 |                                               | -           |                      |
| >>MRB F1-U TNL Info at DU                          | M                     |                     | UP Transport Layer Information<br>9.3.2.1 | gNB-DU endpoint of the F1-U transport bearer. | -           |                      |
| >>MRB Progress Information                         | C-<br>ifPTPForwarding |                     | 9.3.2.12                                  |                                               | -           |                      |

| Range bound        | Explanation                                                                          |
|--------------------|--------------------------------------------------------------------------------------|
| maxnoofMRBs        | Maximum no. of MRB allowed to be setup for one MBS Session, the maximum value is 32. |
| maxnoofMBSQoSFlows | Maximum no. of flows allowed to be mapped to one MRB, the maximum value is 64.       |

| Condition       | Explanation                                                                                                                                        |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| ifPTPForwarding | This IE shall be present if the <i>MC F1-U Context usage</i> IE in the <i>MBS Multicast F1-U Context Descriptor</i> IE is set to "ptp forwarding". |

### 9.2.14.11 MULTICAST DISTRIBUTION SETUP RESPONSE

This message is sent by the gNB-CU to confirm the setup of a Multicast F1-U Context.

Direction: gNB-CU → gNB-DU.

| IE/Group Name                                    | Presence | Range               | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|--------------------------------------------------|----------|---------------------|-----------------------|-----------------------|-------------|----------------------|
| Message Type                                     | M        |                     | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU MBS F1AP ID                               | M        |                     | 9.3.1.219             |                       | YES         | reject               |
| gNB-DU MBS F1AP ID                               | M        |                     | 9.3.1.220             |                       | YES         | reject               |
| MBS Multicast F1-U Context Descriptor            | M        |                     | 9.3.2.8               |                       | YES         | reject               |
| <b>Multicast F1-U Context Setup List</b>         |          | 1                   |                       |                       | YES         | reject               |
| <b>&gt;Multicast F1-U Context Setup Item IEs</b> |          | 1 .. <maxnoof MRBs> |                       |                       | EACH        | reject               |
| >>MRB ID                                         | M        |                     | 9.3.1.224             |                       | -           |                      |

| IE/Group Name                                                 | Presence | Range                            | IE type and reference                  | Semantics description                         | Criticality | Assigned Criticality |
|---------------------------------------------------------------|----------|----------------------------------|----------------------------------------|-----------------------------------------------|-------------|----------------------|
| >>MRB F1-U TNL Info at CU                                     | M        |                                  | UP Transport Layer Information 9.3.2.1 | gNB-CU endpoint of the F1-U transport bearer. | -           |                      |
| <b>Multicast F1-U Context Failed To Be Setup List</b>         |          | <i>0..1</i>                      |                                        |                                               | YES         | ignore               |
| <b>&gt;Multicast F1-U Context Failed To Be Setup Item IEs</b> |          | <i>1 .. &lt;maxnoof MRBs&gt;</i> |                                        |                                               | EACH        | ignore               |
| >>MRB ID                                                      | M        |                                  | 9.3.1.224                              |                                               | -           |                      |
| >>Cause                                                       | O        |                                  | 9.3.1.2                                |                                               | -           |                      |
| Criticality Diagnostics                                       | O        |                                  | 9.3.1.3                                |                                               | YES         | ignore               |
| Multicast F1-U Context Reference CU                           | M        |                                  | 9.3.2.13                               |                                               | YES         | reject               |

| Range bound        | Explanation                                                                          |
|--------------------|--------------------------------------------------------------------------------------|
| <i>maxnoofMRBs</i> | Maximum no. of MRB allowed to be setup for one MBS Session, the maximum value is 32. |

#### 9.2.14.12 MULTICAST DISTRIBUTION SETUP FAILURE

This message is sent by the gNB-DU to indicate that the setup of the Multicast F1-U Context was unsuccessful.

Direction: gNB-CU → gNB-DU

| IE/Group Name                         | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|---------------------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type                          | M        |       | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU MBS F1AP ID                    | M        |       | 9.3.1.219             |                       | YES         | reject               |
| gNB-DU MBS F1AP ID                    | O        |       | 9.3.1.220             |                       | YES         | ignore               |
| MBS Multicast F1-U Context Descriptor | M        |       | 9.3.2.8               |                       | YES         | reject               |
| Cause                                 | M        |       | 9.3.1.2               |                       | YES         | ignore               |
| Criticality Diagnostics               | O        |       | 9.3.1.3               |                       | YES         | ignore               |

#### 9.2.14.13 MULTICAST DISTRIBUTION RELEASE COMMAND

This message is sent by the gNB-DU to request the gNB-CU to release the Multicast F1-U Context for a given multicast MBS Session.

Direction: gNB-DU → gNB-CU

| IE/Group Name                         | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|---------------------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type                          | M        |       | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU MBS F1AP ID                    | M        |       | 9.3.1.219             |                       | YES         | reject               |
| gNB-DU MBS F1AP ID                    | M        |       | 9.3.1.220             |                       | YES         | reject               |
| MBS Multicast F1-U Context Descriptor | M        |       | 9.3.2.8               |                       | YES         | reject               |
| Cause                                 | M        |       | 9.3.1.2               |                       | YES         | ignore               |

#### 9.2.14.14 MULTICAST DISTRIBUTION RELEASE COMPLETE

This message is sent by the gNB-CU to confirm the release of the Multicast F1-U Context.

Direction: gNB-CU → gNB-DU

| IE/Group Name                         | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|---------------------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type                          | M        |       | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU MBS F1AP ID                    | M        |       | 9.3.1.219             |                       | YES         | reject               |
| gNB-DU MBS F1AP ID                    | M        |       | 9.3.1.220             |                       | YES         | reject               |
| MBS Multicast F1-U Context Descriptor | M        |       | 9.3.2.8               |                       | YES         | reject               |
| Criticality Diagnostics               | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.14.15 MULTICAST CONTEXT NOTIFICATION INDICATION

This message is sent by the gNB-DU to notify the gNB-CU about changes of the multicast context.

Direction: gNB-DU → gNB-CU

| IE/Group Name                      | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|------------------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type                       | M        |       | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU MBS F1AP ID                 | M        |       | 9.3.1.219             |                       | YES         | reject               |
| gNB-DU MBS F1AP ID                 | M        |       | 9.3.1.220             |                       | YES         | reject               |
| Multicast DU to CU RRC Information | O        |       | 9.3.1.311             |                       | YES         | reject               |

### 9.2.14.16 MULTICAST CONTEXT NOTIFICATION CONFIRM

This message is sent by the gNB-CU to notify the gNB-DU to confirm the execution of the requested functions.

Direction: gNB-CU → gNB-DU

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU MBS F1AP ID      | M        |       | 9.3.1.219             |                       | YES         | reject               |
| gNB-DU MBS F1AP ID      | M        |       | 9.3.1.220             |                       | YES         | reject               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.14.17 MULTICAST CONTEXT NOTIFICATION REFUSE

This message is sent by the gNB-CU to notify the gNB-DU that the execution of the requested functions was not successful.

Direction: gNB-CU → gNB-DU

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| gNB-CU MBS F1AP ID      | M        |       | 9.3.1.219             |                       | YES         | reject               |
| gNB-DU MBS F1AP ID      | M        |       | 9.3.1.220             |                       | YES         | reject               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |
| Cause                   | M        |       | 9.3.1.2               |                       | YES         | ignore               |

### 9.2.14.18 MULTICAST COMMON CONFIGURATION REQUEST

This message is sent by the gNB-CU to request the gNB-DU to configure common items in the gNB-DU.

Direction: gNB-CU → gNB-DU

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|---------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type  | M        |       | 9.3.1.1               |                       | YES         | reject               |

| IE/Group Name                             | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Transaction ID                            | M        |       | 9.3.1.23              |                       | YES         | reject               |
| Multicast CU to DU Common RRC Information | O        |       | 9.3.1.314             |                       | YES         | reject               |

### 9.2.14.19 MULTICAST COMMON CONFIGURATION RESPONSE

This message is sent by the gNB-DU to notify the gNB-CU to confirm the execution of the requested functions.

Direction: gNB-DU → gNB-CU

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| Transaction ID          | M        |       | 9.3.1.23              |                       | YES         | reject               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.14.20 MULTICAST COMMON CONFIGURATION REFUSE

This message is sent by the gNB-DU to notify the gNB-CU that the execution of the requested functions was not successful.

Direction: gNB-DU → gNB-CU

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | reject               |
| Transaction ID          | M        |       | 9.3.1.23              |                       | YES         | reject               |
| Cause                   | M        |       | 9.3.1.2               |                       | YES         | ignore               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

## 9.2.15 PDC Measurement Reporting messages

### 9.2.15.1 PDC MEASUREMENT INITIATION REQUEST

This message is sent by gNB-CU to initiate PDC measurements.

Direction: gNB-CU → gNB-DU.

| IE/Group Name               | Presence                   | Range | IE type and reference                                                                                    | Semantics description | Criticality | Assigned Criticality |
|-----------------------------|----------------------------|-------|----------------------------------------------------------------------------------------------------------|-----------------------|-------------|----------------------|
| Message Type                | M                          |       | 9.3.1.1                                                                                                  |                       | YES         | reject               |
| gNB-CU UE F1AP ID           | M                          |       | 9.3.1.4                                                                                                  |                       | YES         | reject               |
| gNB-DU UE F1AP ID           | M                          |       | 9.3.1.5                                                                                                  |                       | YES         | reject               |
| RAN UE PDC Measurement ID   | M                          |       | INTEGER (1..16, ...)                                                                                     |                       | YES         | reject               |
| PDC Report Type             | M                          |       | ENUMERATED (OnDemand, Periodic, ...)                                                                     |                       | YES         | reject               |
| PDC Measurement Periodicity | C-<br>ifReportTypePeriodic |       | ENUMERATED (80ms, 120ms, 160ms, 240ms, 320ms, 480ms, 640ms, 1024ms, 1280ms, 2048ms, 2560ms, 5120ms, ...) |                       | YES         | reject               |

| IE/Group Name                     | Presence | Range                  | IE type and reference                       | Semantics description | Criticality | Assigned Criticality |
|-----------------------------------|----------|------------------------|---------------------------------------------|-----------------------|-------------|----------------------|
| <b>PDC Measurement Quantities</b> |          | 1 ..<br><maxnoMeasPDC> |                                             |                       | EACH        | reject               |
| >PDC Measurement Quantities Item  | M        |                        | ENUMERATED<br>(NR PDC TADV, gNB RX-TX, ...) |                       | -           |                      |

| Range bound  | Explanation                                                                                                                             |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| maxnoMeasPDC | Maximum no. of PDC measured quantities that can be configured and reported with one message. Value is 16. Maximum is 1 in this release. |

| Condition            | Explanation                                                                        |
|----------------------|------------------------------------------------------------------------------------|
| ifReportTypePeriodic | This IE shall be present if the PDC Report Type IE is set to the value "Periodic". |

### 9.2.15.2 PDC MEASUREMENT INITIATION RESPONSE

This message is sent by gNB-DU to indicate that the requested PDC measurement is successfully initiated.

Direction: gNB-DU → gNB-CU.

| IE/Group Name             | Presence | Range | IE type and reference   | Semantics description | Criticality | Assigned Criticality |
|---------------------------|----------|-------|-------------------------|-----------------------|-------------|----------------------|
| Message Type              | M        |       | 9.3.1.1                 |                       | YES         | reject               |
| gNB-CU UE F1AP ID         | M        |       | 9.3.1.4                 |                       | YES         | reject               |
| gNB-DU UE F1AP ID         | M        |       | 9.3.1.5                 |                       | YES         | reject               |
| RAN UE PDC Measurement ID | M        |       | INTEGER<br>(1..16, ...) |                       | YES         | reject               |
| PDC Measurement Result    | O        |       | 9.3.1.232               |                       | YES         | ignore               |
| Criticality Diagnostics   | O        |       | 9.3.1.3                 |                       | YES         | ignore               |

### 9.2.15.3 PDC MEASUREMENT INITIATION FAILURE

This message is sent by gNB-DU to indicate that the requested PDC measurement cannot be initiated.

Direction: gNB-DU → gNB-CU.

| IE/Group Name             | Presence | Range | IE type and reference   | Semantics description | Criticality | Assigned Criticality |
|---------------------------|----------|-------|-------------------------|-----------------------|-------------|----------------------|
| Message Type              | M        |       | 9.3.1.1                 |                       | YES         | reject               |
| gNB-CU UE F1AP ID         | M        |       | 9.3.1.4                 |                       | YES         | reject               |
| gNB-DU UE F1AP ID         | M        |       | 9.3.1.5                 |                       | YES         | reject               |
| RAN UE PDC Measurement ID | M        |       | INTEGER<br>(1..16, ...) |                       | YES         | ignore               |
| Cause                     | M        |       | 9.3.1.2                 |                       | YES         | ignore               |
| Criticality Diagnostics   | O        |       | 9.3.1.3                 |                       | YES         | ignore               |

### 9.2.15.4 PDC MEASUREMENT REPORT

This message is sent by gNB-DU to report the results of the requested PDC measurement.

Direction: gNB-DU → gNB-CU.



| IE/Group Name             | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|---------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type              | M        |       | 9.3.1.1               |                       | YES         | ignore               |
| gNB-CU UE F1AP ID         | M        |       | 9.3.1.4               |                       | YES         | reject               |
| gNB-DU UE F1AP ID         | M        |       | 9.3.1.5               |                       | YES         | reject               |
| RAN UE PDC Measurement ID | M        |       | INTEGER (1..16, ...)  |                       | YES         | reject               |
| PDC Measurement Result    | M        |       | 9.3.1.232             |                       | YES         | ignore               |

### 9.2.15.5 PDC MEASUREMENT TERMINATION COMMAND

This message is sent by the gNB-CU to request the gNB-DU to terminate an ongoing periodical PDC measurement.

Direction: gNB-CU → gNB-DU.

| IE/Group Name             | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|---------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type              | M        |       | 9.3.1.1               |                       | YES         | ignore               |
| gNB-CU UE F1AP ID         | M        |       | 9.3.1.4               |                       | YES         | reject               |
| gNB-DU UE F1AP ID         | M        |       | 9.3.1.5               |                       | YES         | reject               |
| RAN UE PDC Measurement ID | M        |       | INTEGER (1..16, ...)  |                       | YES         | ignore               |

### 9.2.15.6 PDC MEASUREMENT FAILURE INDICATION

This message is sent by the gNB-DU to indicate that the previously requested PDC measurements can no longer be reported.

Direction: gNB-DU → gNB-CU.

| IE/Group Name             | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|---------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type              | M        |       | 9.3.1.1               |                       | YES         | ignore               |
| gNB-CU UE F1AP ID         | M        |       | 9.3.1.4               |                       | YES         | reject               |
| gNB-DU UE F1AP ID         | M        |       | 9.3.1.5               |                       | YES         | reject               |
| RAN UE PDC Measurement ID | M        |       | INTEGER (1..16, ...)  |                       | YES         | ignore               |
| Cause                     | M        |       | 9.3.1.2               |                       | YES         | ignore               |

## 9.2.16 QMC messages

### 9.2.16.1 QOE INFORMATION TRANSFER

This message is sent by a gNB-CU to a gNB-DU, to indicate information related to RAN visible QoE.

Direction: gNB-CU → gNB-DU.

| IE/Group Name         | Presence | Range                       | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-----------------------|----------|-----------------------------|-----------------------|-----------------------|-------------|----------------------|
| Message Type          | M        |                             | 9.3.1.1               |                       | YES         | ignore               |
| gNB-CU UE F1AP ID     | M        |                             | 9.3.1.4               |                       | YES         | reject               |
| gNB-DU UE F1AP ID     | M        |                             | 9.3.1.5               |                       | YES         | reject               |
| QoE Information List  |          | 0..1                        |                       |                       | YES         | ignore               |
| >QoE Information Item |          | 1..<maxno ofQoEInformation> |                       |                       | -           |                      |
| >>QoE Metrics         | O        |                             | 9.3.1.260             |                       | -           |                      |
| >>DRB List            |          | 0..1                        |                       |                       | YES         | ignore               |
| >>>DRB List Item      |          | 1 ..                        |                       | The List of DRBs      |             |                      |

| IE/Group Name | Presence | Range                       | IE type and reference | Semantics description                 | Criticality | Assigned Criticality |
|---------------|----------|-----------------------------|-----------------------|---------------------------------------|-------------|----------------------|
|               |          | <i>&lt;maxnoof DRBs&gt;</i> |                       | corresponding to the QoE Information. |             |                      |
| >>>>DRB ID    | M        |                             | 9.3.1.8               |                                       |             |                      |

| Range bound           | Explanation                                                          |
|-----------------------|----------------------------------------------------------------------|
| maxnoofQoEInformation | Maximum no. of QoE information for one UE, the maximum value is 16.  |
| maxnoofDRBs           | Maximum no. of DRBs allowed towards one UE, the maximum value is 64. |

## 9.2.16.2 QOE INFORMATION TRANSFER CONTROL

This message is sent by a gNB-DU to the gNB-CU, to control the QoE information transfer.

Direction: gNB-DU → gNB-CU

| IE/Group Name                         | Presence | Range                                                  | IE type and reference | Semantics description                                                                                                       | Criticality | Assigned Criticality |
|---------------------------------------|----------|--------------------------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Message Type                          | M        |                                                        | 9.3.1.1               |                                                                                                                             | YES         | ignore               |
| Transaction ID                        | M        |                                                        | 9.3.1.23              |                                                                                                                             | YES         | reject               |
| CHOICE <i>Deactivation Indication</i> | O        |                                                        |                       |                                                                                                                             | YES         | ignore               |
| >Per UE                               |          |                                                        |                       |                                                                                                                             |             |                      |
| >>Deactivation Indication List        |          | 1                                                      |                       |                                                                                                                             | YES         | ignore               |
| >>>Deactivation Indication Item       |          | 1.. <i>maxno ofUEsInQMCTransferControl Message&gt;</i> |                       |                                                                                                                             | -           |                      |
| >>>> gNB-CU UE F1AP ID                | M        |                                                        | 9.3.1.4               |                                                                                                                             | -           |                      |
| >>>>gNB-DU UE F1AP ID                 | M        |                                                        | 9.3.1.5               |                                                                                                                             | -           |                      |
| >Deactivate ALL                       |          |                                                        | NULL                  | This choice indicates that RAN visible QoE reporting pertaining to all the UEs served by the gNB-DU, should be deactivated. |             |                      |

| Range bound                           | Explanation                                                                                          |
|---------------------------------------|------------------------------------------------------------------------------------------------------|
| maxnoofUEsInQMCTransferControlMessage | Maximum no. of UEs for which QoE transfer control information is received, the maximum value is 512. |

## 9.2.17 Timing Synchronisation Status Reporting Messages

### 9.2.17.1 TIMING SYNCHRONISATION STATUS REQUEST

This message is sent by the gNB-CU to request the gNB-DU to start or stop reporting of RAN timing synchronization status information.

Direction: gNB-CU → gNB-DU

| IE/Group Name        | Presence | Range | IE type and reference         | Semantics description | Criticality | Assigned Criticality |
|----------------------|----------|-------|-------------------------------|-----------------------|-------------|----------------------|
| Message Type         | M        |       | 9.3.1.1                       |                       | YES         | reject               |
| Transaction ID       | M        |       | 9.3.1.23                      |                       | YES         | reject               |
| RAN TSS Request Type | M        |       | ENUMERATED (start, stop, ...) |                       | YES         | reject               |

### 9.2.17.2 TIMING SYNCHRONISATION STATUS RESPONSE

This message is sent by the gNB-DU to confirm the request to start or stop reporting of RAN timing synchronization status information.

Direction: gNB-DU → gNB-CU

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | ignore               |
| Transaction ID          | M        |       | 9.3.1.23              |                       | YES         | reject               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.17.3 TIMING SYNCHRONISATION STATUS FAILURE

This message is sent by the gNB-DU to indicate that reporting of RAN timing synchronisation status information cannot be initiated.

Direction: gNB-DU → gNB-CU

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type            | M        |       | 9.3.1.1               |                       | YES         | ignore               |
| Transaction ID          | M        |       | 9.3.1.23              |                       | YES         | reject               |
| Cause                   | M        |       | 9.3.1.2               |                       | YES         | ignore               |
| Criticality Diagnostics | O        |       | 9.3.1.3               |                       | YES         | ignore               |

### 9.2.17.4 TIMING SYNCHRONISATION STATUS REPORT

This message is sent by the gNB-DU to report RAN timing synchronisation status information.

Direction: gNB-DU → gNB-CU

| IE/Group Name                                 | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-----------------------------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Message Type                                  | M        |       | 9.3.1.1               |                       | YES         | ignore               |
| Transaction ID                                | M        |       | 9.3.1.23              |                       | YES         | reject               |
| RAN Timing Synchronisation Status Information | M        |       | 9.3.1.298             |                       | YES         | ignore               |

## 9.3 Information Element Definitions

### 9.3.1 Radio Network Layer Related IEs

#### 9.3.1.1 Message Type

The *Message Type* IE uniquely identifies the message being sent. It is mandatory for all messages.

| IE/Group Name       | Presence | Range | IE type and reference                                                                   | Semantics description |
|---------------------|----------|-------|-----------------------------------------------------------------------------------------|-----------------------|
| <b>Message Type</b> |          |       |                                                                                         |                       |
| >Procedure Code     | M        |       | INTEGER (0..255)                                                                        |                       |
| >Type of Message    | M        |       | CHOICE<br>(Initiating Message,<br>Successful Outcome<br>,<br>Unsuccessful Outcome, ...) |                       |

### 9.3.1.2 Cause

The purpose of the *Cause* IE is to indicate the reason for a particular event for the F1AP protocol.

| IE/Group Name                | Presence | Range | IE Type and Reference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Semantics Description |
|------------------------------|----------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| CHOICE <i>Cause Group</i>    | M        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                       |
| > <i>Radio Network Layer</i> |          |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                       |
| >>Radio Network Layer Cause  | M        |       | ENUMERATED<br>(Unspecified, RL failure-RLC, Unknown or already allocated gNB-CU UE F1AP ID, Unknown or already allocated gNB-DU UE F1AP ID, Unknown or inconsistent pair of UE F1AP ID, Interaction with other procedure, Not supported QCI Value, Action Desirable for Radio Reasons, No Radio Resources Available, Procedure cancelled, Normal Release, ..., Cell not available, RL failure-others, UE rejection, Resources not available for the slice(s), AMF initiated abnormal release, Release due to Pre-Emption, PLMN not served by the gNB-CU, Multiple DRB ID Instances, Unknown DRB ID, Multiple BH RLC CH ID Instances, Unknown BH RLC CH ID, CHO-CPC resources to be changed, NPN not supported, NPN access denied, gNB-CU Cell Capacity Exceeded, |                       |

| IE/Group Name              | Presence | Range | IE Type and Reference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Semantics Description |
|----------------------------|----------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
|                            |          |       | Report Characteristics<br>Empty, Existing<br>Measurement ID,<br>Measurement<br>Temporarily not<br>Available,<br>Measurement not<br>Supported For The<br>Object, Unknown<br>BAP address,<br>Unknown BAP<br>routing ID,<br>Insufficient UE<br>Capabilities, SCG<br>activation<br>deactivation failure,<br>SCG deactivation<br>failure due to data<br>transmission,<br>Requested Item not<br>Supported on Time,<br>Unknown or already<br>allocated gNB-CU<br>MBS F1AP ID,<br>Unknown or already<br>allocated gNB-DU<br>MBS F1AP ID,<br>Unknown or<br>inconsistent pair of<br>MBS F1AP ID,<br>Unknown or<br>inconsistent MRB<br>ID, TAT-SDT expiry,<br>LTM command<br>triggered, SSB not<br>Available) |                       |
| <i>&gt;Transport Layer</i> |          |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                       |
| >>Transport Layer Cause    | M        |       | ENUMERATED<br>(Unspecified,<br>Transport Resource<br>Unavailable, ...,<br>Unknown TNL<br>address for IAB,<br>Unknown UP TNL<br>information for IAB)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                       |
| <i>&gt;Protocol</i>        |          |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                       |
| >>Protocol Cause           | M        |       | ENUMERATED<br>(Transfer Syntax<br>Error,<br>Abstract Syntax<br>Error (Reject),<br>Abstract Syntax<br>Error (Ignore and<br>Notify),<br>Message not<br>Compatible with<br>Receiver State,<br>Semantic Error,<br>Abstract Syntax<br>Error (Falsely<br>Constructed<br>Message),<br>Unspecified, ...)                                                                                                                                                                                                                                                                                                                                                                                                   |                       |
| <i>&gt;Misc</i>            |          |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                       |
| >>Miscellaneous Cause      | M        |       | ENUMERATED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                       |

| IE/Group Name | Presence | Range | IE Type and Reference                                                                                                           | Semantics Description |
|---------------|----------|-------|---------------------------------------------------------------------------------------------------------------------------------|-----------------------|
|               |          |       | (Control Processing Overload, Not enough User Plane Processing Resources, Hardware Failure, O&M Intervention, Unspecified, ...) |                       |

The meaning of the different cause values is described in the following table. In general, "not supported" cause values indicate that the related capability is missing. On the other hand, "not available" cause values indicate that the related capability is present, but insufficient resources were available to perform the requested action.

| Radio Network Layer cause                      | Meaning                                                                                                                                                                   |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unspecified                                    | Sent when none of the specified cause values applies but still the cause is Radio Network Layer related.                                                                  |
| RL Failure-RLC                                 | The action is due to an RL failure caused by exceeding the maximum number of ARQ retransmissions.                                                                         |
| Unknown or already allocated gNB-CU UE F1AP ID | The action failed because the gNB-CU UE F1AP ID is either unknown, or (for a first message received at the gNB-DU) is known and already allocated to an existing context. |
| Unknown or already allocated gNB-DU UE F1AP ID | The action failed because the gNB-DU UE F1AP ID is either unknown, or (for a first message received at the gNB-CU) is known and already allocated to an existing context. |
| Unknown or inconsistent pair of UE F1AP ID     | The action failed because both UE F1AP IDs are unknown, or are known but do not define a single UE context.                                                               |
| Interaction with other procedure               | The action is due to an ongoing interaction with another procedure.                                                                                                       |
| Not supported QCI Value                        | The action failed because the requested QCI is not supported.                                                                                                             |
| Action Desirable for Radio Reasons             | The reason for requesting the action is radio related.                                                                                                                    |
| No Radio Resources Available                   | The cell(s) in the requested node don't have sufficient radio resources available.                                                                                        |
| Procedure cancelled                            | The sending node cancelled the procedure due to other urgent actions to be performed.                                                                                     |
| Normal Release                                 | The action is due to a normal release of the UE (e.g. because of mobility) and does not indicate an error.                                                                |
| Cell Not Available                             | The action failed due to no cell available in the requested node.                                                                                                         |
| RL Failure-others                              | The action is due to an RL failure caused by other radio link failures than exceeding the maximum number of ARQ retransmissions.                                          |
| UE rejection                                   | The action is due to gNB-CU's rejection of a UE access request.                                                                                                           |
| Resources not available for the slice(s)       | The requested resources are not available for the slice(s).                                                                                                               |
| AMF initiated abnormal release                 | The release is triggered by an error in the AMF or in the NAS layer.                                                                                                      |
| Release due to Pre-Emption                     | Release is initiated due to pre-emption.                                                                                                                                  |
| PLMN not served by the gNB-CU                  | The PLMN indicated by the UE is not served by the gNB-CU.                                                                                                                 |
| Multiple DRB ID Instances                      | The action failed because multiple instances of the same DRB had been provided.                                                                                           |
| Unknown DRB ID                                 | The action failed because the DRB ID is unknown.                                                                                                                          |
| Multiple BH RLC CH ID Instances                | The action failed because multiple instances of the same BH RLC CH ID had been provided. This cause value is only applicable to IAB.                                      |
| Unknown BH RLC CH ID                           | The action failed because the BH RLC CH ID is unknown. This cause value is only applicable to IAB.                                                                        |
| CHO-CPC resources to be changed                | The gNB-DU requires gNB-CU to replace, i.e. overwrite the configuration of indicated candidate target cell.                                                               |
| NPN not supported                              | The action fails because the indicated SNPN is not supported in the node.                                                                                                 |
| NPN access denied                              | The action is due to rejection of a UE access request for NPN.                                                                                                            |
| gNB-CU Cell Capacity Exceeded                  | The number of cells requested to be added was exceeding maximum cell capacity in the gNB-CU.                                                                              |

| Radio Network Layer cause                         | Meaning                                                                                                                                                                    |
|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Report Characteristics Empty                      | The action failed because there is no measurement object in the report characteristics.                                                                                    |
| Existing Measurement ID                           | The action failed because the measurement ID is already used.                                                                                                              |
| Measurement Temporarily not Available             | The gNB-DU can temporarily not provide the requested measurement object.                                                                                                   |
| Measurement not Supported For The Object          | At least one of the concerned object(s) does not support the requested measurement.                                                                                        |
| Unknown BAP address                               | The action failed because the BAP address is unknown. This cause value is only applicable to IAB.                                                                          |
| Unknown BAP routing ID                            | The action failed because the BAP routing ID is unknown. This cause value is only applicable to IAB.                                                                       |
| Insufficient UE Capabilities                      | The setup can't proceed due to insufficient UE capabilities.                                                                                                               |
| SCG activation deactivation failure               | The action failed due to rejection of the SCG activation deactivation request.                                                                                             |
| SCG deactivation failure due to data transmission | The SCG deactivation failure due to ongoing or arriving data transmission.                                                                                                 |
| Requested Item not Supported on Time              | The gNB-DU is unable to provide the measurement results on time.                                                                                                           |
| Unknown or already allocated gNB-CU MBS F1AP ID   | The action failed because the gNB-CU MBS F1AP ID is either unknown, or (for a first message received at the gNB-CU) is known and already allocated to an existing context. |
| Unknown or already allocated gNB-DU MBS F1AP ID   | The action failed because the gNB-DU MBS F1AP ID is either unknown, or (for a first message received at the gNB-DU) is known and already allocated to an existing context. |
| Unknown or inconsistent pair of MBS F1AP ID       | The action failed because both MBS F1AP IDs are unknown, or are known but do not define a single MBS context.                                                              |
| Unknown or inconsistent MRB ID                    | The action failed because the MRB ID is unknown or inconsistent.                                                                                                           |
| TAT-SDT expiry                                    | The UE context release is requested from the gNB-DU due to the expiry of the Timing Alignment timer for CG-SDT.                                                            |
| LTM command triggered                             | The action failed because the LTM command has been triggered.                                                                                                              |
| SSB not Available                                 | The action failed due to no SSB available in the requested node.                                                                                                           |

| Transport Layer cause              | Meaning                                                                                                            |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Unspecified                        | Sent when none of the specified cause cause values applies but still the cause is Transport Network Layer related. |
| Transport Resource Unavailable     | The required transport resources are not available.                                                                |
| Unknown TNL address for IAB        | The action failed because the TNL address is unknown. This cause value is only applicable to IAB.                  |
| Unknown UP TNL information for IAB | The action failed because the UP TNL information is unknown. This cause value is only applicable to IAB.           |

| Protocol cause                                      | Meaning                                                                                                              |
|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Transfer Syntax Error                               | The received message included a transfer syntax error.                                                               |
| Abstract Syntax Error (Reject)                      | The received message included an abstract syntax error and the concerning criticality indicated "reject".            |
| Abstract Syntax Error (Ignore And Notify)           | The received message included an abstract syntax error and the concerning criticality indicated "ignore and notify". |
| Message Not Compatible With Receiver State          | The received message was not compatible with the receiver state.                                                     |
| Semantic Error                                      | The received message included a semantic error.                                                                      |
| Abstract Syntax Error (Falsely Constructed Message) | The received message contained IEs or IE groups in wrong order or with too many occurrences.                         |
| Unspecified                                         | Sent when none of the specified cause cause values applies but still the cause is Protocol related.                  |

| Miscellaneous cause                                  | Meaning                                                             |
|------------------------------------------------------|---------------------------------------------------------------------|
| Control Processing Overload                          | Control processing overload.                                        |
| Not Enough User Plane Processing Resources Available | No enough resources are available related to user plane processing. |

| Miscellaneous cause | Meaning                                                                                                                                                                    |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hardware Failure    | Action related to hardware failure.                                                                                                                                        |
| O&M Intervention    | The action is due to O&M intervention.                                                                                                                                     |
| Unspecified Failure | Sent when none of the specified cause cause values applies and the cause is not related to any of the categories Radio Network Layer, Transport Network Layer or Protocol. |

### 9.3.1.3 Criticality Diagnostics

The *Criticality Diagnostics* IE is sent by the gNB-DU or the gNB-CU when parts of a received message have not been comprehended or were missing, or if the message contained logical errors. When applicable, it contains information about which IEs were not comprehended or were missing.

For further details on how to use the *Criticality Diagnostics* IE, (see clause 10). The conditions for inclusion of the *Transaction ID* IE are described in clause 10.

| IE/Group Name                                      | Presence | Range                | IE type and reference                                                    | Semantics description                                                                                                                                                           |
|----------------------------------------------------|----------|----------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Procedure Code                                     | O        |                      | INTEGER (0..255)                                                         | Procedure Code is to be used if Criticality Diagnostics is part of Error Indication procedure, and not within the response message of the same procedure that caused the error. |
| Triggering Message                                 | O        |                      | ENUMERATED(initiating message, successful outcome, unsuccessful outcome) | The Triggering Message is used only if the Criticality Diagnostics is part of Error Indication procedure.                                                                       |
| Procedure Criticality                              | O        |                      | ENUMERATED(reject, ignore, notify)                                       | This Procedure Criticality is used for reporting the Criticality of the Triggering message (Procedure).                                                                         |
| Transaction ID                                     | O        |                      | 9.3.1.23                                                                 |                                                                                                                                                                                 |
| <b>Information Element Criticality Diagnostics</b> |          | 0 .. <maxnoofErrors> |                                                                          |                                                                                                                                                                                 |
| >IE Criticality                                    | M        |                      | ENUMERATED(reject, ignore, notify)                                       | The IE Criticality is used for reporting the criticality of the triggering IE. The value 'ignore' is not applicable.                                                            |
| >IE ID                                             | M        |                      | INTEGER (0..65535)                                                       | The IE ID of the not understood or missing IE.                                                                                                                                  |
| >Type of Error                                     | M        |                      | ENUMERATED(not understood, missing, ...)                                 |                                                                                                                                                                                 |

| Range bound   | Explanation                                                                                                |
|---------------|------------------------------------------------------------------------------------------------------------|
| maxnoofErrors | Maximum no. of IE errors allowed to be reported with a single message. The value for maxnoofErrors is 256. |

### 9.3.1.4 gNB-CU UE F1AP ID

The gNB-CU UE F1AP ID uniquely identifies the UE association over the F1 interface within the gNB-CU.

NOTE: If F1-C signalling transport is shared among multiple interface instances, the value of the gNB-CU UE F1AP ID is allocated so that it can be associated with the corresponding F1-C interface instance.

| IE/Group Name     | Presence | Range | IE type and reference              | Semantics description |
|-------------------|----------|-------|------------------------------------|-----------------------|
| gNB-CU UE F1AP ID | M        |       | INTEGER (0 .. 2 <sup>32</sup> - 1) |                       |



### 9.3.1.5 gNB-DU UE F1AP ID

The gNB-DU UE F1AP ID uniquely identifies the UE association over the F1 interface within the gNB-DU.

NOTE: If F1-C signalling transport is shared among multiple interface instances, the value of the gNB-DU UE F1AP ID is allocated so that it can be associated with the corresponding F1-C interface instance.

| IE/Group Name     | Presence | Range | IE type and reference      | Semantics description |
|-------------------|----------|-------|----------------------------|-----------------------|
| gNB-DU UE F1AP ID | M        |       | INTEGER (0 .. $2^{32}-1$ ) |                       |

### 9.3.1.6 RRC-Container

This information element contains a gNB-CU→UE or a UE → gNB-CU message that is transferred without interpretation in the gNB-DU.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
|---------------|----------|-------|-----------------------|-----------------------|
| RRC-Container | M        |       | OCTET STRING          |                       |

### 9.3.1.7 SRB ID

This IE uniquely identifies a SRB for a UE.

| IE/Group Name | Presence | Range | IE type and reference      | Semantics description                                                                                                  |
|---------------|----------|-------|----------------------------|------------------------------------------------------------------------------------------------------------------------|
| SRB ID        | M        |       | INTEGER (0..3, ..., 4   5) | Corresponds to the identities of SRB as defined in TS 38.331 [8]. Value 0 indicates SRB0, value 1 indicates SRB1, etc. |

### 9.3.1.8 DRB ID

This IE uniquely identifies a DRB for a UE.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description                                               |
|---------------|----------|-------|-----------------------|---------------------------------------------------------------------|
| DRB ID        | M        |       | INTEGER (1.. 32, ...) | Corresponds to the <i>DRB-Identity</i> IE defined in TS 38.331 [8]. |

### 9.3.1.9 gNB-DU ID

The gNB-DU ID uniquely identifies the gNB-DU at least within a gNB-CU.

| IE/Group Name | Presence | Range | IE type and reference      | Semantics description                                                                                                       |
|---------------|----------|-------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| gNB-DU ID     | M        |       | INTEGER (0 .. $2^{36}-1$ ) | The gNB-DU ID is independently configured from cell identifiers, i.e. no connection between gNB-DU ID and cell identifiers. |

### 9.3.1.10 Served Cell Information

This IE contains cell configuration information of a cell in the gNB-DU.

| IE/Group Name                       | Presence | Range                | IE type and reference                    | Semantics description                                                                | Criticality | Assigned Criticality |
|-------------------------------------|----------|----------------------|------------------------------------------|--------------------------------------------------------------------------------------|-------------|----------------------|
| NR CGI                              | M        |                      | 9.3.1.12                                 |                                                                                      | -           |                      |
| NR PCI                              | M        |                      | INTEGER (0..1007)                        | Physical Cell ID                                                                     | -           |                      |
| 5GS TAC                             | O        |                      | 9.3.1.29                                 | 5GS Tracking Area Code                                                               | -           |                      |
| Configured EPS TAC                  | O        |                      | 9.3.1.29a                                |                                                                                      | -           |                      |
| <b>Served PLMNs</b>                 |          | 1..<maxno of BPLMNs> |                                          | Broadcast PLMNs in SIB 1 associated to the NR Cell Identity in the NR CGI IE         | -           |                      |
| >PLMN Identity                      | M        |                      | 9.3.1.14                                 |                                                                                      | -           |                      |
| >TAI Slice Support List             | O        |                      | Slice Support List<br>9.3.1.37           | Supported S-NSSAIs per PLMN or per SNPN.                                             | YES         | ignore               |
| >NPN Support Information            | O        |                      | 9.3.1.156                                | Supported NPNs per PLMN.                                                             | YES         | reject               |
| >Extended TAI Slice Support List    | O        |                      | Extended Slice Support List<br>9.3.1.165 | Additional Supported S-NSSAIs per PLMN or per SNPN.                                  | YES         | reject               |
| >TAI NSAG Support List              | O        |                      | 9.3.1.273                                | NSAG information associated with the slices per TAC, per PLMN or per SNPN.           | YES         | ignore               |
| CHOICE NR-Mode-Info                 | M        |                      |                                          |                                                                                      | -           |                      |
| >FDD                                |          |                      |                                          |                                                                                      | -           |                      |
| >>FDD Info                          |          | 1                    |                                          |                                                                                      | -           |                      |
| >>>UL FreqInfo                      | M        |                      | NR Frequency Info<br>9.3.1.17            | This IE is ignored if the <i>Cell Direction</i> IE is included and set to "dl-only". | -           |                      |
| >>>DL FreqInfo                      | M        |                      | NR Frequency Info<br>9.3.1.17            | This IE is ignored if the <i>Cell Direction</i> IE is included and set to "ul-only". | -           |                      |
| >>>UL Transmission Bandwidth        | M        |                      | Transmission Bandwidth<br>9.3.1.15       | This IE is ignored if the <i>Cell Direction</i> IE is included and set to "dl-only". | -           |                      |
| >>>DL Transmission Bandwidth        | M        |                      | Transmission Bandwidth<br>9.3.1.15       | This IE is ignored if the <i>Cell Direction</i> IE is included and set to "ul-only". | -           |                      |
| >>>UL Carrier List                  | O        |                      | NR Carrier List<br>9.3.1.137             | If included, the <i>UL Transmission Bandwidth</i> IE shall be ignored.               | YES         | ignore               |
| >>>DL Carrier List                  | O        |                      | NR Carrier List<br>9.3.1.137             | If included, the <i>DL Transmission Bandwidth</i> IE shall be ignored.               | YES         | ignore               |
| >TDD                                |          |                      |                                          |                                                                                      | -           |                      |
| >>TDD Info                          |          | 1                    |                                          |                                                                                      | -           |                      |
| >>>NR FreqInfo                      | M        |                      | NR Frequency Info<br>9.3.1.17            |                                                                                      | -           |                      |
| >>>Transmission Bandwidth           | M        |                      | 9.3.1.15                                 | This IE is ignored if the <i>Transmission Bandwidth asymmetric</i> IE is present.    | -           |                      |
| >>>Intended TDD DL-UL Configuration | O        |                      | 9.3.1.89                                 |                                                                                      | YES         | ignore               |

| IE/Group Name                        | Presence | Range                      | IE type and reference                   | Semantics description                                                                                                                                                                                                                                                                                                                                                                                                                                    | Criticality | Assigned Criticality |
|--------------------------------------|----------|----------------------------|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| >>>TDD UL-DL Configuration Common NR | O        |                            | OCTET STRING                            | Includes the <i>tdd-UL-DL-ConfigurationCommon</i> contained in the <i>ServingCellConfigCommon</i> IE as defined in TS 38.331 [8]                                                                                                                                                                                                                                                                                                                         | YES         | ignore               |
| >>>Carrier List                      | O        |                            | NR Carrier List 9.3.1.137               | If included, the <i>Transmission Bandwidth</i> IE shall be ignored.                                                                                                                                                                                                                                                                                                                                                                                      | YES         | ignore               |
| >>>Transmission Bandwidth asymmetric |          | 0..1                       |                                         | Indicates the asymmetric UL and DL transmission bandwidth.                                                                                                                                                                                                                                                                                                                                                                                               | YES         | ignore               |
| >>>>UL Transmission Bandwidth        | M        |                            | Transmission Bandwidth 9.3.1.15         | .                                                                                                                                                                                                                                                                                                                                                                                                                                                        | —           |                      |
| >>>>DL Transmission Bandwidth        | M        |                            | Transmission Bandwidth 9.3.1.15         |                                                                                                                                                                                                                                                                                                                                                                                                                                                          | —           |                      |
| >NR-U                                |          |                            |                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                          | YES         | ignore               |
| >>NR-U Channel Info List             |          | 1..<maxnoofNR-UChannelIDs> |                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -           |                      |
| >>>NR-U Channel Info Item            |          |                            |                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -           |                      |
| >>>>NR-U Channel ID                  | M        |                            | INTEGER (1..maxnoofNR-UChannelIDs, ...) | Index to uniquely identify the part of the NR-U Channel Bandwidth consisting of a contiguous set of resource blocks (RBs) on which a channel access procedure is performed in shared spectrum.<br><br>Value 1 represents the first part of the NR-U Channel Bandwidth on which a channel access procedure is performed.<br>Value 2 represents the second part of the NR-U Channel Bandwidth on which a channel access procedure is performed, and so on. | -           |                      |
| >>>>NR-U ARFCN                       | M        |                            | INTEGER (0..maxNRARFCN)                 | It represents the centre frequency of the NR-U Channel Bandwidth for NR                                                                                                                                                                                                                                                                                                                                                                                  | -           |                      |

| IE/Group Name                     | Presence | Range                                   | IE type and reference                                         | Semantics description                                                                                                                                                                                                                       | Criticality | Assigned Criticality |
|-----------------------------------|----------|-----------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                                   |          |                                         |                                                               | bands restricted to operation with shared spectrum channel access, as defined in TS 37.213 [46]. Allowed values are specified in TS 38.101-1 [26] in Table 5.4.2.3-2, Table 5.4.2.3-3 and Table 5.4.2.3-4.                                  |             |                      |
| >>>>NR-U Channel Bandwidth        | M        |                                         | ENUMERATED (10MHz, 20MHz, 40MHz, 60 MHz, 80 MHz, ..., 100MHz) |                                                                                                                                                                                                                                             | -           |                      |
| Measurement Timing Configuration  | M        |                                         | OCTET STRING                                                  | Includes the <i>MeasurementTimingConfiguration</i> inter-node message defined in TS 38.331 [8].                                                                                                                                             | -           |                      |
| RANAC                             | O        |                                         | RAN Area Code 9.3.1.57                                        |                                                                                                                                                                                                                                             | YES         | ignore               |
| Extended Served PLMNs List        |          | 0..1                                    |                                                               | This is included if more than 6 Served PLMNs is to be signalled.                                                                                                                                                                            | YES         | ignore               |
| >Extended Served PLMNs Item       |          | 1.. <i>maxnumber of Extended BPLMNs</i> |                                                               |                                                                                                                                                                                                                                             | -           |                      |
| >>PLMN Identity                   | M        |                                         | 9.3.1.14                                                      |                                                                                                                                                                                                                                             | -           |                      |
| >>TAI Slice Support List          | O        |                                         | Slice Support List 9.3.1.37                                   | Supported S-NSSAIs per PLMN or per SNPN.                                                                                                                                                                                                    | -           |                      |
| >>NPN Support Information         | O        |                                         | 9.3.1.156                                                     | Supported NPNs per PLMN.                                                                                                                                                                                                                    | YES         | reject               |
| >>Extended TAI Slice Support List | O        |                                         | Extended Slice Support List 9.3.1.165                         | Additional Supported S-NSSAIs per PLMN or per SNPN.                                                                                                                                                                                         | YES         | reject               |
| >>TAI NSAG Support List           | O        |                                         | 9.3.1.273                                                     | NSAG information associated with the slices per TAC, per PLMN or per SNPN.                                                                                                                                                                  | YES         | ignore               |
| Cell Direction                    | O        |                                         | 9.3.1.78                                                      |                                                                                                                                                                                                                                             | YES         | ignore               |
| Broadcast PLMN Identity Info List |          | 0.. <i>maxnumber of BPLMNs NR</i>       |                                                               | This IE corresponds to the <i>PLMN-IdentityInfoList</i> IE and the <i>NPN-IdentityInfoList</i> IE (if available) in <i>SIB1</i> as specified in TS 38.331 [8]. All PLMN Identities and associated information contained in the <i>PLMN-</i> | YES         | ignore               |

| IE/Group Name                | Presence | Range | IE type and reference                    | Semantics description                                                                                                                                                                                                                                                                                                                                       | Criticality | Assigned Criticality |
|------------------------------|----------|-------|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                              |          |       |                                          | <i>IdentityInfoList</i> IE and NPN identities and associated information contained in the <i>NPN-IdentityInfoList</i> IE (if available) are included and provided in the same order as broadcast in SIB1. NOTE: In case of NPN-only cell, the PLMN Identities and associated information contained in the <i>PLMN-IdentityInfoList</i> IE are not included. |             |                      |
| >PLMN Identity List          | M        |       | Available PLMN List<br>9.3.1.65          | Broadcast PLMN IDs in SIB1 associated to the <i>NR Cell Identity</i> IE                                                                                                                                                                                                                                                                                     | -           |                      |
| >Extended PLMN Identity List | O        |       | Extended Available PLMN List<br>9.3.1.76 |                                                                                                                                                                                                                                                                                                                                                             | -           |                      |
| >5GS-TAC                     | O        |       | OCTET STRING (3)                         |                                                                                                                                                                                                                                                                                                                                                             | -           |                      |
| >NR Cell Identity            | M        |       | BIT STRING (36)                          |                                                                                                                                                                                                                                                                                                                                                             | -           |                      |
| >RANAC                       | O        |       | RAN Area Code<br>9.3.1.57                |                                                                                                                                                                                                                                                                                                                                                             | -           |                      |
| >Configured TAC Indication   | O        |       | 9.3.1.87a                                | NOTE: This IE is associated with the 5GS TAC in the <i>Broadcast PLMN Identity Info List</i> IE                                                                                                                                                                                                                                                             | YES         | ignore               |
| >NPN Broadcast Information   | O        |       | 9.3.1.157                                | If this IE is included the content of the <i>PLMN Identity List</i> IE and <i>Extended PLMN Identity List</i> IE if present in the <i>Broadcast PLMN Identity Info List</i> IE is ignored.                                                                                                                                                                  | YES         | reject               |
| Cell Type                    | O        |       | 9.3.1.87                                 |                                                                                                                                                                                                                                                                                                                                                             | YES         | ignore               |
| Configured TAC Indication    | O        |       | 9.3.1.87a                                | NOTE: This IE is associated with the 5GS TAC on top-level of the <i>Served Cell Information</i> IE                                                                                                                                                                                                                                                          | YES         | ignore               |
| Aggressor gNB Set ID         | O        |       | gNB Set ID<br>9.3.1.93                   | This IE indicates the associated aggressor gNB Set ID of the cell                                                                                                                                                                                                                                                                                           | YES         | ignore               |
| Victim gNB Set ID            | O        |       | gNB Set ID<br>9.3.1.93                   | This IE indicates the associated Victim gNB Set ID of the cell                                                                                                                                                                                                                                                                                              | YES         | ignore               |

| IE/Group Name                          | Presence | Range                               | IE type and reference | Semantics description                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Criticality | Assigned Criticality |
|----------------------------------------|----------|-------------------------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| IAB Info IAB-DU                        | O        |                                     | 9.3.1.106             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | YES         | ignore               |
| SSB Positions In Burst                 | O        |                                     | 9.3.1.138             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | YES         | ignore               |
| NR PRACH Configuration                 | O        |                                     | 9.3.1.139             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | YES         | ignore               |
| SFN Offset                             | O        |                                     | 9.3.1.208             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | YES         | ignore               |
| NPN Broadcast Information              | O        |                                     | 9.3.1.157             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | YES         | reject               |
| <b>Supported MBS FSA ID List</b>       |          | <i>0..&lt;maxno of MBSFS As&gt;</i> |                       | Shall contain all MBS Frequency Selection Area Identities associated with the NR CGI.                                                                                                                                                                                                                                                                                                                                                                                                          | YES         | ignore               |
| >MBS Frequency Selection Area Identity | M        |                                     | OCTET STRING(3)       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | –           |                      |
| RedCap Broadcast Information           | O        |                                     | BIT STRING (SIZE(8))  | The presence of this IE indicates that the <i>intraFreqReselectionRedCap</i> IE is broadcast in SIB1 of the corresponding cell, see TS 38.331 [8]. Each position in the bitmap indicates which RedCap UEs are allowed access, according to the setting of RedCap barring indicators in SIB1, see TS 38.331 [8]. First bit = 1Rx, second bit = 2Rx, third bit = halfDuplex, other bits reserved for future use. Value '1' indicates 'access allowed'. Value '0' indicates 'access not allowed'. | YES         | ignore               |
| eRedCap Broadcast Information          | O        |                                     | BIT STRING (SIZE(8))  | The presence of this IE indicates that the <i>intraFreqReselection-eRedCap</i> IE is broadcast in SIB1 of the corresponding cell, see TS 38.331 [8]. Each position in the bitmap indicates which eRedCap UEs are allowed access, according to the setting of the barring indicators in SIB1, see TS 38.331 [8]. First bit = 1Rx, second bit = 2Rx,                                                                                                                                             | YES         | ignore               |

| IE/Group Name                                    | Presence | Range | IE type and reference  | Semantics description                                                                                                                        | Criticality | Assigned Criticality |
|--------------------------------------------------|----------|-------|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                                                  |          |       |                        | third bit=half-duplex, other bits reserved for future use. Value '1' indicates 'access allowed'. Value '0' indicates 'access not allowed'.   |             |                      |
| XR Broadcast Information                         | O        |       | ENUMERATED (true, ...) | Corresponds to information provided in the <i>cellBarred2RxXR</i> contained in the <i>SIB1</i> message as defined in TS 38.331 [8].          | YES         | ignore               |
| Barring Exemption for Emergency Call Information | O        |       | ENUMERATED (true, ...) | Corresponds to information provided in the <i>barringExemptEmergencyCall</i> contained in the <i>SIB1</i> message as defined in 38.331 [10]. | YES         | ignore               |

| Range bound           | Explanation                                                   |
|-----------------------|---------------------------------------------------------------|
| maxnoofBPLMNs         | Maximum no. of Broadcast PLMN Ids. Value is 6.                |
| maxnoofExtendedBPLMNs | Maximum no. of Extended Broadcast PLMN Ids. Value is 6.       |
| maxnoofBPLMNsNR       | Maximum no. of PLMN Ids.broadcast in an NR cell. Value is 12. |
| maxnoofNR-UChannelIDs | Maximum no. NR-U Channel IDs in a cell. Value is 16.          |
| maxnoofMBSFSAs        | Maximum no. of MBS FSAs by a cell. Value is 256.              |

### 9.3.1.11 Transmission Action Indicator

This IE indicates actions for the gNB-DU for the data transmission to the UE.

| IE/Group Name                 | Presence | Range | IE type and reference           | Semantics description |
|-------------------------------|----------|-------|---------------------------------|-----------------------|
| Transmission Action Indicator | M        |       | ENUMERATED (stop, ..., restart) |                       |

### 9.3.1.12 NR CGI

The NR Cell Global Identifier (NR CGI) is used to globally identify a cell.

| IE/Group Name    | Presence | Range | IE type and reference | Semantics description |
|------------------|----------|-------|-----------------------|-----------------------|
| PLMN Identity    | M        |       | 9.3.1.14              |                       |
| NR Cell Identity | M        |       | BIT STRING (SIZE(36)) |                       |

### 9.3.1.13 Time To wait

This IE defines the minimum allowed waiting times.

| IE/Group Name | Presence | Range | IE type and reference                      | Semantics description |
|---------------|----------|-------|--------------------------------------------|-----------------------|
| Time to wait  | M        |       | ENUMERATED(1s, 2s, 5s, 10s, 20s, 60s, ...) |                       |

### 9.3.1.14 PLMN Identity

This information element indicates the PLMN Identity.

| IE/Group Name | Presence | Range | IE type and reference  | Semantics description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------|----------|-------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PLMN Identity | M        |       | OCTET STRING (SIZE(3)) | <ul style="list-style-type: none"> <li>- digits 0 to 9, encoded 0000 to 1001,</li> <li>- 1111 used as filler digit, two digits per octet,</li> <li>- bits 4 to 1 of octet n encoding digit 2n-1</li> <li>- bits 8 to 5 of octet n encoding digit 2n</li> </ul> <p>-The PLMN identity consists of 3 digits from MCC followed by either</p> <ul style="list-style-type: none"> <li>-a filler digit plus 2 digits from MNC (in case of 2 digit MNC) or</li> <li>-3 digits from MNC (in case of a 3 digit MNC).</li> </ul> |

### 9.3.1.15 Transmission Bandwidth

The *Transmission Bandwidth* IE is used to indicate the UL or DL transmission bandwidth.

| IE/Group Name | Presence | Range | IE Type and Reference                                                                                                                                                                                                                                                                                                                | Semantics Description                                                                                                                                                                                                                                |
|---------------|----------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NR SCS        | M        |       | ENUMERATED (scs15, scs30, scs60, scs120, ..., scs480, scs960)                                                                                                                                                                                                                                                                        | The values scs15, scs30, scs60, scs120, scs480 and scs960 corresponds to the sub carrier spacing in TS 38.104 [17].                                                                                                                                  |
| NRB           | M        |       | ENUMERATED (nrb11, nrb18, nrb24, nrb25, nrb31, nrb32, nrb38, nrb51, nrb52, nrb65, nrb66, nrb78, nrb79, nrb93, nrb106, nrb107, nrb121, nrb132, nrb133, nrb135, nrb160, nrb162, nrb189, nrb216, nrb217, nrb245, nrb264, nrb270, nrb273, ..., nrb33, nrb62, nrb124, nrb148, nrb248, nrb44, nrb58, nrb92, nrb119, nrb188, nrb242, nrb15) | This IE is used to indicate the UL or DL transmission bandwidth expressed in units of resource blocks "N <sub>RB</sub> " (TS 38.104 [17]). The values nrb11, nrb18, etc. correspond to the number of resource blocks "N <sub>RB</sub> " 11, 18, etc. |

### 9.3.1.16 Void

Reserved for future use.



### 9.3.1.17 NR Frequency Info

The NR Frequency Info defines the carrier frequency used in a cell for a given direction (UL or DL) in FDD or for both UL and DL directions in TDD or for an SUL carrier.

| IE/Group Name                          | Presence | Range                                 | IE Type and Reference         | Semantics Description                                                                                                                                                                                                                                           | Criticality | Assigned Criticality |
|----------------------------------------|----------|---------------------------------------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| NR ARFCN                               | M        |                                       | INTEGER (0..maxNRARFCN)       | RF Reference Frequency as defined in TS 38.104 [17] section 5.4.2.1. The frequency provided in this IE identifies the absolute frequency position of the reference resource block (Common RB 0) of the carrier. Its lowest subcarrier is also known as Point A. | –           |                      |
| SUL Information                        | O        |                                       | 9.3.1.28                      |                                                                                                                                                                                                                                                                 | –           |                      |
| <b>Frequency Band List</b>             |          | <i>1</i>                              |                               |                                                                                                                                                                                                                                                                 | –           |                      |
| <b>&gt;Frequency Band Item</b>         |          | <i>1..&lt;maxno ofNrCellBands&gt;</i> |                               |                                                                                                                                                                                                                                                                 | –           |                      |
| >>NR Frequency Band                    | M        |                                       | INTEGER (1..1024, ...)        | Operating Band as defined in TS 38.104 [17] section 5.4.2.3. The value 1 corresponds to NR operating band n1, value 2 corresponds to NR operating band n2, etc.                                                                                                 | –           |                      |
| <b>&gt;&gt;Supported SUL band List</b> |          | <i>0..&lt;maxno ofNrCellBands&gt;</i> |                               |                                                                                                                                                                                                                                                                 | –           |                      |
| >>>Supported SUL band Item             | M        |                                       | INTEGER (1..1024, ...)        | Supplementary NR Operating Band as defined in TS 38.104 [17] section 5.4.2.3 that can be used for SUL duplex mode as per TS 38.101-1 [26] table 5.2.-1. The value 80 corresponds to NR operating band n80, value 81 corresponds to NR operating band n81, etc.  | –           |                      |
| Frequency Shift 7p5khz                 | O        |                                       | ENUMERATED (false, true, ...) | Indicate whether the value of $\Delta_{\text{shift}}$ is 0kHz or 7.5kHz when calculating $F_{\text{REF,shift}}$ as defined in Section 5.4.2.1 of TS 38.104 [17].                                                                                                | YES         | ignore               |

| Range bound        | Explanation                                                          |
|--------------------|----------------------------------------------------------------------|
| maxNRARFCN         | Maximum value of NR ARFCNs. Value is 3279165.                        |
| maxnoofNrCellBands | Maximum no. of frequency bands supported for a NR cell. Value is 32. |

### 9.3.1.18 gNB-DU System Information

This IE contains the system information generated by the gNB-DU.

| IE/Group Name    | Presence | Range | IE type and reference | Semantics description                                                             | Criticality | Assigned Criticality |
|------------------|----------|-------|-----------------------|-----------------------------------------------------------------------------------|-------------|----------------------|
| MIB message      | M        |       | OCTET STRING          | Includes the <i>MIB</i> message, as defined in subclause 6.2.2 in TS 38.331 [8].  | -           |                      |
| SIB1 message     | M        |       | OCTET STRING          | Includes the <i>SIB1</i> message, as defined in subclause 6.2.2 in TS 38.331 [8]. | -           |                      |
| SIB12 message    | O        |       | OCTET STRING          | Includes the <i>SIB12</i> IE, as defined in subclause 6.3.1 in TS 38.331 [8].     | YES         | ignore               |
| SIB13 message    | O        |       | OCTET STRING          | Includes the <i>SIB13</i> IE, as defined in subclause 6.3.1 in TS 38.331 [8].     | YES         | ignore               |
| SIB14 message    | O        |       | OCTET STRING          | Includes the <i>SIB14</i> IE, as defined in subclause 6.3.1 in TS 38.331 [8].     | YES         | ignore               |
| SIB10 message    | O        |       | OCTET STRING          | Includes the <i>SIB10</i> IE, as defined in subclause 6.3.1 in TS 38.331 [8].     | YES         | ignore               |
| SIB17 message    | O        |       | OCTET STRING          | Includes the <i>SIB17</i> IE, as defined in subclause 6.3.1 in TS 38.331 [8].     | YES         | ignore               |
| SIB20 message    | O        |       | OCTET STRING          | Includes the <i>SIB20</i> IE, as defined in subclause 6.3.1 in TS 38.331 [8].     | YES         | ignore               |
| SIB15 message    | O        |       | OCTET STRING          | Includes the <i>SIB15</i> IE, as defined in subclause 6.3.1 in TS 38.331 [8].     | YES         | ignore               |
| SIB24 message    | O        |       | OCTET STRING          | Includes the <i>SIB24</i> IE, as defined in subclause 6.3.1 in TS 38.331 [8].     | YES         | ignore               |
| SIB22 message    | O        |       | OCTET STRING          | Includes the <i>SIB22</i> IE, as defined in subclause 6.3.1 in TS 38.331 [8].     | YES         | ignore               |
| SIB23 message    | O        |       | OCTET STRING          | Includes the <i>SIB23</i> IE, as defined in subclause 6.3.1 in TS 38.331 [8].     | YES         | ignore               |
| SIB17bis message | O        |       | OCTET STRING          | Includes the <i>SIB17bis</i> IE, as defined in                                    | YES         | ignore               |

| IE/Group Name | Presence | Range | IE type and reference | Semantics description             | Criticality | Assigned Criticality |
|---------------|----------|-------|-----------------------|-----------------------------------|-------------|----------------------|
|               |          |       |                       | subclause 6.3.1 in TS 38.331 [8]. |             |                      |

### 9.3.1.19 E-UTRAN QoS

This IE defines the QoS to be applied to a DRB or to a BH RLC channel for EN-DC case.

| IE/Group Name                     | Presence | Range | IE type and reference           | Semantics description                                                                                                                                                                                                                                                          | Criticality | Assigned Criticality |
|-----------------------------------|----------|-------|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| QCI                               | M        |       | INTEGER (0..255)                | QoS Class Identifier defined in TS 23.401 [10]. Logical range and coding specified in TS 23.203 [11]. For a BH RLC channel, the Packet Delay Budget included in QCI defines the upper bound for the time that a packet may be delayed between the gNB-DU and its child IAB-MT. | -           |                      |
| Allocation and Retention Priority | M        |       | 9.3.1.20                        |                                                                                                                                                                                                                                                                                | -           |                      |
| GBR QoS Information               | O        |       | 9.3.1.21                        | This IE shall be present for GBR bearers only and is ignored otherwise.                                                                                                                                                                                                        | -           |                      |
| ENB DL Transport Layer Address    | O        |       | Transport Layer Address 9.3.2.3 | DL Transport Layer Address of node terminating PDCP. Included for MN-terminated SCG bearers.                                                                                                                                                                                   | YES         | ignore               |

### 9.3.1.20 Allocation and Retention Priority

This IE specifies the relative importance compared to other E-RABs for allocation and retention of the E-UTRAN Radio Access Bearer.

| IE/Group Name          | Presence | Range | IE type and reference                                 | Semantics description                                                                                                                                                                                                                                                                                                            |
|------------------------|----------|-------|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Priority Level         | M        |       | INTEGER (0..15)                                       | <b>Desc.:</b> This IE should be understood as "priority of allocation and retention" (see TS 23.401 [10]).<br><b>Usage:</b> Value 15 means "no priority". Values between 1 and 14 are ordered in decreasing order of priority, i.e. 1 is the highest and 14 the lowest. Value 0 shall be treated as a logical error if received. |
| Pre-emption Capability | M        |       | ENUMERATED(shall not trigger pre-emption, may trigger | <b>Desc.:</b> This IE indicates the pre-emption capability of the request on other E-RABs (see TS 23.401                                                                                                                                                                                                                         |

| IE/Group Name             | Presence | Range | IE type and reference                      | Semantics description                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------|----------|-------|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           |          |       | pre-emption)                               | [10]).<br><b>Usage:</b><br>The E-RAB shall not pre-empt other E-RABs or, the E-RAB may pre-empt other E-RABs<br>The Pre-emption Capability indicator applies to the allocation of resources for an E-RAB and as such it provides the trigger to the pre-emption procedures/processes of the eNB.                                                                                                                                                      |
| Pre-emption Vulnerability | M        |       | ENUMERATED(not pre-emptable, pre-emptable) | <b>Desc.:</b> This IE indicates the vulnerability of the E-RAB to pre-emption of other E-RABs (see TS 23.401 [10]).<br><b>Usage:</b><br>The E-RAB shall not be pre-empted by other E-RABs or the E-RAB may be pre-empted by other RABs.<br>Pre-emption Vulnerability indicator applies for the entire duration of the E-RAB, unless modified, and as such indicates whether the E-RAB is a target of the pre-emption procedures/processes of the eNB. |

### 9.3.1.21 GBR QoS Information

This IE indicates the maximum and guaranteed bit rates of a GBR E-RAB for downlink and uplink.

| IE/Group Name                      | Presence | Range | IE type and reference | Semantics description                                                                                                                       |
|------------------------------------|----------|-------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| E-RAB Maximum Bit Rate Downlink    | M        |       | Bit Rate<br>9.3.1.22  | Maximum Bit Rate in DL (i.e. from EPC to E-UTRAN) for the bearer.<br>Details in TS 23.401 [10].                                             |
| E-RAB Maximum Bit Rate Uplink      | M        |       | Bit Rate<br>9.3.1.22  | Maximum Bit Rate in UL (i.e. from E-UTRAN to EPC) for the bearer.<br>Details in TS 23.401 [10].                                             |
| E-RAB Guaranteed Bit Rate Downlink | M        |       | Bit Rate<br>9.3.1.22  | Guaranteed Bit Rate (provided that there is data to deliver) in DL (i.e. from EPC to E-UTRAN) for the bearer.<br>Details in TS 23.401 [10]. |
| E-RAB Guaranteed Bit Rate Uplink   | M        |       | Bit Rate<br>9.3.1.22  | Guaranteed Bit Rate (provided that there is data to deliver) in UL (i.e. from E-UTRAN to EPC) for the bearer.<br>Details in TS 23.401 [10]. |

### 9.3.1.22 Bit Rate

This IE indicates the number of bits delivered by NG-RAN in UL or to NG-RAN in DL within a period of time, divided by the duration of the period. It is used, for example, to indicate the maximum or guaranteed bit rate for a GBR QoS flow, or an aggregated maximum bit rate.

| IE/Group Name | Presence | Range | IE type and reference              | Semantics description |
|---------------|----------|-------|------------------------------------|-----------------------|
| Bit Rate      | M        |       | INTEGER (0..4,000,000,000,000,...) | The unit is: bit/s    |

### 9.3.1.23 Transaction ID

The *Transaction ID* IE uniquely identifies a procedure among all ongoing parallel procedures of the same type initiated by the same protocol peer. Messages belonging to the same procedure use the same Transaction ID. The Transaction ID is determined by the initiating peer of a procedure.

NOTE: If F1-C signalling transport is shared among multiple interface instances, the Transaction ID is allocated so that it can be associated with an F1-C interface instance. The Transaction ID may identify more than one interface instance.

| IE/Group Name  | Presence | Range | IE type and reference | Semantics description |
|----------------|----------|-------|-----------------------|-----------------------|
| Transaction ID | M        |       | INTEGER (0..255, ...) |                       |

### 9.3.1.24 DRX Cycle

The *DRX Cycle* IE is to indicate the desired DRX cycle.

| IE/Group Name          | Presence | Range | IE Type and Reference                                                                                                                                       | Semantics Description                                                                                                                                              |
|------------------------|----------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Long DRX Cycle Length  | M        |       | ENUMERATED (ms10, ms20, ms32, ms40, ms60, ms64, ms70, ms80, ms128, ms160, ms256, ms320, ms512, ms640, ms1024, ms1280, ms2048, ms2560, ms5120, ms10240, ...) | Corresponds to the <i>drx-LongCycle</i> which is the length of the <i>drx-LongCycleStartOffset</i> contained in the <i>DRX-Config</i> IE defined in TS 38.331 [8]. |
| Short DRX Cycle Length | O        |       | ENUMERATED (ms2, ms3, ms4, ms5, ms6, ms7, ms8, ms10, ms14, ms16, ms20, ms30, ms32, ms35, ms40, ms64, ms80, ms128, ms160, ms256, ms320, ms512, ms640, ...)   | Corresponds to the <i>drx-ShortCycle</i> contained in the <i>DRX-Config</i> IE defined in TS 38.331 [8].                                                           |
| Short DRX Cycle Timer  | O        |       | INTEGER (1..16)                                                                                                                                             | Corresponds to the <i>drx-ShortCycleTimer</i> contained in the <i>DRX-Config</i> IE defined in TS 38.331 [8].                                                      |

### 9.3.1.25 CU to DU RRC Information

This IE contains the RRC Information that are sent from gNB-CU to gNB-DU.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description                         | Criticality | Assigned Criticality |
|---------------|----------|-------|-----------------------|-----------------------------------------------|-------------|----------------------|
| CG-ConfigInfo | O        |       | OCTET STRING          | Includes the <i>CG-ConfigInfo</i> message, as | -           |                      |

| IE/Group Name                    | Presence | Range | IE type and reference | Semantics description                                                                                                                                                                                                                                                                                                                                                                                                           | Criticality | Assigned Criticality |
|----------------------------------|----------|-------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                                  |          |       |                       | defined in TS 38.331 [8].                                                                                                                                                                                                                                                                                                                                                                                                       |             |                      |
| UE-CapabilityRAT-ContainerList   | O        |       | OCTET STRING          | This IE is used in the NG-RAN and it includes the <i>UE-CapabilityRAT-ContainerList</i> IE, as defined in TS 38.331 [8].                                                                                                                                                                                                                                                                                                        | -           |                      |
| MeasConfig                       | O        |       | OCTET STRING          | Includes the <i>MeasConfig</i> IE, as defined in TS 38.331 [8] (without the <i>MeasGapConfig</i> IE).<br>For EN-DC/NGEN-DC operation, includes the list of FR2 frequencies for which the gNB-CU requests the gNB-DU to generate gaps.<br>For NG-RAN, NE-DC and MN for NR-NR DC, includes the list of FR1 and/or FR2 frequencies, for which the gNB-CU requests the gNB-DU to generate gaps and the gap type (per-UE or per-FR). | -           |                      |
| Handover Preparation Information | O        |       | OCTET STRING          | Includes the <i>HandoverPreparationInformation</i> message, as defined in TS 38.331 [8].                                                                                                                                                                                                                                                                                                                                        | YES         | ignore               |
| CellGroupConfig                  | O        |       | OCTET STRING          | Includes the <i>CellGroupConfig</i> IE, as defined in TS 38.331 [8].                                                                                                                                                                                                                                                                                                                                                            | YES         | ignore               |
| Measurement Timing Configuration | O        |       | OCTET STRING          | Contains the <i>MeasurementTimingConfiguration</i> inter-node message defined in TS 38.331 [8].<br>In EN-DC/NGEN-DC, it is included when the gaps for FR2 are requested to be configured by the MeNB. For MN in NR-NR DC, it is included when the gaps for FR2 and/or FR1 are requested by the SgNB.                                                                                                                            | YES         | ignore               |
| UEAssistanceInformatio           | O        |       | OCTET                 | Includes the                                                                                                                                                                                                                                                                                                                                                                                                                    | YES         | ignore               |

| IE/Group Name                         | Presence | Range | IE type and reference  | Semantics description                                                                                                                       | Criticality | Assigned Criticality |
|---------------------------------------|----------|-------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| n                                     |          |       | STRING                 | <i>UEAssistanceInformation</i> message, as defined in TS 38.331 [8].                                                                        |             |                      |
| CG-Config                             | O        |       | OCTET STRING           | Includes the <i>CG-Config</i> message, as defined in TS 38.331 [8].                                                                         | YES         | ignore               |
| UEAssistanceInformationEUTRA          | O        |       | OCTET STRING           | Includes the <i>UEAssistanceInformation</i> message, as defined in TS 36.331 [41].                                                          | YES         | ignore               |
| Location Measurement Information      | O        |       | OCTET STRING           | Includes the <i>LocationMeasurementInfo</i> IE, as defined in TS 38.331 [8].                                                                | YES         | ignore               |
| MUSIM-GapConfig                       | O        |       | OCTET STRING           | Includes the <i>MUSIM-GapConfig</i> IE as defined in TS 38.331 [8].                                                                         | YES         | reject               |
| SDT-MAC-PHY-CG-Config                 | O        |       | OCTET STRING           | Includes the <i>SDT-MAC-PHY-CG-Config</i> IE, as defined in TS 38.331 [8].                                                                  | YES         | ignore               |
| MBSInterestIndication                 | O        |       | OCTET STRING           | Includes the <i>MBSInterestIndication</i> message as defined in TS 38.331 [8].                                                              | YES         | ignore               |
| NeedForGapsInfoNR                     | O        |       | OCTET STRING           | Includes the <i>NeedForGapsInfoNR</i> IE, as defined in TS 38.331 [8].                                                                      | YES         | ignore               |
| NeedForGapNCSG-InfoNR                 | O        |       | OCTET STRING           | Includes the <i>NeedForGapNCSG-InfoNR</i> IE, as defined in TS 38.331 [8].                                                                  | YES         | ignore               |
| NeedForGapNCSG-InfoEUTRA              | O        |       | OCTET STRING           | Includes the <i>NeedForGapNCSG-InfoEUTRA</i> IE, as defined in TS 38.331 [8].                                                               | YES         | ignore               |
| ConfigRestrictInfoDAPS                | O        |       | OCTET STRING           | Includes the <i>ConfigRestrictInfoDAPS-r16</i> IE as defined in TS 38.331 [8]. This IE is used at the source node if DAPS HO is configured. | YES         | ignore               |
| Preconfigured measurement GAP Request | O        |       | ENUMERATED (true, ...) |                                                                                                                                             | YES         | ignore               |
| NeedForInterruptionInfoNR             | O        |       | OCTET STRING           | Includes the <i>NeedForInterruptionInfoNR</i> IE, as defined in TS 38.331 [8].                                                              | YES         | ignore               |
| musim-CapabilityRestrictionIndi       | O        |       | ENUMERATED (true, ...) | Corresponds to the <i>musim-</i>                                                                                                            | YES         | ignore               |

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description                                                                                                                          | Criticality | Assigned Criticality |
|-------------------------|----------|-------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| cation                  |          |       |                       | <i>CapRestrictionInd</i> contained in the <i>RRCSetupComplete</i> message or the <i>RRCResumeComplete</i> message as defined in TS 38.331 [8]. |             |                      |
| musim-CandidateBandList | O        |       | OCTET STRING          | Includes the <i>musim-CandidateBandList</i> contained in the <i>OtherConfig</i> IE, as defined in TS 38.331 [8].                               | YES         | ignore               |

### 9.3.1.26 DU to CU RRC Information

This IE contains the RRC Information that are sent from the gNB-DU to the gNB-CU.

| IE/Group Name      | Presence | Range | IE type and reference | Semantics description                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Criticality | Assigned Criticality |
|--------------------|----------|-------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| CellGroupConfig    | M        |       | OCTET STRING          | Includes the <i>CellGroupConfig</i> IE, as defined in TS 38.331 [8].                                                                                                                                                                                                                                                                                                                                                                                                               | -           |                      |
| MeasGapConfig      | O        |       | OCTET STRING          | Includes the <i>MeasGapConfig</i> IE as defined in TS 38.331 [8].<br>For EN-DC/NGEN-DC operation, includes the gap for FR2, as requested by the gNB-CU via <i>MeasConfig</i> IE.<br><br>For NG-RAN, NE-DC and MN for NR-NR DC, includes the gap(s) for FR1 and/or FR2, as requested by the gNB-CU via <i>MeasConfig</i> IE.<br><br>For pre-configured measurement GAP scenario, it includes the <i>gapToAddModList</i> and/or <i>gapToReleaseList</i> as defined in TS 38.331 [8]. | -           |                      |
| Requested P-MaxFR1 | O        |       | OCTET STRING          | Includes the <i>requestedP-MaxFR1</i> contained in the <i>CG-Config</i> message, as defined in TS 38.331 [8].                                                                                                                                                                                                                                                                                                                                                                      | -           |                      |



| IE/Group Name                  | Presence | Range | IE type and reference | Semantics description                                                                                                                                                                                                                                                                      | Criticality | Assigned Criticality |
|--------------------------------|----------|-------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                                |          |       |                       | For EN-DC, NGEN-DC and NR-DC operation, this IE should be included.                                                                                                                                                                                                                        |             |                      |
| DRX Long Cycle Start Offset    | O        |       | INTEGER (0..10239)    | Corresponds to the <i>drx-LongCycleStartOffset</i> IE contained in the <i>DRX-Config</i> IE as defined in TS 38.331 [8]. This field is not used in NR-DC.                                                                                                                                  | YES         | ignore               |
| Selected BandCombinationIndex  | O        |       | OCTET STRING          | Includes the <i>BandCombinationIndex</i> IE, as defined in TS 38.331 [8]. For (NG)EN-DC and NR DC operation, this IE should be included so that gNB-CU is informed of the selected Band Combination; if this IE is included, the gNB-CU uses this information to deduce the selected band. | YES         | ignore               |
| Selected FeatureSetEntryIndex  | O        |       | OCTET STRING          | Includes the <i>FeatureSetEntryIndex</i> IE, as defined in TS 38.331 [8]. For (NG)EN-DC and NR DC operation, this IE should be included so that gNB-CU is informed of the selected FeatureSet.                                                                                             | YES         | ignore               |
| Ph-InfoSCG                     | O        |       | OCTET STRING          | Includes the <i>PH-TypeListSCG</i> IE, as defined in TS 38.331 [8]. For MR-DC, this IE should be included so that gNB-CU is informed of the Power Headroom type for each serving cell in SN.                                                                                               | YES         | ignore               |
| Requested BandCombinationIndex | O        |       | OCTET STRING          | Includes the <i>BandCombinationIndex</i> IE, as defined in TS 38.331 [8]. This IE is used for the gNB-DU to request a new Band Combination.                                                                                                                                                | YES         | ignore               |
| Requested                      | O        |       | OCTET                 | Includes the                                                                                                                                                                                                                                                                               | YES         | ignore               |

| IE/Group Name                     | Presence | Range | IE type and reference | Semantics description                                                                                                                                                                         | Criticality | Assigned Criticality |
|-----------------------------------|----------|-------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| FeatureSetEntryIndex              |          |       | STRING                | <i>FeatureSetEntryIndex</i> IE, as defined in TS 38.331 [8]. This IE is used for the gNB-DU to request a new Feature Set.                                                                     |             |                      |
| DRX Config                        | O        |       | OCTET STRING          | Includes the <i>DRX-Config</i> IE, as defined in TS 38.331 [8]. This field is only used in NR-DC.                                                                                             | YES         | ignore               |
| PDCCH BlindDetectionSCG           | O        |       | OCTET STRING          | Includes the <i>pdccch-BlindDetectionSCG</i> contained in the <i>CG-ConfigInfo</i> message, as defined in TS 38.331 [8]. This IE is used between the MgNB-DU and the MgNB-CU.                 | YES         | ignore               |
| Requested PDCCH BlindDetectionSCG | O        |       | OCTET STRING          | Includes the <i>requestedPDCCH-BlindDetectionSCG</i> contained in the <i>CG-Config</i> message, as defined in TS 38.331 [8]. This IE is used between the SgNB-DU and the SgNB-CU.             | YES         | ignore               |
| Ph-InfoMCG                        | O        |       | OCTET STRING          | Includes the <i>PH-TypeListMCG</i> IE, as defined in TS 38.331 [8]. For MR-DC, this IE should be included so that gNB-CU is informed of the Power Headroom type for each serving cell in MCG. | YES         | ignore               |
| MeasGapSharingConfig              | O        |       | OCTET STRING          | Includes the <i>MeasGapSharingConfig</i> IE as defined in TS 38.331 [8].                                                                                                                      | YES         | ignore               |
| SL-PHY-MAC-RLC-Config             | O        |       | OCTET STRING          | Includes the <i>SL-PHY-MAC-RLC-Config-r16</i> IE as defined in TS 38.331 [8].                                                                                                                 | YES         | ignore               |
| SL-ConfigDedicatedEUTRA-Info      | O        |       | OCTET STRING          | Includes the <i>SL-ConfigDedicatedEUTRA-Info</i> IE as defined in TS 38.331 [8].                                                                                                              | YES         | ignore               |
| Requested P-MaxFR2                | O        |       | OCTET STRING          | Includes the <i>requestedP-MaxFR2</i> contained in the <i>CG-Config</i>                                                                                                                       | YES         | ignore               |

| IE/Group Name              | Presence | Range | IE type and reference     | Semantics description                                                                                                                                                                                               | Criticality | Assigned Criticality |
|----------------------------|----------|-------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                            |          |       |                           | message, as defined in TS 38.331 [8]. For NR-DC operation, this IE should be included.                                                                                                                              |             |                      |
| SDT-MAC-PHY-CG-Config      | O        |       | OCTET STRING              | Includes the <i>SDT-MAC-PHY-CG-Config</i> IE, as defined in TS 38.331 [8].                                                                                                                                          | YES         | ignore               |
| MUSIM-GapConfig            | O        |       | OCTET STRING              | Includes the <i>MUSIM-GapConfig</i> IE as defined in TS 38.331 [8].                                                                                                                                                 | YES         | ignore               |
| SL-RLC-ChannelToAddModList | O        |       | OCTET STRING              | Includes the <i>sl-RLC-ChannelToAddModList-r17</i> contained in the <i>SL-ConfigDedicatedNR</i> IE, as defined in TS 38.331 [8].                                                                                    | YES         | ignore               |
| InterFrequencyConfig-NoGap | O        |       | ENUMERATED (true, ...)    | Corresponds to the <i>interFrequencyConfig-NoGap-r16</i> contained in the <i>MeasConfig</i> IE, as defined in TS 38.331 [8].                                                                                        | YES         | ignore               |
| ul-GapFR2-Config           | O        |       | OCTET STRING              | Includes the <i>ul-GapFR2-Config</i> contained in the <i>RRCReconfiguration</i> message, as specified in TS 38.331 [8].                                                                                             | YES         | ignore               |
| TwoPHRModeMCG              | O        |       | ENUMERATED (enabled, ...) | Corresponds to the <i>twoPHRModeMCG</i> contained in the <i>CG-ConfigInfo</i> message, as defined in TS 38.331 [8]. For NR-DC, this IE should be included so that gNB-CU is informed of the two PHR mode in the MN. | YES         | ignore               |
| TwoPHRModeSCG              | O        |       | ENUMERATED (enabled, ...) | Corresponds to the <i>twoPHRModeSCG</i> contained in the <i>CG-Config</i> message, as defined in TS 38.331 [8]. For NR-DC, this IE should be included so that gNB-CU is                                             | YES         | ignore               |

| IE/Group Name                  | Presence | Range | IE type and reference | Semantics description                                                                                                                                                                                         | Criticality | Assigned Criticality |
|--------------------------------|----------|-------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                                |          |       |                       | informed of the two PHR mode in the SN.                                                                                                                                                                       |             |                      |
| ncd-SSB-RedCapInitialBWP-SDT   | O        |       | OCTET STRING          | Includes the <i>NonCellDefiningS</i> SB contained in the <i>RRCRelease</i> message, as specified in TS 38.331 [8].                                                                                            | YES         | ignore               |
| ServCellInfoList               | O        |       | OCTET STRING          | Includes the <i>ServCellInfoListSC</i> G-NR IE or the <i>ServCellInfoListM</i> CG-NR IE, as defined in TS 38.331 [8]. This IE is used for inter-node message for MN and SN in case of split gNB architecture. | YES         | ignore               |
| Extended SL-PHY-MAC-RLC-Config | O        |       | OCTET STRING          | Includes the <i>SL-PHY-MAC-RLC-Config-v1700</i> IE as defined in TS 38.331 [8].<br><br>If this IE is present, the <i>SL-RLC-ChannelToAddModList</i> IE is ignored.                                            | YES         | ignore               |

### 9.3.1.27 RLC Mode

The *RLC Mode* IE indicates the RLC Mode used for a DRB or a BH RLC channel, or a Uu Relay RLC channel, or a PC5 Relay RLC channel.

| IE/Group Name | Presence | Range | IE Type and Reference                                                                              | Semantics Description |
|---------------|----------|-------|----------------------------------------------------------------------------------------------------|-----------------------|
| RLC Mode      | M        |       | ENUMERATED (RLC-AM, RLC-UM-Bidirectional, RLC-UM-Unidirectional-UL, RLC-UM-Unidirectional-DL, ...) |                       |

### 9.3.1.28 SUL Information

This IE provides information about the SUL carrier.

| IE/Group Name | Presence | Range | IE type and reference   | Semantics description                                                                                  | Criticality | Assigned Criticality |
|---------------|----------|-------|-------------------------|--------------------------------------------------------------------------------------------------------|-------------|----------------------|
| SUL ARFCN     | M        |       | INTEGER (0..maxNRARFCN) | RF Reference Frequency as defined in TS 38.104 [17] section 5.4.2.1. The frequency provided in this IE | –           |                      |

| IE/Group Name              | Presence | Range | IE type and reference           | Semantics description                                                                                                                                            | Criticality | Assigned Criticality |
|----------------------------|----------|-------|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                            |          |       |                                 | identifies the absolute frequency position of the reference resource block (Common RB 0) of the SUL carrier. Its lowest subcarrier is also known as Point A.     |             |                      |
| SUL Transmission Bandwidth | M        |       | Transmission Bandwidth 9.3.1.15 |                                                                                                                                                                  | –           |                      |
| Carrier List               | O        |       | NR Carrier List 9.3.1.137       | If included, the <i>SUL Transmission Bandwidth</i> IE shall be ignored.                                                                                          | YES         | ignore               |
| Frequency Shift 7p5khz     | O        |       | ENUMERATED (false, true, ...)   | Indicate whether the value of $\Delta_{\text{shift}}$ is 0kHz or 7.5kHz when calculating $F_{\text{REF,shift}}$ as defined in Section 5.4.2.1 of TS 38.104 [17]. | YES         | ignore               |

| Range bound | Explanation                                   |
|-------------|-----------------------------------------------|
| maxNRARFCN  | Maximum value of NR ARFCNs. Value is 3279165. |

### 9.3.1.29 5GS TAC

This information element is used to identify Tracking Area Code.

| IE/Group Name | Presence | Range | IE type and reference   | Semantics description |
|---------------|----------|-------|-------------------------|-----------------------|
| 5GS TAC       | M        |       | OCTET STRING (SIZE (3)) |                       |

### 9.3.1.29a Configured EPS TAC

This information element is used to identify a configured EPS Tracking Area Code in order to enable application of Roaming and Access Restrictions for EN-DC as specified in TS 37.340 [7]. This IE is configured for the cell, but not broadcast.

| IE/Group Name      | Presence | Range | IE type and reference   | Semantics description |
|--------------------|----------|-------|-------------------------|-----------------------|
| Configured EPS TAC | M        |       | OCTET STRING (SIZE (2)) |                       |

### 9.3.1.30 RRC Reconfiguration Complete Indicator

This IE indicates the result of the reconfiguration performed towards the UE.

| IE/Group Name                          | Presence | Range | IE type and reference           | Semantics description |
|----------------------------------------|----------|-------|---------------------------------|-----------------------|
| RRC Reconfiguration Complete Indicator | M        |       | ENUMERATED (true, ..., failure) |                       |

### 9.3.1.31 UL Configuration

This IE indicates how the UL scheduling is configured at gNB-DU.

| IE/Group Name       | Presence | Range | IE type and reference                   | Semantics description                                                                                                                                                                                                                                                                             |
|---------------------|----------|-------|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| UL UE Configuration | M        |       | ENUMERATED (no-data, shared, only, ...) | Indicates how the UE uses the UL at gNB-DU, for which "no-data" indicates that the UL scheduling is not performed at gNB-DU, "shared" indicates that the UL scheduling is performed at both gNB-DU and another node, and "only" indicates that the UL scheduling is only performed at the gNB-DU. |

### 9.3.1.32 C-RNTI

This IE contains the C-RNTI information.

| IE/Group Name | Presence | Range | IE type and reference   | Semantics description               |
|---------------|----------|-------|-------------------------|-------------------------------------|
| C-RNTI        | M        |       | INTEGER (0..65535, ...) | C-RNTI as defined in TS 38.331 [8]. |

### 9.3.1.33 Cell UL Configured

This IE indicates whether the gNB-CU requests the gNB-DU to configure the uplink as no UL, UL, SUL or UL+SUL for the indicated cell for the UE.

| IE/Group Name      | Presence | Range | IE type and reference                       | Semantics description                        |
|--------------------|----------|-------|---------------------------------------------|----------------------------------------------|
| Cell UL Configured | M        |       | ENUMERATED (none, UL, SUL, UL and SUL, ...) | Further details are defined in TS 38.331 [8] |

### 9.3.1.34 RAT-Frequency Priority Information

The RAT-Frequency Priority Information contains either the *Subscriber Profile ID for RAT/Frequency priority* IE or the *Index to RAT/Frequency Selection Priority* IE. These parameters are used to define local configuration for RRM strategies.

| IE/Group Name                                      | Presence | Range | IE type and reference  | Semantics description |
|----------------------------------------------------|----------|-------|------------------------|-----------------------|
| CHOICE <i>RAT-Frequency Priority Information</i>   | M        |       |                        |                       |
| >EN-DC                                             |          |       |                        |                       |
| >>Subscriber Profile ID for RAT/Frequency priority | M        |       | INTEGER (1.. 256, ...) |                       |
| >NG-RAN                                            |          |       |                        |                       |
| >>Index to RAT/Frequency Selection Priority        | M        |       | INTEGER (1.. 256, ...) |                       |

### 9.3.1.35 LCID

This IE uniquely identifies a LCID for the associated SRB or DRB.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description                                                      |
|---------------|----------|-------|-----------------------|----------------------------------------------------------------------------|
| LCID          | M        |       | INTEGER (1..32, ...)  | Corresponds to the <i>LogicalChannelIdentity</i> defined in TS 38.331 [8]. |

### 9.3.1.36 Duplication Activation

The *Duplication Activation* IE indicates whether UL PDCP Duplication is activated or not.

| IE/Group Name          | Presence | Range | IE Type and Reference              | Semantics Description |
|------------------------|----------|-------|------------------------------------|-----------------------|
| Duplication Activation | M        |       | ENUMERATED (Active, Inactive, ...) |                       |

### 9.3.1.37 Slice Support List

This IE indicates the list of supported slices.

| IE/Group Name                 | Presence | Range                               | IE type and reference | Semantics description |
|-------------------------------|----------|-------------------------------------|-----------------------|-----------------------|
| <b>Slice Support Item IEs</b> |          | <i>1..&lt;maxnoofSliceltems&gt;</i> |                       |                       |
| >S-NSSAI                      | M        |                                     | 9.3.1.38              |                       |

| Range bound       | Explanation                                                  |
|-------------------|--------------------------------------------------------------|
| maxnoofSliceltems | Maximum no. of signalled slice support items. Value is 1024. |

### 9.3.1.38 S-NSSAI

This IE indicates the S-NSSAI as defined in TS 23.003 [23].

| IE/Group Name | Presence | Range | IE type and reference  | Semantics description |
|---------------|----------|-------|------------------------|-----------------------|
| SST           | M        |       | OCTET STRING (SIZE(1)) |                       |
| SD            | O        |       | OCTET STRING (SIZE(3)) |                       |

### 9.3.1.39 UE Identity Index value

This IE is used by the gNB-DU to calculate the Paging Frame.

| IE/Group Name                         | Presence | Range | IE type and reference | Semantics description                 |
|---------------------------------------|----------|-------|-----------------------|---------------------------------------|
| CHOICE <i>UE Identity Index Value</i> | M        |       |                       |                                       |
| >Length-10                            |          |       |                       |                                       |
| >>Index Length 10                     | M        |       | BIT STRING (SIZE(10)) | Coded as specified in TS 38.304 [24]. |

### 9.3.1.40 Paging DRX

This IE indicates the Paging DRX as defined in TS 38.304 [24].

| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
|---------------|----------|-------|-----------------------|-----------------------|
| Paging DRX    | M        |       | ENUMERATED(32,        | Unit in radio frame.  |

| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
|---------------|----------|-------|-----------------------|-----------------------|
|               |          |       | 64, 128, 256, ...)    |                       |

### 9.3.1.41 Paging Priority

This IE indicates the paging priority for paging a UE.

| IE/Group Name   | Presence | Range | IE type and reference                                                                                                                    | Semantics description                            |
|-----------------|----------|-------|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| Paging Priority | M        |       | ENUMERATED<br>(PrioLevel1,<br>PrioLevel2,<br>PrioLevel3,<br>PrioLevel4,<br>PrioLevel5,<br>PrioLevel6,<br>PrioLevel7,<br>PrioLevel8, ...) | Lower value codepoint indicates higher priority. |

### 9.3.1.42 gNB-CU System Information

This IE contains the system information encoded by the gNB-CU.

| IE/Group Name                    | Presence | Range                             | IE type and reference     | Semantics description                                                                                                                                                                                                                                                                                  | Criticality | Assigned Criticality |
|----------------------------------|----------|-----------------------------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| SIB type to Be Updated List      |          | 1                                 |                           |                                                                                                                                                                                                                                                                                                        | -           |                      |
| >SIB type to Be Updated Item IEs |          | 1...<br><maxnoof<br>SIBTypes<br>> |                           |                                                                                                                                                                                                                                                                                                        | -           |                      |
| >>SIB type                       | M        |                                   | INTEGER<br>(2..32, ...)   | Indicates a certain SIB block, e.g. 2 means sibType2, 3 for sibType3, etc. Values for SIBs generated by the gNB-DU as defined subclause 5.2.2 in TS 38.470 [2], values 6, 7, 8 and values corresponding to not defined SIBs in TS 38.331 [8] are not applicable in this version of the specifications. | -           |                      |
| >>SIB message                    | M        |                                   | OCTET<br>STRING           | SIB as defined in subclause 6.3.1 in TS 38.331 [8].                                                                                                                                                                                                                                                    | -           |                      |
| >>Value Tag                      | M        |                                   | INTEGER<br>(0..31, ...)   |                                                                                                                                                                                                                                                                                                        | -           |                      |
| >>areaScope                      | O        |                                   | ENUMERATED<br>(true, ...) | Indicates that a SIB is area specific. If the field is not present, the SIB is cell specific.                                                                                                                                                                                                          | YES         | ignore               |
| SystemInformationAreaID          | O        |                                   | BIT STRING<br>(SIZE (24)) | Indicates the system information area that the cell belongs to, if any.                                                                                                                                                                                                                                | YES         | ignore               |



| Range bound     | Explanation                                        |
|-----------------|----------------------------------------------------|
| maxnoofSIBTypes | Maximum no. of SIB types, the maximum value is 32. |

### 9.3.1.43 RAN UE Paging identity

This IE indicates the RAN UE Paging identity.

| IE/Group Name | Presence | Range | IE type and reference    | Semantics description |
|---------------|----------|-------|--------------------------|-----------------------|
| I-RNTI        | M        |       | BIT STRING<br>(SIZE(40)) |                       |

### 9.3.1.44 CN UE Paging Identity

The 5G-S-TMSI is used as UE identifier for CN paging.

| IE/Group Name                       | Presence | Range | IE type and reference    | Semantics description            |
|-------------------------------------|----------|-------|--------------------------|----------------------------------|
| CHOICE <i>CN UE paging identity</i> | M        |       |                          |                                  |
| >5G-S-TMSI                          |          |       |                          |                                  |
| >>5G-S-TMSI                         | M        |       | BIT STRING<br>(SIZE(48)) | Details defined in TS 38.413 [3] |

### 9.3.1.45 QoS Flow Level QoS Parameters

This IE defines the QoS to be applied to a QoS flow, or to a DRB, or to a BH RLC channel, or to a Uu Relay RLC channel, or to a PC5 Relay RLC channel, or to a MRB.

NOTE: For a BH RLC channel, the listed mandatory IEs and the *GBR QoS Flow Information* IE are applicable, where *GBR QoS Flow Information* IE may be present if BH RLC channel conveys the traffic belonging to a GBR QoS Flow.

| IE/Group Name                             | Presence | Range | IE type and reference           | Semantics description                                                                      | Criticality | Assigned Criticality |
|-------------------------------------------|----------|-------|---------------------------------|--------------------------------------------------------------------------------------------|-------------|----------------------|
| CHOICE <i>QoS Characteristics</i>         | M        |       |                                 |                                                                                            | -           |                      |
| > <i>Non-dynamic 5QI</i>                  |          |       |                                 |                                                                                            | -           |                      |
| >>Non Dynamic 5QI Descriptor              | M        |       | 9.3.1.49                        |                                                                                            | -           |                      |
| > <i>Dynamic 5QI</i>                      |          |       |                                 |                                                                                            | -           |                      |
| >>Dynamic 5QI Descriptor                  | M        |       | 9.3.1.47                        |                                                                                            | -           |                      |
| NG-RAN Allocation and Retention Priority  | M        |       | 9.3.1.48                        |                                                                                            | -           |                      |
| GBR QoS Flow Information                  | O        |       | 9.3.1.46                        | This IE shall be present for GBR QoS Flows only and is ignored otherwise.                  | -           |                      |
| Reflective QoS Attribute                  | O        |       | ENUMERATED<br>(subject to, ...) | Details in TS 23.501 [21]. This IE applies to non-GBR flows only and is ignored otherwise. | -           |                      |
| PDU Session ID                            | O        |       | INTEGER<br>(0 ..255)            | As specified in TS 23.501 [21].                                                            | YES         | ignore               |
| UL PDU Session Aggregate Maximum Bit Rate | O        |       | Bit Rate<br>9.3.1.22            | The PDU session Aggregate Maximum Bit Rate                                                 | YES         | ignore               |

| IE/Group Name                                    | Presence | Range | IE type and reference                | Semantics description                                                                                                      | Criticality | Assigned Criticality |
|--------------------------------------------------|----------|-------|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                                                  |          |       |                                      | Uplink which is associated with the involved PDU session.                                                                  |             |                      |
| QoS Monitoring Request                           | O        |       | ENUMERATED (UL, DL, Both, ..., stop) | Indicates to measure UL, or DL, or both UL/DL delays for the associated QoS flow or stop the corresponding QoS monitoring. | YES         | ignore               |
| PDCP Terminating Node DL Transport Layer Address | O        |       | Transport Layer Address 9.3.2.3      | DL Transport Layer Address of node terminating PDCP. Included for MN-terminated SCG bearers and SN-terminated MCG bearers. | YES         | ignore               |
| PDU Set QoS Parameters                           |          | 0..1  |                                      |                                                                                                                            | YES         | ignore               |
| >UL PDU Set QoS Information                      | O        |       | PDU Set QoS Information 9.3.1.319    |                                                                                                                            | -           |                      |
| >DL PDU Set QoS Information                      | O        |       | PDU Set QoS Information 9.3.1.319    |                                                                                                                            | -           |                      |

### 9.3.1.46 GBR QoS Flow Information

This IE indicates QoS parameters for a GBR QoS flow or GBR bearer for downlink and uplink.

| IE/Group Name                     | Presence | Range | IE type and reference             | Semantics description                                                                                                   | Criticality | Assigned Criticality |
|-----------------------------------|----------|-------|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Maximum Flow Bit Rate Downlink    | M        |       | Bit Rate 9.3.1.22                 | Maximum Bit Rate in DL. Details in TS 23.501 [21].                                                                      | -           |                      |
| Maximum Flow Bit Rate Uplink      | M        |       | Bit Rate 9.3.1.22                 | Maximum Bit Rate in UL. Details in TS 23.501 [21].                                                                      | -           |                      |
| Guaranteed Flow Bit Rate Downlink | M        |       | Bit Rate 9.3.1.22                 | Guaranteed Bit Rate (provided there is data to deliver) in DL. Details in TS 23.501 [21].                               | -           |                      |
| Guaranteed Flow Bit Rate Uplink   | M        |       | Bit Rate 9.3.1.22                 | Guaranteed Bit Rate (provided there is data to deliver). Details in TS 23.501 [21].                                     | -           |                      |
| Maximum Packet Loss Rate Downlink | O        |       | Maximum Packet Loss Rate 9.3.1.50 | Indicates the maximum rate for lost packets that can be tolerated in the downlink direction. Details in TS 23.501 [21]. | -           |                      |
| Maximum Packet Loss Rate Uplink   | O        |       | Maximum Packet Loss Rate 9.3.1.50 | Indicates the maximum rate for lost packets that can be tolerated in the uplink                                         | -           |                      |

| IE/Group Name                       | Presence | Range | IE type and reference | Semantics description                                          | Criticality | Assigned Criticality |
|-------------------------------------|----------|-------|-----------------------|----------------------------------------------------------------|-------------|----------------------|
|                                     |          |       |                       | direction. Details in TS 23.501 [21].                          |             |                      |
| Alternative QoS Parameters Set List | O        |       | 9.3.1.125             | Indicates alternative sets of QoS Parameters for the QoS flow. | YES         | ignore               |

### 9.3.1.47 Dynamic 5QI Descriptor

This IE indicates the QoS Characteristics for a Non-standardised or not pre-configured 5QI for downlink and uplink.

| IE/Group Name       | Presence    | Range | IE type and reference       | Semantics description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Criticality | Assigned Criticality |
|---------------------|-------------|-------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| QoS Priority Level  | M           |       | INTEGER (1..127)            | For details see TS 23.501 [21].                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | -           |                      |
| Packet Delay Budget | M           |       | 9.3.1.51                    | For details see TS 23.501 [21]. For IAB, the Packet Delay Budget defines the upper bound for the time that a packet may be delayed between the IAB-DU/IAB-donor-DU and its child IAB-MT, or between the IAB-DU and its served UE. For a PC5 Relay RLC channel, the Packet Delay Budget defines the upper bound for the time that a packet may be delayed between the L2 U2N relay UE and L2 U2N remote UE. For a Uu Relay RLC channel, the Packet Delay Budget defines the upper bound for the time that a packet may be delayed between the gNB-DU and L2 U2N relay UE. This IE is ignored if the <i>Extended Packet Delay Budget</i> IE is present. | -           |                      |
| Packet Error Rate   | M           |       | 9.3.1.52                    | For details see TS 23.501 [21].                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | -           |                      |
| 5QI                 | O           |       | INTEGER (0..255,...)        | This IE contains the dynamically assigned 5QI as specified in TS 23.501 [21].                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | -           |                      |
| Delay Critical      | C-ifGBRflow |       | ENUMERATED (delay critical, | For details see TS 23.501 [21].                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | -           |                      |

| IE/Group Name                   | Presence    | Range | IE type and reference                     | Semantics description                                                                                                                          | Criticality | Assigned Criticality |
|---------------------------------|-------------|-------|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                                 |             |       | non-delay critical)                       |                                                                                                                                                |             |                      |
| Averaging Window                | C-ifGBRflow |       | 9.3.1.53                                  | For details see TS 23.501 [21].                                                                                                                | -           |                      |
| Maximum Data Burst Volume       | O           |       | 9.3.1.54                                  | For details see TS 23.501 [21]. This IE shall be included if the <i>Delay Critical</i> IE is set to "delay critical" and is ignored otherwise. | -           |                      |
| Extended Packet Delay Budget    | O           |       | 9.3.1.145                                 | Packet Delay Budget is specified in TS 23.501 [21].                                                                                            | YES         | ignore               |
| CN Packet Delay Budget Downlink | O           |       | Extended Packet Delay Budget<br>9.3.1.145 | Core Network Packet Delay Budget is specified in TS 23.501 [21]. This IE may be present in case of GBR QoS flows and is ignored otherwise.     | YES         | ignore               |
| CN Packet Delay Budget Uplink   | O           |       | Extended Packet Delay Budget<br>9.3.1.145 | Core Network Packet Delay Budget is specified in TS 23.501 [21]. This IE may be present in case of GBR QoS flows and is ignored otherwise.     | YES         | ignore               |

| Condition | Explanation                                                                                                                   |
|-----------|-------------------------------------------------------------------------------------------------------------------------------|
| ifGBRflow | This IE shall be present if the <i>GBR QoS Flow Information</i> IE is present in the <i>QoS Flow Level QoS Parameters</i> IE. |

### 9.3.1.48 NG-RAN Allocation and Retention Priority

This IE specifies the relative importance of a QoS flow or a DRB compared to other QoS flows or DRBs for allocation and retention of NG-RAN resources.

| IE/Group Name          | Presence | Range | IE type and reference                                               | Semantics description                                                                                                                                                                                                                                                                  |
|------------------------|----------|-------|---------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Priority Level         | M        |       | INTEGER (0..15)                                                     | <b>Desc.:</b> This IE defines the relative importance of a resource request (see TS 23.501 [21]).<br><b>Usage:</b> Values are ordered in decreasing order of priority, i.e., with 1 as the highest priority and 15 as the lowest priority. Further usage is defined in TS 23.501 [21]. |
| Pre-emption Capability | M        |       | ENUMERATED (shall not trigger pre-emption, may trigger pre-emption) | <b>Desc.:</b> This IE indicates the pre-emption capability of the request on other QoS flows (see TS 23.501 [21]).<br><b>Usage:</b> The QoS flow shall not pre-empt other QoS flows or, the QoS flow may pre-empt other QoS flows.<br><b>Note:</b> The Pre-emption Capability          |

| IE/Group Name             | Presence | Range | IE type and reference                       | Semantics description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------|----------|-------|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           |          |       |                                             | indicator applies to the allocation of resources for a QoS flow and as such it provides the trigger to the pre-emption procedures/processes of the gNB.                                                                                                                                                                                                                                                                                                                                              |
| Pre-emption Vulnerability | M        |       | ENUMERATED (not pre-emptable, pre-emptable) | <p><b>Desc.:</b> This IE indicates the vulnerability of the QoS flow to pre-emption of other QoS flows (see TS 23.501 [21]).</p> <p><b>Usage:</b> The QoS flow shall not be pre-empted by other QoS flows or the QoS flow may be pre-empted by other QoS flows.</p> <p>Note: The Pre-emption Vulnerability indicator applies for the entire duration of the QoS flow, unless modified and as such indicates whether the QoS flow is a target of the pre-emption procedures/processes of the gNB.</p> |

### 9.3.1.49 Non Dynamic 5QI Descriptor

This IE indicates the QoS Characteristics for a standardized or pre-configured 5QI for downlink and uplink.

| IE/Group Name             | Presence | Range | IE type and reference | Semantics description                                                                                                                                                                                                                                            | Criticality | Assigned Criticality |
|---------------------------|----------|-------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| 5QI                       | M        |       | INTEGER (0..255,...)  | This IE contains the standardized or pre-configured 5QI as specified in TS 23.501 [21]. For a BH RLC channel, the Packet Delay Budget included in 5QI defines the upper bound for the time that a packet may be delayed between the gNB-DU and its child IAB-MT. | -           |                      |
| Priority Level            | O        |       | INTEGER (1..127)      | For details see TS 23.501 [21]. When included overrides standardized or pre-configured value.                                                                                                                                                                    | -           |                      |
| Averaging Window          | O        |       | 9.3.1.53              | For details see TS 23.501 [21]. When included overrides standardized or pre-configured value.                                                                                                                                                                    | -           |                      |
| Maximum Data Burst Volume | O        |       | 9.3.1.54              | For details see TS 23.501 [21]. When included overrides standardized or pre-configured value.                                                                                                                                                                    | -           |                      |
| CN Packet Delay           | O        |       | Extended              | Core Network                                                                                                                                                                                                                                                     | YES         | ignore               |

| IE/Group Name                 | Presence | Range | IE type and reference                     | Semantics description                                                                                                                      | Criticality | Assigned Criticality |
|-------------------------------|----------|-------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Budget Downlink               |          |       | Packet Delay Budget<br>9.3.1.145          | Packet Delay Budget is specified in TS 23.501 [21]. This IE may be present in case of GBR QoS flows and is ignored otherwise.              |             |                      |
| CN Packet Delay Budget Uplink | O        |       | Extended Packet Delay Budget<br>9.3.1.145 | Core Network Packet Delay Budget is specified in TS 23.501 [21]. This IE may be present in case of GBR QoS flows and is ignored otherwise. | YES         | ignore               |

### 9.3.1.50 Maximum Packet Loss Rate

This IE indicates the Maximum Packet Loss Rate.

| IE/Group Name            | Presence | Range | IE type and reference | Semantics description                                                            |
|--------------------------|----------|-------|-----------------------|----------------------------------------------------------------------------------|
| Maximum Packet Loss Rate | M        |       | INTEGER(0..1000)      | Ratio of lost packets per number of packets sent, expressed in tenth of percent. |

### 9.3.1.51 Packet Delay Budget

This IE indicates the Packet Delay Budget for a QoS flow.

| IE/Group Name       | Presence | Range | IE type and reference  | Semantics description                                                                    |
|---------------------|----------|-------|------------------------|------------------------------------------------------------------------------------------|
| Packet Delay Budget | M        |       | INTEGER (0..1023, ...) | Upper bound value for the delay that a packet may experience expressed in unit of 0.5ms. |

### 9.3.1.52 Packet Error Rate

This IE indicates the Packet Error Rate for a QoS flow.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description                                                        |
|---------------|----------|-------|-----------------------|------------------------------------------------------------------------------|
| Scalar        | M        |       | INTEGER (0..9, ...)   | The packet error rate is expressed as Scalar x 10-k where k is the Exponent. |
| Exponent      | M        |       | INTEGER (0..9, ...)   |                                                                              |

### 9.3.1.53 Averaging Window

This IE indicates the Averaging Window for a QoS flow, and applies to GBR QoS Flows only.

| IE/Group Name    | Presence | Range | IE type and reference  | Semantics description                  |
|------------------|----------|-------|------------------------|----------------------------------------|
| Averaging Window | M        |       | INTEGER (0..4095, ...) | Unit: ms. The default value is 2000ms. |

### 9.3.1.54 Maximum Data Burst Volume

This IE indicates the Maximum Data Burst Volume for a QoS flow, and applies to delay critical GBR QoS flows only.

| IE/Group Name             | Presence | Range | IE type and reference                  | Semantics description |
|---------------------------|----------|-------|----------------------------------------|-----------------------|
| Maximum Data Burst Volume | M        |       | INTEGER (0..4095, ..., 4096.. 2000000) | Unit: byte.           |

### 9.3.1.55 Masked IMEISV

This information element contains the IMEISV value with a mask, to identify a terminal model without identifying an individual Mobile Equipment.

| IE/Group Name | Presence | Range | IE type and reference  | Semantics description                                                                                                                                                                                                                                                                                                                                                   |
|---------------|----------|-------|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Masked IMEISV | M        |       | BIT STRING (SIZE (64)) | Coded as the International Mobile Station Equipment Identity and Software Version Number (IMEISV) defined in TS 23.003 [23] with the last 4 digits of the SNR masked by setting the corresponding bits to 1.<br>The first to fourth bits correspond to the first digit of the IMEISV, the fifth to eighth bits correspond to the second digit of the IMEISV, and so on. |

### 9.3.1.56 Notification Control

The *Notification Control* IE indicates whether the notification control for a given DRB is active or not-active.

| IE/Group Name        | Presence | Range | IE Type and Reference               | Semantics Description |
|----------------------|----------|-------|-------------------------------------|-----------------------|
| Notification Control | M        |       | ENUMERATED(Active, Not-Active, ...) |                       |

### 9.3.1.57 RAN Area Code

This information element is used to uniquely identify a RAN Area Code.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
|---------------|----------|-------|-----------------------|-----------------------|
| RANAC         | M        |       | INTEGER (0..255)      | RAN Area Code         |

### 9.3.1.58 PWS System Information

This IE contains the system information used for public warning.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description                                                                                 | Criticality | Assigned Criticality |
|---------------|----------|-------|-----------------------|-------------------------------------------------------------------------------------------------------|-------------|----------------------|
| SIB type      | M        |       | INTEGER (6..8, ...)   | Indicates a certain SIB block for public warning message, e.g. 6 means sibType6, 7 for sibType7, etc. | -           |                      |
| SIB message   | M        |       | OCTET                 | SIB message for                                                                                       | -           |                      |

| IE/Group Name                   | Presence | Range | IE type and reference | Semantics description                                                                                                                      | Criticality | Assigned Criticality |
|---------------------------------|----------|-------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                                 |          |       | STRING                | public warning, as defined in TS 38.331 [8].                                                                                               |             |                      |
| <b>Notification Information</b> | O        |       |                       |                                                                                                                                            | YES         | ignore               |
| >Message Identifier             | M        |       | 9.3.1.81              |                                                                                                                                            | -           |                      |
| >Serial Number                  | M        |       | 9.3.1.82              |                                                                                                                                            | -           |                      |
| Additional SIB Message List     | O        |       | 9.3.1.86              | Additional SIB messages containing different segments of a public warning message if segmentation is applied, as defined in TS 38.331 [8]. | YES         | reject               |

### 9.3.1.59 Repetition Period

This IE indicates the periodicity of the warning message to be broadcast.

| IE/Group Name     | Presence | Range | IE type and reference                | Semantics description                                  |
|-------------------|----------|-------|--------------------------------------|--------------------------------------------------------|
| Repetition Period | M        |       | INTEGER (0..2 <sup>17</sup> -1, ...) | The unit of value 1 to 2 <sup>17</sup> -1 is [second]. |

### 9.3.1.60 Number of Broadcasts Requested

This IE indicates the number of times a message is to be broadcast.

| IE/Group Name                  | Presence | Range | IE type and reference | Semantics description |
|--------------------------------|----------|-------|-----------------------|-----------------------|
| Number of Broadcasts Requested | M        |       | INTEGER (0..65535)    |                       |

### 9.3.1.61 Void

### 9.3.1.62 SType List

This IE is used by the gNB-CU to indicate to the gNB-DU to broadcast one or several *SystemInformation* messages including the Other SI.

| IE/Group Name           | Presence | Range                  | IE type and reference | Semantics description                                                                                                                                                                                                                                                                                                                |
|-------------------------|----------|------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SI type item IEs</b> |          | 1..<br><maxnoofSTypes> |                       |                                                                                                                                                                                                                                                                                                                                      |
| >SI Type                | M        |                        | INTEGER (1..32, ...)  | Value "1" corresponds to the SI message identified by the first SI message indicated in the <i>SI-SchedulingInfo</i> IE in the <i>SIB1</i> message, value "2" to the SI message identified by the second SI message indicated in the <i>SI-SchedulingInfo</i> IE in the <i>SIB1</i> message, and so on, as defined in TS 38.331 [8]. |



| Range bound    | Explanation                                       |
|----------------|---------------------------------------------------|
| maxnoofSITypes | Maximum no. of SI types, the maximum value is 32. |

### 9.3.1.63 QoS Flow Identifier

This IE identifies a QoS Flow within a PDU Session, a MBS QoS flow within a MBS session. The definition and use of the QoS Flow Identifier is specified in TS 23.501 [21].

| IE/Group Name       | Presence | Range | IE type and reference | Semantics description |
|---------------------|----------|-------|-----------------------|-----------------------|
| QoS Flow Identifier | M        |       | INTEGER (0 ..63)      |                       |

### 9.3.1.64 Served E-UTRA Cell Information

This IE contains served cell information of an E-UTRA cell for spectrum sharing between E-UTRA and NR.

| IE/Group Name                        | Presence | Range | IE type and reference | Semantics description                                                                                |
|--------------------------------------|----------|-------|-----------------------|------------------------------------------------------------------------------------------------------|
| CHOICE <i>EUTRA-Mode-Info</i>        | M        |       |                       |                                                                                                      |
| > <i>FDD</i>                         |          |       |                       |                                                                                                      |
| >> <b>FDD Info</b>                   |          | 1     |                       |                                                                                                      |
| >>>UL Offset to Point A              | M        |       | INTEGER (0..2199,...) | Indicates the offset to the center of the NR carrier for UL.                                         |
| >>>DL Offset to Point A              | M        |       | INTEGER (0..2199,...) | Indicates the offset to the center of the NR carrier for DL.                                         |
| > <i>TDD</i>                         |          |       |                       |                                                                                                      |
| >> <b>TDD Info</b>                   |          | 1     |                       |                                                                                                      |
| >>>Offset to Point A                 | M        |       | INTEGER (0..2199,...) | Indicates the offset to the center of the NR carrier.                                                |
| Protected E-UTRA Resource Indication | M        |       | OCTET STRING          | Indicates the Protected E-UTRA Resource Indication as defined in subclause 9.2.125 of TS 36.423 [9]. |

### 9.3.1.65 Available PLMN List

This IE indicates the list of available PLMN.

| IE/Group Name           | Presence | Range              | IE type and reference | Semantics description |
|-------------------------|----------|--------------------|-----------------------|-----------------------|
| Available PLMN Item IEs |          | 1..<maxnoofBPLMNs> |                       |                       |
| >PLMN Identity          | M        |                    | 9.3.1.14              |                       |

| Range bound   | Explanation                                    |
|---------------|------------------------------------------------|
| maxnoofBPLMNs | Maximum no. of Broadcast PLMN Ids. Value is 6. |

### 9.3.1.66 RLC Failure Indication

This IE indicates the LCID associated with the RLC entity needing re-establishment.

| IE/Group Name   | Presence | Range | IE type and reference | Semantics description |
|-----------------|----------|-------|-----------------------|-----------------------|
| Associated LCID | M        |       | LCID<br>9.3.1.35      |                       |

### 9.3.1.67 Uplink TxDirectCurrentList Information

This IE contains the Uplink TxDirectCurrentList information that is configured by the UE.

| IE/Group Name                          | Presence | Range | IE type and reference | Semantics description                                                         |
|----------------------------------------|----------|-------|-----------------------|-------------------------------------------------------------------------------|
| Uplink TxDirectCurrentList Information | M        |       | OCTET STRING          | Includes the <i>UplinkTxDirectCurrentList</i> IE as defined in TS 38.331 [8]. |

### 9.3.1.68 Service Status

This IE is used to indicate the service status of a cell by the gNB-DU.

| IE/Group Name         | Presence | Range | IE type and reference                        | Semantics description                                                                                                     |
|-----------------------|----------|-------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Service State         | M        |       | ENUMERATED (In-Service, Out-Of-Service, ...) | Indicates the Service State of the cell. In-Service and Out-of-Service Service States are defined in TS 38.401 [4].       |
| Switching Off Ongoing | O        |       | ENUMERATED (True, ...)                       | This IE indicates that the gNB-DU will delete the cell after some time using a new gNB-DU Configuration Update procedure. |

### 9.3.1.69 RLC Status

This IE indicates about the RLC configuration change included in the container towards the UE.

| IE/Group Name              | Presence | Range | IE type and reference           | Semantics description                                                                   |
|----------------------------|----------|-------|---------------------------------|-----------------------------------------------------------------------------------------|
| Reestablishment Indication | M        |       | ENUMERATED (reestablished, ...) | Indicates that following a change in the radio status, the RLC has been re-established. |

### 9.3.1.70 RRC Version

This information element is used to identify RRC version corresponding to TS 38.331 [8].

| IE/Group Name               | Presence | Range | IE type and reference   | Semantics description                                                                                                                                                                                                                                                                     | Criticality | Assigned Criticality |
|-----------------------------|----------|-------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Latest RRC Version          | M        |       | BIT STRING (SIZE (3))   | This IE is not used in this release.                                                                                                                                                                                                                                                      | -           |                      |
| Latest RRC Version Enhanced | O        |       | OCTET STRING (SIZE (3)) | Latest supported RRC version in the release corresponding to TS 38.331 [8]. For a 3GPP specification version x.y.z, x is encoded by the leftmost byte, y by the middle byte, and z by the rightmost byte. If the RRC protocol is not supported in the gNB-DU, this IE is set to all '0's. | YES         | ignore               |

### 9.3.1.71 RRC Delivery Status

This IE provides information about the delivery status of RRC messages to the UE.

| IE/Group Name      | Presence | Range | IE type and reference           | Semantics description                                            |
|--------------------|----------|-------|---------------------------------|------------------------------------------------------------------|
| Delivery Status    | M        |       | INTEGER (0..2 <sup>12</sup> -1) | Highest NR PDCP SN successfully delivered in sequence to the UE. |
| Triggering Message | M        |       | INTEGER (0..2 <sup>12</sup> -1) | NR PDCP SN for the RRC message that triggered the report.        |

### 9.3.1.72 QoS Flow Mapping Indication

This IE is used to indicate only the uplink or downlink QoS flow is mapped to the DRB.

| IE/Group Name               | Presence | Range | IE type and reference  | Semantics description                                                    |
|-----------------------------|----------|-------|------------------------|--------------------------------------------------------------------------|
| QoS Flow Mapping Indication | M        |       | ENUMERATED(ul, dl,...) | Indicates that only the uplink or downlink QoS flow is mapped to the DRB |

### 9.3.1.73 Resource Coordination Transfer Information

This IE contains information for UE-associated E-UTRA – NR resource coordination.

| IE/Group Name                                 | Presence | Range | IE type and reference | Semantics description                                                                             |
|-----------------------------------------------|----------|-------|-----------------------|---------------------------------------------------------------------------------------------------|
| MeNB Cell ID                                  | M        |       | BIT STRING (SIZE(28)) | <i>E-UTRAN Cell Identifier</i> IE contained in the ECGI as defined in TS 36.423 [9] clause 9.2.14 |
| Resource Coordination E-UTRA Cell Information | O        |       | 9.3.1.75              |                                                                                                   |

### 9.3.1.74 E-UTRA PRACH Configuration

This IE indicates the PRACH resources used in E-UTRA cell.

| IE/Group Name                    | Presence | Range | IE type and reference | Semantics description                                                                                 |
|----------------------------------|----------|-------|-----------------------|-------------------------------------------------------------------------------------------------------|
| RootSequenceIndex                | M        |       | INTEGER (0..837)      | See section 5.7.2. in TS 36.211 [27]                                                                  |
| ZeroCorrelationZoneConfiguration | M        |       | INTEGER (0..15)       | See section 5.7.2. in TS 36.211 [27]                                                                  |
| HighSpeedFlag                    | M        |       | BOOLEAN               | TRUE corresponds to Restricted set and FALSE to Unrestricted set. See section 5.7.2 in TS 36.211 [27] |
| PRACH-FrequencyOffset            | M        |       | INTEGER (0..94)       | See section 5.7.1 of TS 36.211 [27]                                                                   |
| PRACH-ConfigurationIndex         | C-ifTDD  |       | INTEGER (0..63)       | See section 5.7.1. in TS 36.211 [27]                                                                  |

| Condition | Explanation                                                                                                                                         |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| ifTDD     | This IE shall be present if the <i>EUTRA-Mode-Info</i> IE in the <i>Resource Coordination E-UTRA Cell Information</i> IE is set to the value "TDD". |

### 9.3.1.75 Resource Coordination E-UTRA Cell Information

This IE contains E-UTRA cell information for UE-associated E-UTRA – NR resource coordination.

| IE/Group Name                    | Presence | Range | IE type and reference                                                               | Semantics description                                                                                                    | Criticality | Assigned Criticality |
|----------------------------------|----------|-------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| CHOICE <i>EUTRA-Mode-Info</i>    | M        |       |                                                                                     |                                                                                                                          | -           |                      |
| > <i>FDD</i>                     |          |       |                                                                                     |                                                                                                                          | -           |                      |
| >> <b>FDD Info</b>               |          | 1     |                                                                                     |                                                                                                                          | -           |                      |
| >>>UL EARFCN                     | O        |       | INTEGER (0 .. maxExtendedEARFCN, ...)                                               | The relation between EARFCN and carrier frequency (in MHz) is defined in TS 36.104 [25].                                 | -           |                      |
| >>>DL EARFCN                     | M        |       | INTEGER (0 .. maxExtendedEARFCN, ...)                                               | The relation between EARFCN and carrier frequency (in MHz) is defined in TS 36.104 [25].                                 | -           |                      |
| >>>UL Transmission Bandwidth     | O        |       | E-UTRA Transmission Bandwidth 9.3.1.80                                              | Present if <i>UL EARFCN</i> IE is present.                                                                               | -           |                      |
| >>>DL Transmission Bandwidth     | M        |       | E-UTRA Transmission Bandwidth 9.3.1.80                                              |                                                                                                                          | -           |                      |
| > <i>TDD</i>                     |          |       |                                                                                     |                                                                                                                          | -           |                      |
| >> <b>TDD Info</b>               |          | 1     |                                                                                     |                                                                                                                          | -           |                      |
| >>>EARFCN                        | M        |       | INTEGER (0 .. maxExtendedEARFCN, ...)                                               | The relation between EARFCN and carrier frequency (in MHz) is defined in TS 36.104 [25].                                 | -           |                      |
| >>>Transmission Bandwidth        | M        |       | E-UTRA Transmission Bandwidth 9.3.1.80                                              |                                                                                                                          | -           |                      |
| >>>Subframe Assignment           | M        |       | ENUMERATED (sa0, sa1, sa2, sa3, sa4, sa5, sa6,...)                                  | Uplink-downlink subframe configuration information defined in TS 36.211 [27]. In NB-IOT, sa0 and sa6 are not applicable. | -           |                      |
| >>> <b>Special Subframe Info</b> |          | 1     |                                                                                     | Special subframe configuration information defined in TS 36.211 [27]                                                     | -           |                      |
| >>>>Special Subframe Patterns    | M        |       | ENUMERATED (ssp0, ssp1, ssp2, ssp3, ssp4, ssp5, ssp6, ssp7, ssp8, ssp9, ssp10, ...) |                                                                                                                          | -           |                      |
| >>>>Cyclic Prefix DL             | M        |       | ENUMERATED (Normal, Extended,...)                                                   |                                                                                                                          | -           |                      |
| >>>>Cyclic Prefix UL             | M        |       | ENUMERATED (Normal, Extended,...)                                                   |                                                                                                                          | -           |                      |
| E-UTRA PRACH                     | M        |       | 9.3.1.74                                                                            |                                                                                                                          | -           |                      |

| IE/Group Name              | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|----------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| Configuration              |          |       |                       |                       |             |                      |
| Ignore PRACH Configuration | O        |       | ENUMERATED (true,...) |                       | YES         | reject               |

| Range bound       | Explanation                                        |
|-------------------|----------------------------------------------------|
| maxExtendedEARFCN | Maximum value of extended EARFCN. Value is 262143. |

### 9.3.1.76 Extended Available PLMN List

This IE indicates the list of available PLMN.

| IE/Group Name                    | Presence | Range                      | IE type and reference | Semantics description |
|----------------------------------|----------|----------------------------|-----------------------|-----------------------|
| Extended Available PLMN Item IEs |          | 1..<maxnoofExtendedBPLMNs> |                       |                       |
| >PLMN Identity                   | M        |                            | 9.3.1.14              |                       |

| Range bound           | Explanation                                             |
|-----------------------|---------------------------------------------------------|
| maxnoofExtendedBPLMNs | Maximum no. of Extended Broadcast PLMN Ids. Value is 6. |

### 9.3.1.77 Associated SCell List

This IE indicates the list of SCells associated with the RLC entity indicated by the *RLC Failure Indication* IE.

| IE/Group Name             | Presence | Range              | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|---------------------------|----------|--------------------|-----------------------|-----------------------|-------------|----------------------|
| Associated SCell Item IEs |          | 1..<maxnoofSCells> |                       |                       | -           |                      |
| >SCell ID                 | M        |                    | NR CGI 9.3.1.12       |                       | -           |                      |

| Range bound   | Explanation                                                            |
|---------------|------------------------------------------------------------------------|
| maxnoofSCells | Maximum no. of SCells allowed towards one UE, the maximum value is 32. |

### 9.3.1.78 Cell Direction

This IE indicates if the cell is either bidirectional or only DL or only UL.

| IE/Group Name  | Presence | Range | IE type and reference         | Semantics description |
|----------------|----------|-------|-------------------------------|-----------------------|
| Cell Direction | M        |       | ENUMERATED (dl-only, ul-only) |                       |

### 9.3.1.79 Paging Origin

This IE indicates whether Paging is originated due to the PDU sessions from the non-3GPP access.

| IE/Group Name | Presence | Range | IE type and reference      | Semantics description |
|---------------|----------|-------|----------------------------|-----------------------|
| Paging Origin | M        |       | ENUMERATED (non-3GPP, ...) |                       |

### 9.3.1.80 E-UTRA Transmission Bandwidth

This IE is used to indicate the E-UTRA UL or DL transmission bandwidth expressed in units of resource blocks "  $N_{RB}$  " (TS 36.104 [25]). The values bw1, bw6, bw15, bw25, bw50, bw75, bw100 correspond to the number of resource blocks " $N_{RB}$ " 6, 15, 25, 50, 75, 100.

| IE/Group Name                 | Presence | Range | IE Type and Reference                                  | Semantics Description |
|-------------------------------|----------|-------|--------------------------------------------------------|-----------------------|
| E-UTRA Transmission Bandwidth | M        |       | ENUMERATED<br>(bw6, bw15, bw25, bw50, bw75, bw100,...) |                       |

### 9.3.1.81 Message Identifier

This IE identifies the warning message.

| IE/Group Name      | Presence | Range | IE type and reference    | Semantics description                                             |
|--------------------|----------|-------|--------------------------|-------------------------------------------------------------------|
| Message Identifier | M        |       | BIT STRING<br>(SIZE(16)) | This IE is set by the 5GC, transferred to the UE by the gNB node. |

### 9.3.1.82 Serial Number

This IE identifies a particular message from the source and type indicated by the Message Identifier and is altered every time the message with a given Message Identifier is changed.

| IE/Group Name | Presence | Range | IE type and reference    | Semantics description |
|---------------|----------|-------|--------------------------|-----------------------|
| Serial Number | M        |       | BIT STRING<br>(SIZE(16)) |                       |

### 9.3.1.83 UAC Assistance Information

This information element contains assistance information helping the gNB-DU to set parameters for Unified Access Class barring.

| IE/Group Name                    | Presence | Range                                   | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|----------------------------------|----------|-----------------------------------------|-----------------------|-----------------------|-------------|----------------------|
| <b>UAC PLMN List</b>             |          | <i>1</i>                                |                       |                       | -           |                      |
| <b>&gt;UAC PLMN Item</b>         |          | <i>1..&lt;maxno of UAC PLMNs&gt;</i>    |                       |                       | -           |                      |
| >>PLMN Identity                  | M        |                                         | 9.3.1.14              |                       | -           |                      |
| <b>&gt;&gt;UAC Type List</b>     |          | <i>1</i>                                |                       |                       | -           |                      |
| <b>&gt;&gt;&gt;UAC Type Item</b> |          | <i>1..&lt;maxno of UAC per PLMN&gt;</i> |                       |                       | -           |                      |
| >>>>UAC Reduction Indication     | M        |                                         | 9.3.1.85              |                       | -           |                      |
| >>>>CHOICE UAC Category Type     | M        |                                         |                       |                       | -           |                      |
| >>>>>UAC Standardized            |          |                                         |                       |                       | -           |                      |
| >>>>>UAC Action                  | M        |                                         | 9.3.1.84              |                       | -           |                      |

| IE/Group Name                | Presence | Range | IE type and reference    | Semantics description                                                                                                | Criticality | Assigned Criticality |
|------------------------------|----------|-------|--------------------------|----------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| >>>>>UAC<br>Operator Defined |          |       |                          |                                                                                                                      | -           |                      |
| >>>>>Access<br>Category      | M        |       | INTEGER<br>(32..63, ...) | Indicates the operator defined Access Category as defined in subclause 6.3.2 in TS 38.331 [8].                       | -           |                      |
| >>>>>Access<br>Identity      | M        |       | BIT STRING<br>(SIZE(7))  | Indicates whether access attempt is allowed for each Access Identity as defined in subclause 6.3.2 in TS 38.331 [8]. | -           |                      |
| >>NID                        | O        |       | 9.3.1.155                |                                                                                                                      | YES         | ignore               |

| Range bound       | Explanation                                                |
|-------------------|------------------------------------------------------------|
| maxnoofUACPLMNs   | Maximum no. of UAC PLMN Ids. Value is 12.                  |
| maxnoofUACperPLMN | Maximum no. of signalled categories per PLMN. Value is 64. |

### 9.3.1.84 UAC Action

This IE indicates which signalling traffic is expected to be reduced by the gNB-CU, as defined in clause 8.7.7 of TS 38.413 [3]

| IE/Group Name | Presence | Range | IE type and reference                                                                                                                                                                                                                                                   | Semantics description |
|---------------|----------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| UAC Action    | M        |       | ENUMERATED<br>(Reject RRC connection establishments for non-emergency MO DT, Reject RRC connection establishments for Signalling, Permit Emergency Sessions and mobile terminated services only, Permit High Priority Sessions and mobile terminated services only,...) |                       |

### 9.3.1.85 UAC reduction Indication

This IE indicates the percentage of signalling traffic expected to be reduced by the gNB-CU, relative to the instantaneous incoming rate from the gNB-DU

| IE/Group Name            | Presence | Range | IE type and reference | Semantics description                                                                                                                                |
|--------------------------|----------|-------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| UAC reduction Indication | M        |       | INTEGER (0..100)      | Value 0 indicates that no access rate reduction is desired. In this version of specification, value 99 indicates the highest desired rate reduction. |

### 9.3.1.86 Additional SIB Message List

This IE indicates the list of additional SIB messages containing all the remaining segments of a public warning message if segmentation is applied to such message.

| IE/Group Name                               | Presence | Range                          | IE type and reference | Semantics description                                                                        |
|---------------------------------------------|----------|--------------------------------|-----------------------|----------------------------------------------------------------------------------------------|
| <b>Additional SIB Message List Item IEs</b> |          | 1..<br><maxnoofAdditionalSIBs> |                       |                                                                                              |
| >Additional SIB                             | M        |                                | OCTET STRING          | SIB message containing one segment of a public warning message, as defined in TS 38.331 [8]. |

| Range bound           | Explanation                                                                  |
|-----------------------|------------------------------------------------------------------------------|
| maxnoofAdditionalSIBs | Maximum no. of additional segments of a public warning message. Value is 63. |

### 9.3.1.87 Cell Type

This IE provides the cell coverage area.

| IE/Group Name | Presence | Range | IE type and reference                                | Semantics description |
|---------------|----------|-------|------------------------------------------------------|-----------------------|
| Cell Size     | M        |       | ENUMERATED<br>(verysmall, small, medium, large, ...) |                       |

### 9.3.1.87a Configured TAC Indication

This IE indicates that the TAC with which this IE is associated, is only configured for the cell, but not broadcast.

NOTE: This IE is defined in accordance to the possibility foreseen in TS 38.331 [8] to not broadcast the TAC if the NR cell only supports PSCell/SCell functionality.

| IE/Group Name             | Presence | Range | IE type and reference     | Semantics description |
|---------------------------|----------|-------|---------------------------|-----------------------|
| Configured TAC Indication | M        |       | ENUMERATED<br>(true, ...) |                       |

### 9.3.1.88 Trace Activation

This IE defines parameters related to a trace session activation.

| IE/Group Name | Presence | Range | IE type and reference     | Semantics description                                                                                                                                                             | Criticality | Assigned Criticality |
|---------------|----------|-------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Trace ID      | M        |       | OCTET STRING<br>(SIZE(8)) | This IE is composed of the following:<br>Trace Reference defined in TS 32.422 [29] (leftmost 6 octets, with PLMN information encoded as in 9.3.1.14), and Trace Recording Session | -           |                      |



| IE/Group Name                      | Presence | Range | IE type and reference                                                                                                                                          | Semantics description                                                                                                                                                                                                                                                                                    | Criticality | Assigned Criticality |
|------------------------------------|----------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                                    |          |       |                                                                                                                                                                | Reference defined in TS 32.422 [29] (last 2 octets).                                                                                                                                                                                                                                                     |             |                      |
| Interfaces To Trace                | M        |       | BIT STRING (SIZE(8))                                                                                                                                           | Each position in the bitmap represents an NG-RAN node interface:<br>first bit = NG-C,<br>second bit = Xn-C,<br>third bit = Uu,<br>fourth bit = F1-C,<br>fifth bit = E1:<br>other bits reserved for future use.<br>Value '1' indicates 'should be traced'.<br>Value '0' indicates 'should not be traced'. | -           |                      |
| Trace Depth                        | M        |       | ENUMERATED (minimum, medium, maximum, minimumWithoutVendorSpecificExtension, mediumWithoutVendorSpecificExtension, maximumWithoutVendorSpecificExtension, ...) | Defined in TS 32.422 [29].                                                                                                                                                                                                                                                                               | -           |                      |
| Trace Collection Entity IP Address | M        |       | Transport Layer Address 9.3.2.3                                                                                                                                | For File based Reporting.<br>Defined in TS 32.422 [29].<br>Should be ignored if URI is present.                                                                                                                                                                                                          | -           |                      |
| MDT Configuration                  | O        |       | 9.3.1.150                                                                                                                                                      |                                                                                                                                                                                                                                                                                                          | YES         | ignore               |
| Trace Collection Entity URI        | O        |       | URI 9.3.2.6                                                                                                                                                    | For Streaming based Reporting.<br>Defined in TS 32.422 [29]<br>Replaces Trace Collection Entity IP Address if present                                                                                                                                                                                    | YES         | ignore               |

### 9.3.1.89 Intended TDD DL-UL Configuration

This IE contains the subcarrier spacing, cyclic prefix and TDD DL-UL slot configuration of an NR cell that the receiving gNB needs to take into account for cross-link interference mitigation, and/or for NR-DC power coordination, when operating its own cells.

| IE/Group Name | Presence | Range | IE Type and Reference                                          | Semantics Description                                                                                               | Criticality | Assigned Criticality |
|---------------|----------|-------|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| NR SCS        | M        |       | ENUMERATED (scs15, scs30, scs60, scs120, ..., scs 480, scs960) | The values scs15, scs30, scs60, scs120, scs480 and scs960 corresponds to the sub carrier spacing in TS 38.104 [17]. | -           |                      |

| IE/Group Name                             | Presence | Range                            | IE Type and Reference                                                                                                              | Semantics Description                                                                                                                                                                                             | Criticality | Assigned Criticality |
|-------------------------------------------|----------|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| NR Cyclic Prefix                          | M        |                                  | ENUMERATED (Normal, Extended, ...)                                                                                                 | The type of cyclic prefix, which determines the number of symbols in a slot.                                                                                                                                      | -           |                      |
| NR DL-UL Transmission Periodicity         | M        |                                  | ENUMERATED (ms0p5, ms0p625, ms1, ms1p25, ms2, ms2p5, ms3, ms4, ms5, ms10, ms20, ms40, ms60, ms80, ms100, ms120, ms140, ms160, ...) | The periodicity is expressed in the format msXpYZ, and equals X.YZ milliseconds.                                                                                                                                  | -           |                      |
| <b>Slot Configuration List</b>            |          | <b>1</b>                         |                                                                                                                                    |                                                                                                                                                                                                                   | -           |                      |
| <b>&gt;Slot Configuration List Item</b>   |          | <b>1..&lt;maxno of slots&gt;</b> |                                                                                                                                    |                                                                                                                                                                                                                   | -           |                      |
| >>Slot Index                              | M        |                                  | INTEGER (0..5119, ...)                                                                                                             |                                                                                                                                                                                                                   | -           |                      |
| >>CHOICE <i>Symbol Allocation in Slot</i> | M        |                                  |                                                                                                                                    |                                                                                                                                                                                                                   | -           |                      |
| >>>All DL                                 |          |                                  | NULL                                                                                                                               | This choice implies that all symbols in the slot are DL symbols.                                                                                                                                                  | -           |                      |
| >>>All UL                                 |          |                                  | NULL                                                                                                                               | This choice implies that all symbols in the slot are UL symbols.                                                                                                                                                  | -           |                      |
| >>>Both DL and UL                         |          |                                  |                                                                                                                                    |                                                                                                                                                                                                                   | -           |                      |
| >>>>Number of DL Symbols                  | M        |                                  | INTEGER (0..13, ...)                                                                                                               | Number of consecutive DL symbols in the slot identified by Slot Index IE. If extended cyclic prefix is used, the maximum value is 11. The <i>Permutation</i> IE indicates the location of DL symbols in the slot. | -           |                      |
| >>>>Number of UL Symbols                  | M        |                                  | INTEGER (0..13, ...)                                                                                                               | Number of consecutive UL symbols in the slot identified by Slot Index IE. If extended cyclic prefix is used, the maximum value is 11. The <i>Permutation</i> IE indicates the location of UL symbols in the slot. | -           |                      |
| >>>>Permutation                           | O        |                                  | ENUMERATED (DFU, UFD, ...)                                                                                                         | If not present, the default value is DFU.                                                                                                                                                                         | YES         | ignore               |

| Range bound  | Explanation                                                         |
|--------------|---------------------------------------------------------------------|
| maxnoofslots | Maximum length of number of slots in a 10-ms period. Value is 5120. |

### 9.3.1.90 Additional RRM Policy Index

The *Additional RRM Policy Index* IE is used to provide additional information independent from the Subscriber Profile ID for RAT/Frequency priority as specified in TS 36.300 [20].

| IE/Group Name               | Presence | Range | IE type and reference | Semantics description |
|-----------------------------|----------|-------|-----------------------|-----------------------|
| Additional RRM Policy Index | M        |       | BIT STRING (32)       |                       |

### 9.3.1.91 DU-CU RIM Information

This IE conveys the Remote Interference Management message from the gNB-DU to the gNB-CU.

| IE/Group Name                       | Presence | Range                               | IE type and reference                        | Semantics description                                  |
|-------------------------------------|----------|-------------------------------------|----------------------------------------------|--------------------------------------------------------|
| Victim gNB Set ID                   | M        |                                     | gNB Set ID 9.3.1.93                          |                                                        |
| RIM-RS Detection Status             | M        |                                     | ENUMERATED(RS detected, RS disappeared, ...) | This IE indicates detection status of RIM-RS in gNB-DU |
| <b>Aggressor Cell List</b>          |          | <b>1</b>                            |                                              |                                                        |
| <b>&gt;Aggressor Cell List Item</b> |          | <b>1..&lt; maxCellingNB DU &gt;</b> |                                              |                                                        |
| >>Aggressor Cell ID                 | M        |                                     | NR CGI 9.3.1.12                              |                                                        |

| Range bound     | Explanation                                                     |
|-----------------|-----------------------------------------------------------------|
| maxCellingNB DU | Maximum no. cells that can be served by a gNB-DU. Value is 512. |

### 9.3.1.92 CU-DU RIM Information

This IE conveys the Remote Interference Management message from the gNB-CU to the gNB-DU.

| IE/Group Name           | Presence | Range | IE type and reference                        | Semantics description                                          |
|-------------------------|----------|-------|----------------------------------------------|----------------------------------------------------------------|
| Victim gNB Set ID       | M        |       | gNB Set ID 9.3.1.93                          |                                                                |
| RIM-RS Detection Status | M        |       | ENUMERATED(RS detected, RS disappeared, ...) | This IE indicates detection status of RIM-RS in remote gNB(s). |

### 9.3.1.93 gNB Set ID

The *gNB Set ID* IE is used to identify a group of gNBs which transmit the same RIM-RS.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
|---------------|----------|-------|-----------------------|-----------------------|
| gNB Set ID    | M        |       | BIT STRING (SIZE(22)) |                       |

### 9.3.1.94 Lower Layer Presence Status Change

This IE indicates lower layer resources' presence status shall be changed.

| IE/Group Name                      | Presence | Range | IE type and reference                                         | Semantics description                                                                                                                                                                                                                                                  |
|------------------------------------|----------|-------|---------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lower Layer Presence Status Change | M        |       | ENUMERATED<br>(suspend lower layers, resume lower layers ...) | "suspend lower layers" will store CellGroupConfig. From the parameters received within the ReconfigurationWithSync, only the sPCellConfigCommon is stored. "resume lower layers" shall restore SCG and it is set only after "suspend lower layers" has been indicated. |

### 9.3.1.95 Traffic Mapping Information

This IE includes the information used by the gNB-DU to perform traffic mapping.

| IE/Group Name                                     | Presence | Range | IE type and reference                                         | Semantics description                                                                            |
|---------------------------------------------------|----------|-------|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| CHOICE <i>Traffic Mapping Information Type</i>    | M        |       |                                                               |                                                                                                  |
| >IP to layer2 Traffic Mapping Info                |          |       |                                                               |                                                                                                  |
| >>IP to layer2 Traffic Mapping Info To Add        | O        |       | IP-to-layer-2 traffic mapping Information List<br>9.3.1.96    | This IE indicates the mapping information for forwarding of IP traffic to layer-2 to be added.   |
| >>IP to layer2 Traffic Mapping Info To Remove     | O        |       | Mapping Information to Remove<br>9.3.1.99                     | This IE indicates the mapping information for forwarding of IP traffic to layer 2 to be removed. |
| >BAP layer BH RLC channel Mapping Info            |          |       |                                                               |                                                                                                  |
| >>BAP layer BH RLC channel Mapping Info To Add    | O        |       | BAP layer BH RLC channel mapping Information List<br>9.3.1.98 | This IE indicates the mapping information for forwarding of traffic on BAP layer to be added.    |
| >>BAP layer BH RLC channel Mapping Info To Remove | O        |       | Mapping Information to Remove<br>9.3.1.99                     | This IE indicates the mapping information for forwarding of traffic on BAP layer to be removed.  |

### 9.3.1.96 IP-to-layer-2 traffic mapping Information List

This IE includes the information used by the IAB-donor-DU to perform the mapping from IP layer to layer-2. If this IE appears in the UE-associated F1AP signalling, the *BH Information* IE should only contain the *BAP Routing ID* IE.

| IE/Group Name                          | Presence | Range                          | IE type and reference | Semantics description |
|----------------------------------------|----------|--------------------------------|-----------------------|-----------------------|
| IP-to-layer-2 mapping information Item |          | 1..<br><maxnoofMappingEntries> |                       |                       |
| >Mapping Information Index             | M        |                                | 9.3.1.100             |                       |
| >IP header information                 | M        |                                | 9.3.1.97              |                       |
| >BH Information                        | M        |                                | 9.3.1.114             |                       |

| Range bound           | Explanation                                                                            |
|-----------------------|----------------------------------------------------------------------------------------|
| maxnoofMappingEntries | Maximum no. of mapping entries, the maximum value is 67108864 (i.e. 2 <sup>26</sup> ). |

### 9.3.1.97 IP Header Information

This IE indicates the IP header information included in the *Traffic Mapping Information* IE for DL traffic.

| IE/Group Name               | Presence | Range                  | IE type and reference | Semantics description                                                                          |
|-----------------------------|----------|------------------------|-----------------------|------------------------------------------------------------------------------------------------|
| Destination IAB TNL Address | M        |                        | 9.3.1.102             | This IE indicates the destination IPv4 address, or IPv6 address or IPv6 prefix of a DL packet. |
| <b>DS Information List</b>  |          | 0..<br><maxnoofDSInfo> |                       |                                                                                                |
| >DSCP                       | M        |                        | BIT STRING (SIZE(6))  | This IE indicates the DS information of DL traffic.                                            |
| IPv6 Flow Label             | O        |                        | BIT STRING (SIZE(20)) | This IE indicates the IPv6 Flow Label of DL traffic.                                           |

| Range bound   | Explanation                                                                                                                       |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------|
| maxnoofDSInfo | Maximum no. of DSCP values related to a destination IP address that can be mapped to one BH RLC channel, the maximum value is 64. |

### 9.3.1.98 BAP layer BH RLC channel mapping Information List

This IE includes the information used by the IAB-DU to perform the BH RLC channel mapping when forwarding traffic on BAP sublayer.

When this IE is included in the UE-associated F1AP signalling for setting up or modifying a BH RLC channel, it contains either the *Prior-Hop BAP Address* IE and the *Ingress BH RLC CH ID* IE to configure a mapping in downlink direction, or the *Next-Hop BAP address* IE and the *Egress BH RLC CH ID* IE to configure a mapping in uplink direction. This IE indicates the BH RLC channel served by the collocated IAB-MT.

When this IE is included in the non-UE-associated F1AP signalling, it shall contain the *Prior-Hop BAP Address* IE, the *Ingress BH RLC CH ID* IE, the *Next-Hop BAP address* IE and the *Egress BH RLC CH ID* IE.

| IE/Group Name                                            | Presence | Range                           | IE type and reference       | Semantics description                                                                                                                 | Criticality | Assigned Criticality |
|----------------------------------------------------------|----------|---------------------------------|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| <b>BAP layer BH RLC channel mapping info Item</b>        |          | 1..<br><maxnoof MappingEntries> |                             |                                                                                                                                       | -           |                      |
| >Mapping Information Index                               | M        |                                 | 9.3.1.100                   |                                                                                                                                       | -           |                      |
| >Prior-Hop BAP Address                                   | O        |                                 | BAP Address 9.3.1.111       |                                                                                                                                       | -           |                      |
| >Ingress BH RLC CH ID                                    | O        |                                 | BH RLC Channel ID 9.3.1.113 |                                                                                                                                       | -           |                      |
| >Next-Hop BAP Address                                    | O        |                                 | BAP Address 9.3.1.111       |                                                                                                                                       | -           |                      |
| >Egress BH RLC CH ID                                     | O        |                                 | BH RLC Channel ID 9.3.1.113 |                                                                                                                                       | -           |                      |
| >Ingress Non-F1-terminating IAB-donor Topology Indicator | O        |                                 | ENUMERATED (true, ...)      | If present, indicates that the ingress topology for this entry is the non-F1-terminating IAB-donor topology of the boundary IAB-node. | YES         | ignore               |
| >Egress Non-F1-terminating IAB-donor                     | O        |                                 | ENUMERATED (true, ...)      | If present, indicates that the                                                                                                        | YES         | ignore               |

| IE/Group Name      | Presence | Range | IE type and reference | Semantics description                                                                                 | Criticality | Assigned Criticality |
|--------------------|----------|-------|-----------------------|-------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Topology Indicator |          |       |                       | egress topology for this entry is the non-F1-terminating IAB-donor topology of the boundary IAB-node. |             |                      |

| Range bound           | Explanation                                                                     |
|-----------------------|---------------------------------------------------------------------------------|
| maxnoofMappingEntries | Maximum no. of mapping entries, the maximum value is 67108864 (i.e. $2^{26}$ ). |

### 9.3.1.99 Mapping Information to Remove

This IE includes a list of mapping information indexes corresponding to the mapping configuration which is to be removed.

| IE/Group Name                           | Presence | Range                          | IE type and reference | Semantics description |
|-----------------------------------------|----------|--------------------------------|-----------------------|-----------------------|
| Mapping Information to Remove List Item |          | 1..<br><maxnoofMappingEntries> |                       |                       |
| >Mapping Information Index              | M        |                                | 9.3.1.100             |                       |

| Range bound           | Explanation                                                                     |
|-----------------------|---------------------------------------------------------------------------------|
| maxnoofMappingEntries | Maximum no. of mapping entries, the maximum value is 67108864 (i.e. $2^{26}$ ). |

### 9.3.1.100 Mapping Information Index

This IE includes an index of one mapping information entry at the IAB-donor-DU or an IAB-DU.

| IE/Group Name             | Presence | Range | IE type and reference    | Semantics description |
|---------------------------|----------|-------|--------------------------|-----------------------|
| Mapping Information Index | M        |       | BIT STRING<br>(SIZE(26)) |                       |

### 9.3.1.101 IAB TNL Addresses Requested

The *IAB TNL Addresses Requested* IE indicates the number of IPv4 or IPv6 addresses or IPv6 address prefixes requested for the indicated usage.

| IE/Group Name                                        | Presence | Range | IE Type and Reference | Semantics Description                                                   |
|------------------------------------------------------|----------|-------|-----------------------|-------------------------------------------------------------------------|
| TNL Addresses or Prefixes Requested - All Traffic    | O        |       | INTEGER (1..256)      | The number of TNL addresses/IPv6 prefixes requested for all traffic.    |
| TNL Addresses or Prefixes Requested - F1-C traffic   | O        |       | INTEGER (1..256)      | The number of TNL addresses/IPv6 prefixes requested for F1-C traffic.   |
| TNL Addresses or Prefixes Requested - F1-U traffic   | O        |       | INTEGER (1..256)      | The number of TNL addresses/IPv6 prefixes requested for F1-U traffic.   |
| TNL Addresses or Prefixes Requested - Non-F1 traffic | O        |       | INTEGER (1..256)      | The number of TNL addresses/IPv6 prefixes requested for non-F1 traffic. |

### 9.3.1.102 IAB TNL Address

The *IAB TNL Address* IE indicates an IPv4 or IPv6 address or an IPv6 address prefix assigned to an IAB-node.

| IE/Group Name                 | Presence | Range | IE type and reference  | Semantics description                             |
|-------------------------------|----------|-------|------------------------|---------------------------------------------------|
| CHOICE <i>IAB TNL Address</i> | M        |       |                        |                                                   |
| > <i>IPv4 Address</i>         |          |       |                        |                                                   |
| >>IPv4 Address                | M        |       | BIT STRING (SIZE(32))  | The IPv4 address allocated to an IAB-node.        |
| > <i>IPv6 Address</i>         |          |       |                        |                                                   |
| >>IPv6 Address                | M        |       | BIT STRING (SIZE(128)) | The IPv6 address allocated to an IAB-node.        |
| > <i>IPv6 Prefix</i>          |          |       |                        |                                                   |
| >>IPv6 Prefix                 | M        |       | BIT STRING (SIZE(64))  | The IPv6 address prefix allocated to an IAB-node. |

### 9.3.1.103 Uplink BH Non-UP Traffic Mapping

This IE indicates the mapping of uplink non-UP traffic to a BH RLC channel and BAP Routing ID.

| IE/Group Name                                          | Presence | Range                                 | IE type and reference | Semantics description |
|--------------------------------------------------------|----------|---------------------------------------|-----------------------|-----------------------|
| <b>Uplink Non-UP Traffic Mapping List</b>              |          | 1                                     |                       |                       |
| <b>&gt;Uplink Non-UP Traffic Mapping List Item IEs</b> |          | 1 ..<br><maxnoofNonUPTrafficMappings> |                       |                       |
| >>Non-UP Traffic Type                                  | M        |                                       | 9.3.1.104             |                       |
| >>BH Information                                       | M        |                                       | 9.3.1.114             |                       |

| Range bound                 | Explanation                                          |
|-----------------------------|------------------------------------------------------|
| maxnoofNonUPTrafficMappings | Maximum no. of non-UP traffic mappings. Value is 32. |

### 9.3.1.104 Non-UP Traffic Type

This IE indicates the type of non-UP traffic.

| IE/Group Name       | Presence | Range | IE type and reference                                                                | Semantics description |
|---------------------|----------|-------|--------------------------------------------------------------------------------------|-----------------------|
| Non-UP Traffic Type | M        |       | ENUMERATED(UE-associated F1AP, non-UE-associated F1AP, non-F1, BAP control PDU, ...) |                       |

### 9.3.1.105 IAB Info IAB-donor-CU

This IE contains cell-specific IAB-related information sent by an IAB-donor-CU to an IAB-DU or IAB-donor-DU.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description                                 |
|---------------|----------|-------|-----------------------|-------------------------------------------------------|
| IAB STC Info  | O        |       | 9.3.1.109             | Contains STC configuration of IAB-DU or IAB-donor-DU. |

### 9.3.1.106 IAB Info IAB-DU

This IE contains cell-specific IAB-related information sent by an IAB-DU or IAB-donor-DU to an IAB-donor-CU.

| IE/Group Name     | Presence | Range | IE type and reference | Semantics description                                                                                                |
|-------------------|----------|-------|-----------------------|----------------------------------------------------------------------------------------------------------------------|
| Multiplexing Info | O        |       | 9.3.1.108             | Contains the information about multiplexing with cells configured for a collocated IAB-MT. Applicable for an IAB-DU. |
| IAB STC Info      | O        |       | 9.3.1.109             | Contains the information about STC configuration of IAB-DU or IAB-donor-DU.                                          |

### 9.3.1.107 gNB-DU Cell Resource Configuration

This IE contains the resource configuration of the cells served by a gNB-DU, i.e. the TDD/FDD resource parameters for each activated cell (TS 38.213 [31], clause 11.1.1).

| IE/Group Name                           | Presence | Range                                 | IE type and reference                                                                         | Semantics description                                                                             | Criticality | Assigned Criticality |
|-----------------------------------------|----------|---------------------------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-------------|----------------------|
| Subcarrier Spacing                      | M        |                                       | ENUMERATED (kHz15, kHz30, kHz60, kHz120, kHz240, spare3, spare2, spare1, ...)                 | Subcarrier spacing used as reference for the TDD/FDD slot configuration.                          | -           |                      |
| DUF Transmission Periodicity            | O        |                                       | ENUMERATED (ms0p5, ms0p625, ms1, ms1p25, ms2, ms2p5, ms5, ms10, ...)                          |                                                                                                   | -           |                      |
| <b>DUF Slot Configuration List</b>      |          | <i>0..1</i>                           |                                                                                               |                                                                                                   | -           |                      |
| <b>&gt;DUF Slot Configuration Item</b>  |          | <i>1..&lt;maxno of DUF Slots&gt;</i>  |                                                                                               | The <i>maxNrofSlots</i> in TS 38.331 [8].                                                         | -           |                      |
| >>CHOICE <i>DUF Slot Configuration</i>  | M        |                                       |                                                                                               |                                                                                                   | -           |                      |
| >>>Explicit Format                      |          |                                       |                                                                                               |                                                                                                   |             |                      |
| >>>>Permutation                         | M        |                                       | ENUMERATED (DFU, UFD, ...)                                                                    |                                                                                                   | -           |                      |
| >>>>Number of Downlink Symbols          | O        |                                       | INTEGER (0..14)                                                                               |                                                                                                   | -           |                      |
| >>>>Number of Uplink Symbols            | O        |                                       | INTEGER (0..14)                                                                               |                                                                                                   | -           |                      |
| >>>Implicit Format                      |          |                                       |                                                                                               |                                                                                                   |             |                      |
| >>>>DUF Slot Format Index               | M        |                                       | INTEGER (0..254)                                                                              | Index into Table 11.1.1-1 and Table 14-2 in TS 38.213 [31], excluding the last row in Table 14-2. | -           |                      |
| HSNA Transmission Periodicity           | M        |                                       | ENUMERATED (ms0p5, ms0p625, ms1, ms1p25, ms2, ms2p5, ms5, ms10, ms20, ms40, ms80, ms160, ...) |                                                                                                   | -           |                      |
| <b>HSNA Slot Configuration List</b>     |          | <i>0..1</i>                           |                                                                                               |                                                                                                   | -           |                      |
| <b>&gt;HSNA Slot Configuration Item</b> |          | <i>1..&lt;maxno of HSNA Slots&gt;</i> |                                                                                               |                                                                                                   | -           |                      |
| >>HSNA Downlink                         | O        |                                       | ENUMERATED (HARD, SOFT, NOTAVAILABLE)                                                         | HSNA value for downlink symbols in a slot.                                                        | -           |                      |



| IE/Group Name                                       | Presence | Range                         | IE type and reference                     | Semantics description                                                                                                   | Criticality | Assigned Criticality |
|-----------------------------------------------------|----------|-------------------------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                                                     |          |                               | E)                                        |                                                                                                                         |             |                      |
| >>HSNA Uplink                                       | O        |                               | ENUMERATED (HARD, SOFT, NOTAVAILABLE)     | HSNA value for uplink symbols in a slot.                                                                                | -           |                      |
| >>HSNA Flexible                                     | O        |                               | ENUMERATED (HARD, SOFT, NOTAVAILABLE)     | HSNA value for flexible symbols in a slot.                                                                              | -           |                      |
| RB Set Configuration                                | O        |                               | 9.3.1.230                                 |                                                                                                                         | YES         | reject               |
| <b>Frequency-Domain HSNA Configuration List</b>     |          | 0..1                          |                                           |                                                                                                                         | YES         | reject               |
| <b>&gt;Frequency-Domain HSNA Configuration Item</b> |          | 1..<maxno ofRBsetsPerCell>    |                                           |                                                                                                                         | EACH        | reject               |
| >>RB Set Index                                      | M        |                               | INTEGER (0..maxno ofRBsetsPerCell-1, ...) | Refers to an RB set defined by RB Set Configuration. The RB set indices are consecutive (and increasing) starting at 0. | -           |                      |
| >>Frequency-Domain HSNA Slot Configuration List     |          | 1                             |                                           |                                                                                                                         | -           |                      |
| >>>Frequency-Domain HSNA Slot Configuration Item    |          | 1..<maxno ofHSNASlots>        |                                           |                                                                                                                         | -           |                      |
| >>>>Slot Index                                      | O        |                               | INTEGER (0..5119)                         | Indicates an index to a slot within the HSNA Transmission Periodicity.                                                  | -           |                      |
| >>>>HSNA Downlink                                   | O        |                               | ENUMERATED (HARD, SOFT, NOTAVAILABLE)     | HSNA value for downlink symbols in a slot, for an RB set.                                                               | -           |                      |
| >>>>HSNA Uplink                                     | O        |                               | ENUMERATED (HARD, SOFT, NOTAVAILABLE)     | HSNA value for uplink symbols in a slot, for an RB set.                                                                 | -           |                      |
| >>>>HSNA Flexible                                   | O        |                               | ENUMERATED (HARD, SOFT, NOTAVAILABLE)     | HSNA value for flexible symbols in a slot, for an RB set.                                                               | -           |                      |
| <b>Child IAB-Nodes NA Resource List</b>             |          | 0..1                          |                                           | List of child IAB-nodes served by the IAB-DU or IAB-donor-DU.                                                           | YES         | reject               |
| <b>&gt;Child IAB-Nodes NA Resource List Item</b>    |          | 1 .. <maxno of ChildIABNodes> |                                           |                                                                                                                         | EACH        | reject               |
| >>gNB-CU UE F1AP ID                                 | M        |                               | 9.3.1.4                                   | Identifier of a child-node IAB-MT at the IAB-donor-CU.                                                                  | -           |                      |
| >>gNB-DU UE F1AP ID                                 | M        |                               | 9.3.1.5                                   | Identifier of a child-node IAB-MT at an IAB-DU or IAB-donor-DU.                                                         | -           |                      |

| IE/Group Name                                    | Presence | Range                  | IE type and reference         | Semantics description                                                                     | Criticality | Assigned Criticality |
|--------------------------------------------------|----------|------------------------|-------------------------------|-------------------------------------------------------------------------------------------|-------------|----------------------|
| >>NA Resource Configuration List                 |          | 0..1                   |                               | List of not-available resources of this cell for this child IAB-node                      | -           |                      |
| >>>NA Resource Configuration Item                |          | 1..<maxno ofHSNASlots> |                               |                                                                                           | -           |                      |
| >>>>NA Downlink                                  | O        |                        | ENUMERATED (true, false, ...) | Indicates whether downlink symbols, in a slot, are available to serve the child IAB-node. | -           |                      |
| >>>>NA Uplink                                    | O        |                        | ENUMERATED (true, false, ...) | Indicates whether uplink symbols, in a slot, are available to serve the child IAB-node.   | -           |                      |
| >>>>NA Flexible                                  | O        |                        | ENUMERATED (true, false, ...) | Indicates whether flexible symbols, in a slot, are available to serve the child IAB-node. | -           |                      |
| Parent IAB Nodes NA Resource Configuration List  |          | 0..1                   |                               | List of unavailable resources of this cell for this IAB-node.                             | YES         | reject               |
| >Parent IAB Nodes NA Resource Configuration Item |          | 1..<maxno ofHSNASlots> |                               |                                                                                           | EACH        | reject               |
| >>NA Downlink                                    | O        |                        | ENUMERATED (true, false, ...) | Indicates whether downlink symbols, in a slot, are unavailable to serve the IAB-node.     | -           |                      |
| >>NA Uplink                                      | O        |                        | ENUMERATED (true, false, ...) | Indicates whether uplink symbols, in a slot, are unavailable to serve the IAB-node.       | -           |                      |
| >>NA Flexible                                    | O        |                        | ENUMERATED (true, false, ...) | Indicates whether flexible symbols, in a slot, are unavailable to serve the IAB-node.     | -           |                      |

| Range bound            | Explanation                                                                          |
|------------------------|--------------------------------------------------------------------------------------|
| maxnoofDUFSlots        | Maximum no. of slots in 10ms. Value is 320.                                          |
| maxnoofHSNASlots       | Maximum no of "Hard", "Soft" or "Not available" slots in 160ms. Value is 5120.       |
| maxnoofRBsetsPerCell   | Maximum no. of RB sets per IAB-DU cell. Value is 8                                   |
| maxnoofRBsetsPerCell-1 | Maximum no. of RB sets per IAB-DU cell minus 1. Value is 7                           |
| maxnoofChildIABNodes   | Maximum number of child nodes served by an IAB-DU or an IAB-donor-DU. Value is 1024. |

### 9.3.1.108 Multiplexing Info

This IE contains information about the multiplexing capabilities between the gNB-DU's cell and the cells configured on the co-located IAB-MT.

| IE/Group Name               | Presence | Range                                            | IE type and reference                                                | Semantics description                                                                                                                            | Criticality | Assigned Criticality |
|-----------------------------|----------|--------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| <b>IAB-MT Cell List</b>     |          | <b>1</b>                                         |                                                                      |                                                                                                                                                  | -           |                      |
| <b>&gt;IAB-MT Cell Item</b> |          | <b>1 ..<br/>&lt;maxnoof<br/>ServingCells&gt;</b> |                                                                      |                                                                                                                                                  | -           |                      |
| >>NR Cell Identity          | M        |                                                  | BIT STRING<br>(SIZE(36))                                             | Cell identity of a serving cell configured for a co-located IAB-MT.                                                                              | -           |                      |
| >>DU_RX/MT_RX               | M        |                                                  | ENUMERATED<br>(supported, not supported)                             | An indication of whether the IAB-node supports simultaneous reception at its DU and MT side.                                                     | -           |                      |
| >>DU_TX/MT_TX               | M        |                                                  | ENUMERATED<br>(supported, not supported)                             | An indication of whether the IAB-node supports simultaneous transmission at its DU and MT side.                                                  | -           |                      |
| >>DU_RX/MT_TX               | M        |                                                  | ENUMERATED<br>(supported, not supported)                             | An indication of whether the IAB-node supports simultaneous reception at its DU and transmission at its MT side.                                 | -           |                      |
| >>DU_TX/MT_RX               | M        |                                                  | ENUMERATED<br>(supported, not supported)                             | An indication of whether the IAB-node supports simultaneous transmission at its DU and reception at its MT side.                                 | -           |                      |
| >>DU_RX/MT_RX_extend        | O        |                                                  | ENUMERATED<br>(supported, not supported, supported and FDM required) | An indication of whether the IAB-node supports simultaneous reception at its DU and MT side. If present, the DU_RX/MT_RX IE shall be ignored.    | YES         | ignore               |
| >>DU_TX/MT_TX_extend        | O        |                                                  | ENUMERATED<br>(supported, not supported, supported and FDM required) | An indication of whether the IAB-node supports simultaneous transmission at its DU and MT side. If present, the DU_TX/MT_TX IE shall be ignored. | YES         | ignore               |
| >>DU_RX/MT_TX_extend        | O        |                                                  | ENUMERATED<br>(supported, not supported, supported and FDM required) | An indication of whether the IAB-node supports simultaneous reception at its DU and transmission at its MT side. If present, the DU_RX/MT_TX IE  | YES         | ignore               |

| IE/Group Name        | Presence | Range | IE type and reference                                             | Semantics description                                                                                                                                                    | Criticality | Assigned Criticality |
|----------------------|----------|-------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                      |          |       |                                                                   | shall be ignored.                                                                                                                                                        |             |                      |
| >>DU_TX/MT_RX_extend | O        |       | ENUMERATED (supported, not supported, supported and FDM required) | An indication of whether the IAB-node supports simultaneous transmission at its DU and reception at its MT side. If present, the <i>DU_TX/MT_RX</i> IE shall be ignored. | YES         | ignore               |

| Range bound         | Explanation                                                                                                          |
|---------------------|----------------------------------------------------------------------------------------------------------------------|
| maxnoofServingCells | Maximum no. of serving cells for IAB-MT. Value is 32, as defined by the <i>maxNrofServingCells</i> in TS 38.331 [8]. |

### 9.3.1.109 IAB STC Info

This IE contains cell SSB Transmission Configuration (STC) information of an IAB-DU or IAB-donor-DU. The information is used by neighbour IAB-MTs for discovery and measurements of this IAB-DU or IAB-donor-DU.

| IE/Group Name                    | Presence | Range                                | IE type and reference                                                  | Semantics description                                    |
|----------------------------------|----------|--------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------|
| <b>IAB STC-Info List</b>         |          | <i>1</i>                             |                                                                        |                                                          |
| <b>&gt;IAB STC-Info Item</b>     |          | <i>1 ..&lt;maxnoofIABSTCInfo&gt;</i> |                                                                        |                                                          |
| >>SSB Frequency Info             | M        |                                      | INTEGER (0.. maxNRARFCN)                                               | The SSB central frequency.                               |
| >>SSB Subcarrier Spacing         | M        |                                      | ENUMERATED (kHz15, kHz30, kHz120, kHz240, spare3, spare2, spare1, ...) | The SSB subcarrier spacing.                              |
| >>SSB Transmission Periodicity   | M        |                                      | ENUMERATED (sf10, sf20, sf40, sf80, sf160, sf320, sf640, ..., sf5)     |                                                          |
| >>SSB Transmission Timing Offset | M        |                                      | INTEGER (0.. 127, ...)                                                 | SSB transmission timing offset in number of half-frames. |
| >>CHOICE SSB Transmission Bitmap | M        |                                      |                                                                        | The <i>SSB-ToMeasure</i> IE defined in TS 38.331 [8].    |
| >>>Short Bitmap                  |          |                                      |                                                                        |                                                          |
| >>>>Short Bitmap                 | M        |                                      | BIT STRING (SIZE (4))                                                  |                                                          |
| >>>Medium Bitmap                 |          |                                      |                                                                        |                                                          |
| >>>>Medium Bitmap                | M        |                                      | BIT STRING (SIZE (8))                                                  |                                                          |
| >>>Long Bitmap                   |          |                                      |                                                                        |                                                          |
| >>>>Long Bitmap                  | M        |                                      | BIT STRING (SIZE (64))                                                 |                                                          |

| Range bound       | Explanation                                                                                                                        |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------|
| maxnoofIABSTCInfo | Maximum no. of STC configurations. Value is 5. This includes 1 STC configuration for access and 4 STC configurations for backhaul. |
| maxNRARFCN        | Maximum value of NR ARFCNs. Value is 3279165.                                                                                      |

### 9.3.1.110 BAP Routing ID

This IE indicates the BAP Routing ID.

| IE/Group Name | Presence | Range | IE type and reference    | Semantics description |
|---------------|----------|-------|--------------------------|-----------------------|
| BAP Address   | M        |       | 9.3.1.111                |                       |
| Path ID       | M        |       | BAP Path ID<br>9.3.1.112 |                       |

### 9.3.1.111 BAP Address

This IE indicates the BAP address of an IAB-node or of an IAB-donor-DU, and it is part of the BAP Routing ID.

| IE/Group Name | Presence | Range | IE type and reference    | Semantics description                                                                                                                                                                                                                                 |
|---------------|----------|-------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BAP Address   | M        |       | BIT STRING<br>(SIZE(10)) | Corresponds to the <i>bap-Address</i> contained in the <i>RRCReconfiguration</i> message or contained in the <i>BAP-RoutingID</i> IE, or the <i>iab-donor-DU-BAP-Address</i> contained in the <i>RRCReconfiguration</i> message defined TS 38.331[8]. |

### 9.3.1.112 BAP Path ID

This IE indicates the BAP path ID, which is part of the BAP Routing ID.

| IE/Group Name | Presence | Range | IE type and reference    | Semantics description                                                                                                      |
|---------------|----------|-------|--------------------------|----------------------------------------------------------------------------------------------------------------------------|
| BAP Path ID   | M        |       | BIT STRING<br>(SIZE(10)) | Corresponds to the <i>bap-Pathid</i> contained in the <i>BAP-RoutingID</i> IE defined in subclause 6.3.2 of TS 38.331 [8]. |

### 9.3.1.113 BH RLC Channel ID

This IE uniquely identifies a BH RLC channel in the link between IAB-MT of the IAB-node and IAB-DU of the parent IAB-node or IAB-donor-DU.

| IE/Group Name | Presence | Range | IE type and reference    | Semantics description |
|---------------|----------|-------|--------------------------|-----------------------|
| BH RLC CH ID  | M        |       | BIT STRING<br>(SIZE(16)) |                       |

### 9.3.1.114 BH Information

This IE includes the backhaul information for UL or DL.

| IE/Group Name                                   | Presence | Range                                          | IE type and reference          | Semantics description                                                                                                                                                            | Criticality | Assigned Criticality |
|-------------------------------------------------|----------|------------------------------------------------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| BAP Routing ID                                  | O        |                                                | 9.3.1.110                      | This IE is not needed for the BAP control PDU. For UL F1-U traffic, the BAP address included in this IE also indicates the IAB-donor-DU via which the DL traffic is transmitted. | -           |                      |
| <b>Egress BH RLC CH List</b>                    |          | <i>0..1</i>                                    |                                |                                                                                                                                                                                  | -           |                      |
| <b>&gt;Egress BH RLC CH List Item</b>           |          | <i>1..<br/>&lt;maxnoof<br/>EgressLinks&gt;</i> |                                |                                                                                                                                                                                  | -           |                      |
| >>Next-Hop BAP Address                          | M        |                                                | BAP Address<br>9.3.1.111       | This IE identifies the next-hop node on the backhaul path to receive the packet. The value of this IE should be unique in the whole list.                                        | -           |                      |
| >>Egress BH RLC CH ID                           | M        |                                                | BH RLC Channel ID<br>9.3.1.113 | This IE identifies the BH RLC channel in the link between the IAB node/IAB-donor-DU and the node identified by the <i>Next-Hop BAP Address</i> IE.                               | -           |                      |
| Non-F1-Terminating IAB-donor Topology Indicator | O        |                                                | ENUMERATED (true, ...)         | If present, indicates that the Next-Hop BAP Address and Egress BH RLC CH ID contained in this IE pertain to the non-F1-terminating IAB-donor topology of the boundary IAB-node.  | YES         | ignore               |

| Range bound        | Explanation                              |
|--------------------|------------------------------------------|
| maxnoofEgressLinks | Maximum no. of egress links. Value is 2. |

### 9.3.1.115 Control Plane Traffic Type

This IE indicates the control plane traffic type carried over a BH RLC channel.

| IE/Group Name              | Presence | Range | IE type and reference | Semantics description                                                                                                                          |
|----------------------------|----------|-------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Control Plane Traffic Type | M        |       | INTEGER (1..3, ...)   | Control plane traffic types with different priorities are identified by the different codepoints in this IE, where 1 has the highest priority. |

### 9.3.1.116 NR V2X Services Authorized

This IE provides information on the authorization status of the UE to use the NR sidelink for V2X services.

| IE/Group Name | Presence | Range | IE type and reference                        | Semantics description                                    |
|---------------|----------|-------|----------------------------------------------|----------------------------------------------------------|
| Vehicle UE    | O        |       | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized as Vehicle UE.    |
| Pedestrian UE | O        |       | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized as Pedestrian UE. |

### 9.3.1.117 LTE V2X Services Authorized

This IE provides information on the authorization status of the UE to use the LTE sidelink for V2X services.

| IE/Group Name | Presence | Range | IE type and reference                        | Semantics description                                    |
|---------------|----------|-------|----------------------------------------------|----------------------------------------------------------|
| Vehicle UE    | O        |       | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized as Vehicle UE.    |
| Pedestrian UE | O        |       | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized as Pedestrian UE. |

### 9.3.1.118 LTE UE Sidelink Aggregate Maximum Bit Rate

This IE provides information on the Aggregate Maximum Bitrate of the UE's communication over LTE sidelink.

| IE/Group Name                              | Presence | Range | IE type and reference | Semantics description                                                   |
|--------------------------------------------|----------|-------|-----------------------|-------------------------------------------------------------------------|
| LTE UE Sidelink Aggregate Maximum Bit Rate | M        |       | Bit Rate<br>9.3.1.22  | Value 0 shall be considered as a logical error by the receiving gNB-DU. |

### 9.3.1.119 NR UE Sidelink Aggregate Maximum Bit Rate

This IE provides information on the Aggregate Maximum Bitrate of the UE's communication over NR sidelink.

| IE/Group Name                             | Presence | Range | IE type and reference | Semantics description                                                   |
|-------------------------------------------|----------|-------|-----------------------|-------------------------------------------------------------------------|
| NR UE Sidelink Aggregate Maximum Bit Rate | M        |       | Bit Rate<br>9.3.1.22  | Value 0 shall be considered as a logical error by the receiving gNB-DU. |

### 9.3.1.120 SL DRB ID

This IE uniquely identifies a SL DRB for a UE.

| IE/Group Name | Presence | Range | IE type and reference  | Semantics description                                                      |
|---------------|----------|-------|------------------------|----------------------------------------------------------------------------|
| SL DRB ID     | M        |       | INTEGER (1.. 512, ...) | Corresponds to the <i>SLRB-Uu-ConfigIndex</i> IE defined in TS 38.331 [8]. |

### 9.3.1.121 PC5 QoS Flow Identifier

This IE uniquely identifies one sidelink QoS flow between the UE and the network in the scope of UE.

| IE/Group Name           | Presence | Range | IE type and reference | Semantics description                                                      |
|-------------------------|----------|-------|-----------------------|----------------------------------------------------------------------------|
| PC5 QoS Flow Identifier | M        |       | INTEGER (1.. 2048)    | Corresponds to the <i>SL-QoS-FlowIdentity</i> IE defined in TS 38.331 [8]. |

### 9.3.1.122 PC5 QoS Parameters

This IE defines the QoS to be applied to a SL DRB or to a PC5 Relay RLC channel for L2 U2U relaying.

| IE/Group Name                         | Presence | Range | IE type and reference | Semantics description                                                | Criticality | Assigned Criticality |
|---------------------------------------|----------|-------|-----------------------|----------------------------------------------------------------------|-------------|----------------------|
| CHOICE <i>PC5 QoS Characteristics</i> | M        |       |                       |                                                                      | -           |                      |
| > <i>Non-dynamic PQI</i>              |          |       |                       |                                                                      | -           |                      |
| >>Non Dynamic PQI Descriptor          | M        |       | 9.3.1.126             |                                                                      | -           |                      |
| > <i>Dynamic PQI</i>                  |          |       |                       |                                                                      | -           |                      |
| >>Dynamic PQI Descriptor              | M        |       | 9.3.1.127             |                                                                      | -           |                      |
| <b>PC5 QoS Flow Bit Rates</b>         | O        |       |                       | Only applies for GBR QoS Flows.                                      | -           |                      |
| >Guaranteed Flow Bit Rate             | M        |       | Bit Rate 9.3.1.22     | Guaranteed Bit Rate for the PC5 QoS flow. Details in TS 23.287 [40]. | -           |                      |
| >Maximum Flow Bit Rate                | M        |       | Bit Rate 9.3.1.22     | Maximum Bit Rate for the PC5 QoS flow. Details in TS 23.287 [40].    | -           |                      |

| Range bound        | Explanation                                                                                                   |
|--------------------|---------------------------------------------------------------------------------------------------------------|
| maxnoofPC5QoSFlows | Maximum no. of PC5 QoS flows allowed towards one UE for NR sidelink communication, the maximum value is 2048. |

### 9.3.1.123 Alternative QoS Parameters Set Index

This IE indicates the QoS parameters set which can currently be fulfilled.

| IE/Group Name                        | Presence | Range | IE type and reference | Semantics description                                                                                                                                             |
|--------------------------------------|----------|-------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Alternative QoS Parameters Set Index | M        |       | INTEGER (1..8, ...)   | Indicates the index of the item within the <i>Alternative QoS Parameters Set List</i> IE corresponding to the currently fulfilled alternative QoS parameters set. |

### 9.3.1.124 Alternative QoS Parameters Set Notify Index

This IE indicates the QoS parameters set which can currently be fulfilled.

| IE/Group Name                               | Presence | Range | IE type and reference | Semantics description                                                                                                                                                                                      |
|---------------------------------------------|----------|-------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Alternative QoS Parameters Set Notify Index | M        |       | INTEGER (0..8, ...)   | Indicates the index of the item within the the <i>Alternative QoS Parameters Set List</i> IE corresponding to the currently fulfilled alternative QoS parameters set. Value 0 indicates that NG-RAN cannot |



| IE/Group Name | Presence | Range | IE type and reference | Semantics description                             |
|---------------|----------|-------|-----------------------|---------------------------------------------------|
|               |          |       |                       | even fulfil the lowest alternative parameter set. |

### 9.3.1.125 Alternative QoS Parameters Set List

This IE contains alternative sets of QoS parameters which the gNB can indicate to be fulfilled when notification control is enabled and it cannot fulfil the requested list of QoS parameters.

| IE/Group Name                              | Presence | Range                                 | IE type and reference | Semantics description                                                                                                                                                  | Criticality | Assigned Criticality |
|--------------------------------------------|----------|---------------------------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| <b>Alternative QoS Parameters Set Item</b> |          | <i>1..&lt;maxno ofQoSparaSets&gt;</i> |                       |                                                                                                                                                                        | -           |                      |
| >Alternative QoS Parameters Set Index      | M        |                                       | 9.3.1.123             |                                                                                                                                                                        | -           |                      |
| >Guaranteed Flow Bit Rate Downlink         | O        |                                       | Bit Rate<br>9.3.1.22  |                                                                                                                                                                        | -           |                      |
| >Guaranteed Flow Bit Rate Uplink           | O        |                                       | Bit Rate<br>9.3.1.22  |                                                                                                                                                                        | -           |                      |
| >Packet Delay Budget                       | O        |                                       | 9.3.1.51              |                                                                                                                                                                        | -           |                      |
| >Packet Error Rate                         | O        |                                       | 9.3.1.52              |                                                                                                                                                                        | -           |                      |
| >Maximum Data Burst Volume                 | O        |                                       | 9.3.1.54              | Maximum Data Burst Volume is specified in TS 23.501 [21]. This IE may be included if the <i>Delay Critical</i> IE is set to "delay critical" and is ignored otherwise. | YES         | ignore               |

| Range bound        | Explanation                                                                                |
|--------------------|--------------------------------------------------------------------------------------------|
| maxnoofQoSParaSets | Maximum no. of alternative sets of QoS Parameters allowed for the QoS profile. Value is 8. |

### 9.3.1.126 Non Dynamic PQI Descriptor

This IE indicates the QoS Characteristics for a standardized or pre-configured PQI for sidelink.

| IE/Group Name             | Presence | Range | IE type and reference | Semantics description                                                                         |
|---------------------------|----------|-------|-----------------------|-----------------------------------------------------------------------------------------------|
| 5QI                       | M        |       | INTEGER (0..255,...)  | This IE contains the standardized or pre-configured PQI as specified in TS 23.287 [40]        |
| QoS Priority Level        | O        |       | INTEGER (1..8,...)    | For details see TS 23.501 [21]. When included overrides standardized or pre-configured value. |
| Averaging Window          | O        |       | 9.3.1.53              | For details see TS 23.501 [21]. When included overrides standardized or pre-configured value. |
| Maximum Data Burst Volume | O        |       | 9.3.1.54              | For details see TS 23.501 [21]. When included overrides standardized or pre-configured value. |

### 9.3.1.127 Dynamic PQI Descriptor

This IE indicates the QoS Characteristics for a Non-standardised or not pre-configured PQI for sidelink.

| IE/Group Name             | Presence    | Range | IE type and reference                              | Semantics description                                                                                                                                                                                    |
|---------------------------|-------------|-------|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Resource Type             | O           |       | ENUMERATED (GBR, non-GBR, delay critical GBR, ...) |                                                                                                                                                                                                          |
| QoS Priority Level        | M           |       | INTEGER (1..8, ...)                                | For details see TS 23.501 [21].                                                                                                                                                                          |
| Packet Delay Budget       | M           |       | 9.3.1.51                                           | For details see TS 23.501 [21]. For a PC5 Relay RLC channel, the Packet Delay Budget defines the upper bound for the time that a packet may be delayed between the L2 U2U Relay UE and L2 U2U Remote UE. |
| Packet Error Rate         | M           |       | 9.3.1.52                                           | For details see TS 23.501 [21].                                                                                                                                                                          |
| Averaging Window          | C-ifGBRflow |       | 9.3.1.53                                           | For details see TS 23.501 [21].                                                                                                                                                                          |
| Maximum Data Burst Volume | O           |       | 9.3.1.54                                           | For details see TS 23.501 [21]. This IE shall be included if the <i>Delay Critical</i> IE is set to "delay critical" and is ignored otherwise.                                                           |

| Condition | Explanation                                                                                                      |
|-----------|------------------------------------------------------------------------------------------------------------------|
| ifGBRflow | This IE shall be present if the <i>PC5 QoS Flow Bit Rates</i> IE is present in the <i>PC5 QoS parameters</i> IE. |

### 9.3.1.128 TNL Capacity Indicator

The *TNL Capacity Indicator* IE indicates the offered and available capacity of the Transport Network experienced by the gNB-DU.

| IE/Group Name             | Presence | Range | IE type and reference     | Semantics description                                                                                                       |
|---------------------------|----------|-------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| DL TNL Offered Capacity   | M        |       | INTEGER (1..16777216,...) | Maximum capacity offered by the transport portion of the gNB-DU – gNB-CU in kbps                                            |
| DL TNL Available Capacity | M        |       | INTEGER (0..100,...)      | Available capacity over the transport portion serving the node in percentage. Value 100 corresponds to the offered capacity |
| UL TNL Offered Capacity   | M        |       | INTEGER (1..16777216,...) | Maximum capacity offered by the transport portion of the gNB-DU – gNB-CU in kbps                                            |
| UL TNL Available Capacity | M        |       | INTEGER (0..100,...)      | Available capacity over the transport portion serving the node in percentage. Value 100 corresponds to the offered capacity |

### 9.3.1.129 Radio Resource Status

The *Radio Resource Status* IE indicates the usage of the PRBs per cell for MIMO, per SSB area and per slice for all traffic in Downlink and Uplink and the usage of PDCCH CCEs for Downlink and Uplink scheduling.

| IE/Group Name                        | Presence | Range              | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|--------------------------------------|----------|--------------------|-----------------------|-----------------------|-------------|----------------------|
| SSB Area Radio Resource Status List  |          | 1                  |                       |                       | -           |                      |
| >SSB Area Radio Resource Status Item |          | 1..<maxno ofSSBAre |                       |                       | -           |                      |

| IE/Group Name                                         | Presence | Range                    | IE type and reference | Semantics description                                                                 | Criticality | Assigned Criticality |
|-------------------------------------------------------|----------|--------------------------|-----------------------|---------------------------------------------------------------------------------------|-------------|----------------------|
|                                                       |          | as>                      |                       |                                                                                       |             |                      |
| >>SSB Index                                           | M        |                          | INTEGER (0..63)       |                                                                                       | -           |                      |
| >>SSB Area DL GBR PRB usage                           | M        |                          | INTEGER (0..100)      | Per SSB area DL GBR PRB usage in percentage of the cell total PRB number.             | -           |                      |
| >>SSB Area UL GBR PRB usage                           | M        |                          | INTEGER (0..100)      | Per SSB area UL GBR PRB usage in percentage of the cell total PRB number.             | -           |                      |
| >>SSB Area DL non-GBR PRB usage                       | M        |                          | INTEGER (0..100)      | Per SSB area DL non-GBR PRB usage in percentage of the cell total PRB number.         | -           |                      |
| >>SSB Area UL non-GBR PRB usage                       | M        |                          | INTEGER (0..100)      | Per SSB area UL non-GBR PRB usage in percentage of the cell total PRB number.         | -           |                      |
| >>SSB Area DL Total PRB usage                         | M        |                          | INTEGER (0..100)      | Per SSB area DL Total PRB usage in percentage of the cell total PRB number.           | -           |                      |
| >>SSB Area UL Total PRB usage                         | M        |                          | INTEGER (0..100)      | Per SSB area UL Total PRB usage in percentage of the cell total PRB number.           | -           |                      |
| >>DL scheduling PDCCH CCE usage                       | O        |                          | INTEGER (0..100)      |                                                                                       | -           |                      |
| >>UL scheduling PDCCH CCE usage                       | O        |                          | INTEGER (0..100)      |                                                                                       | -           |                      |
| <b>Slice Radio Resource List</b>                      |          | 0..1                     |                       |                                                                                       | YES         | ignore               |
| <b>&gt;Slice Radio Resource Item</b>                  |          | 1..<maxnoofB PLMNsNR>    |                       |                                                                                       | -           |                      |
| >>PLMN Identity                                       | M        |                          | 9.3.1.14              | Broadcast PLMN                                                                        | -           |                      |
| <b>&gt;&gt;S-NSSAI Radio Resource Status List</b>     |          | 1                        |                       |                                                                                       | -           |                      |
| <b>&gt;&gt;&gt;S-NSSAI Radio Resource Status Item</b> |          | 1..<maxno ofSlicelte ms> |                       |                                                                                       | -           |                      |
| >>>>S-NSSAI                                           | M        |                          | 9.3.1.38              |                                                                                       | -           |                      |
| >>>>S-NSSAI DL GBR PRB usage                          | M        |                          | INTEGER (0..100)      | Per slice DL GBR PRB usage in percentage of the cell total PRB number.                | -           |                      |
| >>>>S-NSSAI UL GBR PRB usage                          | M        |                          | INTEGER (0..100)      | Per slice UL GBR PRB usage for this slice in percentage of the cell total PRB number. | -           |                      |
| >>>>S-NSSAI DL non-GBR PRB usage                      | M        |                          | INTEGER (0..100)      | Per slice DL non-GBR PRB usage for this slice in                                      | -           |                      |

| IE/Group Name                     | Presence | Range | IE type and reference | Semantics description                                                                                              | Criticality | Assigned Criticality |
|-----------------------------------|----------|-------|-----------------------|--------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                                   |          |       |                       | percentage of the cell total PRB number.                                                                           |             |                      |
| >>>>S-NSSAI UL non-GBR PRB usage  | M        |       | INTEGER (0..100)      | Per slice UL non-GBR PRB usage for this slice in percentage of the cell total PRB number.                          | -           |                      |
| >>>>Slice DL Total PRB allocation | M        |       | INTEGER (0..100)      | Total amount of DL PRBs available per cell for this slice if all the resources the slice could access were usable. | -           |                      |
| >>>>Slice UL Total PRB allocation | M        |       | INTEGER (0..100)      | Total amount of UL PRBs available per cell for this slice if all the resources the slice could access were usable. | -           |                      |
| <b>MIMO PRB usage Information</b> | O        |       |                       |                                                                                                                    | YES         | ignore               |
| >DL GBR PRB usage for MIMO        | M        |       | INTEGER (0..100)      | Per cell DL GBR PRB usage for MIMO in percentage of the cell total PRB number as defined in TS 38.314 [32].        | -           |                      |
| >UL GBR PRB usage for MIMO        | M        |       | INTEGER (0..100)      | Per cell UL GBR PRB usage for MIMO in percentage of the cell total PRB number as defined in TS 38.314 [32].        | -           |                      |
| >DL non-GBR PRB usage for MIMO    | M        |       | INTEGER (0..100)      | Per cell DL non-GBR PRB usage for MIMO in percentage of the cell total PRB number as defined in TS 38.314 [32].    | -           |                      |
| >UL non-GBR PRB usage for MIMO    | M        |       | INTEGER (0..100)      | Per cell UL non-GBR PRB usage for MIMO in percentage of the cell total PRB number as defined in TS 38.314 [32].    | -           |                      |
| >DL Total PRB usage for MIMO      | M        |       | INTEGER (0..100)      | Per cell DL Total PRB usage for MIMO in percentage of the cell total PRB number as defined in TS 38.314 [32].      | -           |                      |
| >UL Total PRB usage for MIMO      | M        |       | INTEGER (0..100)      | Per cell UL Total PRB usage for MIMO in percentage of the cell total PRB number as defined                         | -           |                      |

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|---------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
|               |          |       |                       | in TS 38.314 [32].    |             |                      |

| Range bound       | Explanation                                                      |
|-------------------|------------------------------------------------------------------|
| maxnoofSSBAreas   | Maximum no. SSB Areas that can be served by a cell. Value is 64. |
| maxnoofSliceltems | Maximum no. of signalled slice support items. Value is 1024.     |
| maxnoofBPLMNsNR   | Maximum no. of PLMN Ids.broadcast in a cell. Value is 12.        |

### 9.3.1.130 Composite Available Capacity Group

The *Composite Available Capacity Group* IE indicates the overall available resource level per cell and per SSB area in the cell in Downlink and Uplink.

| IE/Group Name                                     | Presence | Range | IE type and reference                  | Semantics description                                     | Criticality | Assigned Criticality |
|---------------------------------------------------|----------|-------|----------------------------------------|-----------------------------------------------------------|-------------|----------------------|
| Composite Available Capacity Downlink             | M        |       | Composite Available Capacity 9.3.1.131 | For the Downlink                                          | -           |                      |
| Composite Available Capacity Uplink               | M        |       | Composite Available Capacity 9.3.1.131 | For the Uplink, including both NUL and SUL (if available) | -           |                      |
| Composite Available Capacity Supplementary Uplink | O        |       | Composite Available Capacity 9.3.1.131 | For the SUL                                               | YES         | ignore               |

### 9.3.1.131 Composite Available Capacity

The *Composite Available Capacity* IE indicates the overall available resource level in the cell in either Downlink or Uplink.

| IE/Group Name             | Presence | Range | IE type and reference | Semantics description                                               |
|---------------------------|----------|-------|-----------------------|---------------------------------------------------------------------|
| Cell Capacity Class Value | O        |       | 9.3.1.132             |                                                                     |
| Capacity Value            | M        |       | 9.3.1.133             | '0' indicates no resource is available, Measured on a linear scale. |

### 9.3.1.132 Cell Capacity Class Value

The *Cell Capacity Class Value* IE indicates the value that classifies the cell capacity with regards to the other cells. The *Cell Capacity Class Value* IE only indicates resources that are configured for traffic purposes.

| IE/Group Name        | Presence | Range | IE type and reference | Semantics description                                                                                                                                                                      |
|----------------------|----------|-------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Capacity Class Value | M        |       | INTEGER (1..100,...)  | Value 1 shall indicate the minimum cell capacity, and 100 shall indicate the maximum cell capacity. There should be a linear relation between cell capacity and Cell Capacity Class Value. |

### 9.3.1.133 Capacity Value

The *Capacity Value* IE indicates the amount of resources per cell and per SSB area that are available relative to the total

gNB-DU resources. The capacity value should be measured and reported so that the minimum gNB-DU resource usage of existing services is reserved according to implementation. The *Capacity Value* IE can be weighted according to the ratio of cell capacity class values, if available.

| IE/Group Name                           | Presence | Range                             | IE type and reference | Semantics description                                                                                                                                                                |
|-----------------------------------------|----------|-----------------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Capacity Value                          | M        |                                   | INTEGER (0..100)      | Value 0 shall indicate no available capacity, and 100 shall indicate maximum available capacity with respect to the whole cell. Capacity Value should be measured on a linear scale. |
| <b>SSB Area Capacity Value List</b>     |          | <i>0..1</i>                       |                       |                                                                                                                                                                                      |
| <b>&gt;SSB Area Capacity Value Item</b> |          | <i>1..&lt;maxnoofSSBAreas&gt;</i> |                       |                                                                                                                                                                                      |
| >>SSB Index                             | M        |                                   | INTEGER (0..63)       |                                                                                                                                                                                      |
| >>SSB Area Capacity Value               | M        |                                   | INTEGER (0..100)      | Value 0 shall indicate no available capacity, and 100 shall indicate maximum available capacity . SSB Area Capacity Value should be measured on a linear scale.                      |

| Range bound     | Explanation                                                      |
|-----------------|------------------------------------------------------------------|
| maxnoofSSBAreas | Maximum no. SSB Areas that can be served by a cell. Value is 64. |

### 9.3.1.134 Slice Available Capacity

The *Slice Available Capacity* IE indicates the amount of resources per network slice that are available per cell relative to the total gNB-DU resources per cell. The *Slice Available Capacity Value Downlink* IE and the *Slice Available Capacity Value Uplink* IE can be weighted according to the ratio of the corresponding cell capacity class values contained in the *Composite Available Capacity Group* IE, if available.

| IE/Group Name                                      | Presence | Range                                 | IE type and reference | Semantics description                                                                                                                                                           |
|----------------------------------------------------|----------|---------------------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Slice Available Capacity List</b>               |          | <i>1</i>                              |                       |                                                                                                                                                                                 |
| <b>&gt;Slice Available Capacity Item</b>           |          | <i>1..&lt;maxnoofBPLMNsNR&gt;</i>     |                       |                                                                                                                                                                                 |
| >>PLMN Identity                                    | M        |                                       | 9.3.1.14              | Broadcast PLMN                                                                                                                                                                  |
| <b>&gt;&gt;S-NSSAI Available Capacity List</b>     |          | <i>1</i>                              |                       |                                                                                                                                                                                 |
| <b>&gt;&gt;&gt;S-NSSAI Available Capacity Item</b> | M        | <i>1 .. &lt;maxnoofSliceltems&gt;</i> |                       |                                                                                                                                                                                 |
| >>>>S-NSSAI                                        |          |                                       | 9.3.1.38              |                                                                                                                                                                                 |
| >>>>Slice Available Capacity Value Downlink        | O        |                                       | INTEGER (0..100)      | Value 0 shall indicate no available capacity, and 100 shall indicate maximum available capacity . Slice Available Capacity Value Downlink should be measured on a linear scale. |
| >>>>Slice Available Capacity Value Uplink          | O        |                                       | INTEGER (0..100)      | Value 0 shall indicate no available capacity, and 100 shall indicate maximum available capacity . Slice Available Capacity Value Uplink should be measured on a linear scale.   |

| Range bound        | Explanation                                                  |
|--------------------|--------------------------------------------------------------|
| maxnoofSlicelItems | Maximum no. of signalled slice support items. Value is 1024. |
| maxnoofBPLMNsNR    | Maximum no. of PLMN Ids.broadcast in a cell. Value is 12.    |

### 9.3.1.135 Number of Active UEs

The *Number of Active UEs* IE indicates the mean number of active UEs as defined in TS 38.314 [32].

| IE/Group Name             | Presence | Range | IE type and reference      | Semantics description                                                                                                                                                      |
|---------------------------|----------|-------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mean number of Active UEs | M        |       | INTEGER (0..16777215, ...) | As defined in TS 38.314 [32] and where value "1" is equivalent to 0.1 Active UEs, value "2" is equivalent to 0.2 Active UEs, value $n$ is equivalent to $n/10$ Active UEs. |

### 9.3.1.136 Hardware Load Indicator

The *Hardware Load Indicator* IE indicates the status of the Hardware Load.

| IE/Group Name              | Presence | Range | IE type and reference | Semantics description              |
|----------------------------|----------|-------|-----------------------|------------------------------------|
| DL Hardware Load Indicator | M        |       | INTEGER (0..100, ...) | This indicates the load in percent |
| UL Hardware Load Indicator | M        |       | INTEGER (0..100, ...) | This indicates the load in percent |

### 9.3.1.137 NR Carrier List

This IE indicates the SCS-specific carriers per TDD, per DL, per UL or per SUL of an NR cell.

| IE/Group Name          | Presence | Range                   | IE Type and Reference                                         | Semantics Description                                                                                                                                                                                                                                                                                                                                                          |
|------------------------|----------|-------------------------|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>NR Carrier Item</b> |          | $1..<maxnoofN_{RSCSs}>$ |                                                               |                                                                                                                                                                                                                                                                                                                                                                                |
| >NR SCS                | M        |                         | ENUMERATED (scs15, scs30, scs60, scs120, ..., scs480, scs960) | SCS for the corresponding carrier.                                                                                                                                                                                                                                                                                                                                             |
| >Offset to Carrier     | M        |                         | INTEGER (0..2199, ...)                                        | Offset in frequency domain between Point A (lowest subcarrier of common RB 0) and the lowest usable subcarrier on this carrier in number of PRBs (using the <i>NR SCS</i> IE defined for this carrier). The maximum value corresponds to $275 \times 8 - 1$ . See TS 38.211 [33], clause 4.4.2.                                                                                |
| >Carrier Bandwidth     | M        |                         | INTEGER (1..maxnoofPhysicalResourceBlocks, ...)               | Width of this carrier in number of PRBs (using the <i>NR SCS</i> IE defined for this carrier). See TS 38.211 [33], clause 4.4.2. For band n100 and specific GSCN values defined in Table 5.4.3.1-3 of TS 38.104 [17], the utilized transmission bandwidth is less than the maximum transmission bandwidth configuration $N_{RB}$ specified in Table 5.3.2-1 of TS 38.104 [17]. |

| Range bound                   | Explanation                                                                                        |
|-------------------------------|----------------------------------------------------------------------------------------------------|
| maxnoofNRSCSSs                | Maximum no. of SCS-specific carriers per TDD, per DL, per UL or per SUL of an NR cell. Value is 5. |
| maxnoofPhysicalResourceBlocks | Maximum no. of Physical Resource Blocks. Value is 275.                                             |

### 9.3.1.138 SSB Positions In Burst

Indicates the time domain positions of the transmitted SS-blocks in a half frame with SS/PBCH blocks as defined in TS 38.213 [31], clause 4.1.

| IE/Group Name                      | Presence | Range | IE Type and Reference | Semantics Description                                                                                                                                                                                                                                                                              |
|------------------------------------|----------|-------|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CHOICE <i>ssb-PositionsInBurst</i> | M        |       |                       | The first/ leftmost bit corresponds to SS/PBCH block index 0, the second bit corresponds to SS/PBCH block index 1, and so on. Value 0 in the bitmap indicates that the corresponding SS/PBCH block is not transmitted while value 1 indicates that the corresponding SS/PBCH block is transmitted. |
| > <i>ShortBitmap</i>               |          |       |                       |                                                                                                                                                                                                                                                                                                    |
| >>ShortBitmap                      | M        |       | BIT STRING (SIZE(4))  |                                                                                                                                                                                                                                                                                                    |
| > <i>MediumBitmap</i>              |          |       |                       |                                                                                                                                                                                                                                                                                                    |
| >>MediumBitmap                     | M        |       | BIT STRING (SIZE(8))  |                                                                                                                                                                                                                                                                                                    |
| > <i>LongBitmap</i>                |          |       |                       |                                                                                                                                                                                                                                                                                                    |
| >>LongBitmap                       | M        |       | BIT STRING (SIZE(64)) |                                                                                                                                                                                                                                                                                                    |

### 9.3.1.139 NR PRACH Configuration

This IE indicates the PRACH resources by a NR cell.

| IE/Group Name           | Presence | Range | IE Type and Reference                 | Semantics Description |
|-------------------------|----------|-------|---------------------------------------|-----------------------|
| UL PRACH Configuration  | O        |       | NR PRACH Configuration List 9.3.1.140 |                       |
| SUL PRACH Configuration | O        |       | NR PRACH Configuration List 9.3.1.140 |                       |

### 9.3.1.140 NR PRACH Configuration List

This IE indicates the PRACH resources used or reserved in the UL carrier(s) or SUL carrier(s) of the current NR cell.

| IE/Group Name               | Presence | Range                                   | IE Type and Reference                                         | Semantics Description                                                                            | Criticality | Assigned Criticality |
|-----------------------------|----------|-----------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-------------|----------------------|
| NR PRACH Configuration Item |          | 0..< <i>maxnoofPrachConfiguration</i> > |                                                               | Length=0 means releasing of all NR PRACH Configuration Items for this UL or SUL.                 | -           |                      |
| >NR SCS                     | M        |                                         | ENUMERATED (scs15, scs30, scs60, scs120, ..., scs480, scs960) | The SCS of the carrier to which this <i>PRACH Configuration Item</i> relates, i.e. $\Delta f$ in | -           |                      |



| IE/Group Name                       | Presence | Range | IE Type and Reference                                                                                    | Semantics Description                                                                                                                                                                                                                                                                                                    | Criticality | Assigned Criticality |
|-------------------------------------|----------|-------|----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                                     |          |       |                                                                                                          | Section 5.3.2 in TS 38.211 [33]. The values <i>scs15</i> , <i>scs30</i> , <i>scs60</i> , <i>scs120</i> , <i>scs 480</i> , and <i>scs960</i> corresponds to the sub carrier spacing in TS 38.104 [17]. NOTE: Its value may not be identical to the SCS of PRACH.                                                          |             |                      |
| >PRACH Frequency Start from Carrier | M        |       | INTEGER (0.. <i>maxNrofPhysicalResourceBlocks</i> -1, ...)                                               | Lowest number of resource blocks which can be used to deliver MSG1 or the preamble part of MSGA, counting from the start number of the corresponding carrier.<br><br>Identical to $RB_{start}$ in Section 5.1.2.2.2 in TS 38.214 [34] plus <i>msg1-FrequencyStart</i> or <i>msgA-RO-FrequencyStart</i> in TS 38.331 [8]. | -           |                      |
| >PRACH-FDM                          | M        |       | ENUMERATED (one, two, four, eight, ...)                                                                  | <i>M</i> in Section 6.3.3.2 in TS 38.211 [33].                                                                                                                                                                                                                                                                           | -           |                      |
| >PRACH Configuration Index          | M        |       | INTEGER (0.. 255, ..., 256..262)                                                                         | See Section 6.3.3.2 in TS 38.211 [33].                                                                                                                                                                                                                                                                                   | -           |                      |
| >SSB per RACH Occasion              | M        |       | ENUMERATED ( <i>oneEighth</i> , <i>oneFourth</i> , <i>oneHalf</i> , one, two, four, eight, sixteen, ...) | Number of SSBs per RACH occasion. Value <i>oneEight</i> corresponds to one SSB associated with 8 RACH occasions, value <i>oneFourth</i> corresponds to one SSB associated with 4 RACH occasions, and so on.                                                                                                              | -           |                      |
| >CHOICE <i>FreqDomainLength</i>     | M        |       |                                                                                                          | For the case of PRACH resources reserved for BFR or MSG1-based SI Request, <i>L139</i> is always used.                                                                                                                                                                                                                   | -           |                      |
| >>L839                              |          |       |                                                                                                          |                                                                                                                                                                                                                                                                                                                          |             |                      |
| >>>L839 Info                        |          | 1     |                                                                                                          |                                                                                                                                                                                                                                                                                                                          | -           |                      |
| >>>>Root Sequence Index             | M        |       | INTEGER (0..837)                                                                                         | See Section 6.3.3.1 in TS 38.211 [33].                                                                                                                                                                                                                                                                                   | -           |                      |

| IE/Group Name                 | Presence | Range | IE Type and Reference                                                     | Semantics Description                                                                 | Criticality | Assigned Criticality |
|-------------------------------|----------|-------|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-------------|----------------------|
| >>>>Restricted Set Config     | M        |       | ENUMERATED (unrestrictedSet, restrictedSetTypeA, restrictedSetTypeB, ...) | See Section 6.3.3.1 in TS 38.211 [33].                                                | -           |                      |
| >>L139                        |          |       |                                                                           |                                                                                       |             |                      |
| >>>L139 Info                  |          | 1     |                                                                           |                                                                                       | -           |                      |
| >>>>PRACH SCS                 | M        |       | ENUMERATED (scs15, scs30, scs60, scs120, ..., scs480, scs960)             | Subcarrier Spacing of PRACH, i.e. $\Delta f_{RA}$ in Section 5.3.2 in TS 38.211 [33]. | -           |                      |
| >>>>Root Sequence Index       | O        |       | INTEGER (0..137)                                                          | See Section 6.3.3.1 in TS 38.211 [33].                                                | -           |                      |
| >>L571                        |          |       |                                                                           |                                                                                       | YES         | reject               |
| >>>L571 Info                  |          | 1     |                                                                           |                                                                                       | -           |                      |
| >>>>PRACH SCS for L571        | M        |       | ENUMERATED (scs30, scs120, ..., scs480)                                   | Subcarrier Spacing of PRACH, i.e. $\Delta f_{RA}$ in Section 5.3.2 in TS 38.211 [33]. | -           |                      |
| >>>>Root Sequence Index       | M        |       | INTEGER (0..569)                                                          | See Section 6.3.3.1 in TS 38.211 [33].                                                | -           |                      |
| >>L1151                       |          |       |                                                                           |                                                                                       | YES         | reject               |
| >>>L1151 Info                 |          | 1     |                                                                           |                                                                                       | -           |                      |
| >>>>PRACH SCS for L1151       | M        |       | ENUMERATED (scs15, scs120, ...)                                           | Subcarrier Spacing of PRACH, i.e. $\Delta f_{RA}$ in Section 5.3.2 in TS 38.211 [33]. | -           |                      |
| >>>>Root Sequence Index       | M        |       | INTEGER (0..1149)                                                         | See Section 6.3.3.1 in TS 38.211 [33].                                                | -           |                      |
| >Zero Correlation Zone Config | M        |       | INTEGER (0..15)                                                           | See Section 6.3.3.1 in TS 38.211 [33].                                                | -           |                      |

| Range bound                     | Explanation                                                    |
|---------------------------------|----------------------------------------------------------------|
| maxnoofPhysicalResourceBlocks-1 | Maximum no. of Physical Resource Blocks minus 1. Value is 274. |
| maxnoofPrachConfiguration       | Maximum no. of PRACH Configuration. Value is 16.               |

### 9.3.1.141 TSC Traffic Characteristics

This IE provides the traffic characteristics of TSC QoS flows.

| IE/Group Name                       | Presence | Range | IE type and reference                | Semantics description |
|-------------------------------------|----------|-------|--------------------------------------|-----------------------|
| TSC Assistance Information Downlink | O        |       | TSC Assistance Information 9.3.1.142 |                       |
| TSC Assistance Information Uplink   | O        |       | TSC Assistance Information 9.3.1.142 |                       |

### 9.3.1.142 TSC Assistance Information

This IE provides the TSC assistance information for a TSC QoS flow in the uplink or downlink (see TS 23.501 [21]).

| IE/Group Name                   | Presence | Range | IE type and reference  | Semantics description                                                                                      | Criticality | Assigned Criticality |
|---------------------------------|----------|-------|------------------------|------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Periodicity                     | M        |       | 9.3.1.143              | Periodicity as specified in TS 23.501 [21].                                                                | -           |                      |
| Burst Arrival Time              | O        |       | 9.3.1.144              | Burst Arrival Time as specified in TS 23.501 [21].                                                         | -           |                      |
| Survival Time                   | O        |       | 9.3.1.231              |                                                                                                            | YES         | ignore               |
| CHOICE RAN Feedback Type        | O        |       |                        |                                                                                                            | YES         | ignore               |
| >proactive                      |          |       |                        |                                                                                                            |             |                      |
| >>Burst Arrival Time Window     | M        |       | 9.3.1.300              |                                                                                                            | -           |                      |
| >>Periodicity Range             | O        |       | 9.3.1.301              |                                                                                                            | -           |                      |
| >reactive                       |          |       |                        |                                                                                                            |             |                      |
| >>Capability for BAT Adaptation | M        |       | ENUMERATED (true, ...) |                                                                                                            | -           |                      |
| N6 Jitter Information           | O        |       | 9.3.1.320              | Indicates the jitter information associated with the Periodicity in downlink, as defined in TS 23.501[21]. | YES         | ignore               |

### 9.3.1.143 Periodicity

This IE indicates the Periodicity as defined in TS 23.501 [21].

| IE/Group Name | Presence | Range | IE type and reference    | Semantics description                   |
|---------------|----------|-------|--------------------------|-----------------------------------------|
| Periodicity   | M        |       | INTEGER (0..640000, ...) | Periodicity expressed in units of 1 us. |

### 9.3.1.144 Burst Arrival Time

This IE indicates the Burst Arrival Time as defined in TS 23.501 [21].

| IE/Group Name      | Presence | Range | IE type and reference | Semantics description                                                                                                            |
|--------------------|----------|-------|-----------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Burst Arrival Time | M        |       | OCTET STRING          | Encoded in the same format as the <i>ReferenceTime</i> IE as defined in TS 38.331 [8]. The value is provided with 1 us accuracy. |

### 9.3.1.145 Extended Packet Delay Budget

This IE indicates the Packet Delay Budget for a QoS flow.

| IE/Group Name                | Presence | Range | IE type and reference                  | Semantics description                                                                     |
|------------------------------|----------|-------|----------------------------------------|-------------------------------------------------------------------------------------------|
| Extended Packet Delay Budget | M        |       | INTEGER (1..65535, ..., 65536..109999) | Upper bound value for the delay that a packet may experience expressed in unit of 0.01ms. |

### 9.3.1.146 RLC Duplication Information

The IE contains the RLC duplication information in case that the indicated DRB is configured with more than two RLC entities as specified in TS 38.331 [8].

| IE/Group Name                | Presence | Range                                 | IE type and reference              | Semantics description                                                                                                                                                                                                                                                                                                                   |
|------------------------------|----------|---------------------------------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RLC Duplication State List   |          | 1                                     |                                    |                                                                                                                                                                                                                                                                                                                                         |
| >RLC Duplication State Items |          | 1 ..<br><maxnoofRLC DuplicationState> |                                    | Each position in the list represents a secondary RLC entity in ascending order by the logical channel ID in the order of MCG and SCG. For Multi-path relay, each position in the list represents a secondary RLC entity in order of direct path (in ascending order of logical channel ID of secondary RLC entities) and indirect path. |
| >>Duplication State          | M        |                                       | ENUMERATED (Active, Inactive, ...) |                                                                                                                                                                                                                                                                                                                                         |
| Primary Path Indication      | O        |                                       | ENUMERATED (True, False,...)       | Indicates whether the primary path is located at the gNB-DU for DC based PDCP duplication. This IE is also applicable to multi-path relay.                                                                                                                                                                                              |

| Range bound                | Explanation                                       |
|----------------------------|---------------------------------------------------|
| maxnoofRLCDuplicationState | Maximum no of Secondary RLC entities. Value is 3. |

### 9.3.1.147 Reporting Request Type

This IE indicates the type of accurate reference time information reporting to be handled by the gNB-DU.

| IE/Group Name            | Presence                   | Range | IE type and reference                       | Semantics description                                                                         |
|--------------------------|----------------------------|-------|---------------------------------------------|-----------------------------------------------------------------------------------------------|
| Event Type               | M                          |       | ENUMERATED (on demand, periodic, stop, ...) |                                                                                               |
| Report Periodicity Value | C-<br>ifEventTypesPeriodic |       | INTEGER (0..512, ...)                       | Indicates the periodicity of accurate reference time information report, Unit in radio frame. |

| Condition             | Explanation                                                                |
|-----------------------|----------------------------------------------------------------------------|
| ifEventTypeisPeriodic | This IE shall be present if the <i>Event Type</i> IE is set to "periodic". |

### 9.3.1.148 Time Reference Information

This IE contains the time reference information.

| IE/Group Name  | Presence | Range | IE type and reference   | Semantics description                                                                                            |
|----------------|----------|-------|-------------------------|------------------------------------------------------------------------------------------------------------------|
| Reference Time | M        |       | 9.3.1.149               |                                                                                                                  |
| Reference SFN  | M        |       | INTEGER (0..1023)       | Corresponds to the <i>referenceSFN</i> contained in the <i>ReferenceTimeInfo</i> IE, as defined in TS 38.331 [8] |
| Uncertainty    | O        |       | INTEGER (0..32767, ...) | Corresponds to the <i>uncertainty</i> contained in the                                                           |

| IE/Group Name         | Presence | Range | IE type and reference   | Semantics description                                                                                             |
|-----------------------|----------|-------|-------------------------|-------------------------------------------------------------------------------------------------------------------|
|                       |          |       |                         | <i>ReferenceTimeInfo</i> IE, as defined in TS 38.331 [8].                                                         |
| Time Information Type | O        |       | ENUMERATED (localClock) | Corresponds to the <i>timeInfoType</i> contained in the <i>ReferenceTimeInfo</i> IE, as defined in TS 38.331 [8]. |

### 9.3.1.149 Reference Time

This IE provides the accurate Reference Time information.

| IE/Group Name  | Presence | Range | IE type and reference | Semantics description                                                                                          |
|----------------|----------|-------|-----------------------|----------------------------------------------------------------------------------------------------------------|
| Reference Time | M        |       | OCTET STRING          | Includes the <i>ReferenceTime</i> IE contained in the <i>ReferenceTimeInfo</i> IE as defined in TS 38.331 [8]. |

### 9.3.1.150 MDT Configuration

The IE defines the MDT configuration parameters.

| IE/Group Name            | Presence | Range | IE type and reference                                        | Semantics description                                                                                                                                                                                                                                                                                                                         |
|--------------------------|----------|-------|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MDT Activation           | M        |       | ENUMERATED(Immediate MDT only, Immediate MDT and Trace, ...) |                                                                                                                                                                                                                                                                                                                                               |
| Measurements to Activate | M        |       | BITSTRING (SIZE(8))                                          | Each position in the bitmap indicates a MDT measurement, as defined in TS 37.320 [35].<br>Second Bit = M2,<br>Fifth Bit = M5,<br>Seventh Bit = M6,<br>Eighth Bit = M7.<br><br>Value "1" indicates "activate" and value "0" indicates "do not activate".<br><br>This version of the specification does not use bits 1, bit 3, bit 4 and bit 6. |
| M2 Configuration         | C-ifM2   |       | ENUMERATED (true, ...)                                       |                                                                                                                                                                                                                                                                                                                                               |
| M5 Configuration         | C-ifM5   |       | 9.3.1.152                                                    |                                                                                                                                                                                                                                                                                                                                               |
| M6 Configuration         | C-ifM6   |       | 9.3.1.153                                                    |                                                                                                                                                                                                                                                                                                                                               |
| M7 Configuration         | C-ifM7   |       | 9.3.1.154                                                    |                                                                                                                                                                                                                                                                                                                                               |

| Condition | Explanation                                                                                        |
|-----------|----------------------------------------------------------------------------------------------------|
| ifM2      | This IE shall be present if the <i>Measurements to Activate</i> IE has the second bit set to "1".  |
| ifM5      | This IE shall be present if the <i>Measurements to Activate</i> IE has the fifth bit set to "1".   |
| ifM6      | This IE shall be present if the <i>Measurements to Activate</i> IE has the seventh bit set to "1". |
| ifM7      | This IE shall be present if the <i>Measurements to Activate</i> IE has the eighth bit set to "1".  |

### 9.3.1.151 MDT PLMN List

The purpose of the *MDT PLMN List* IE is to provide the list of PLMN allowed for MDT.

| IE/Group Name        | Presence | Range                             | IE type and reference | Semantics description |
|----------------------|----------|-----------------------------------|-----------------------|-----------------------|
| <b>MDT PLMN List</b> |          | <i>1..&lt;maxnoofMDTPLMNs&gt;</i> |                       |                       |
| >PLMN Identity       | M        |                                   | 9.3.1.14              |                       |

| Range bound     | Explanation                                             |
|-----------------|---------------------------------------------------------|
| maxnoofMDTPLMNs | Maximum no. of PLMNs in the MDT PLMN list. Value is 16. |

### 9.3.1.152 M5 Configuration

This IE defines the parameters for M5 measurement collection.

| IE/Group Name        | Presence | Range | IE type and reference                                           | Semantics description | Criticality | Assigned Criticality |
|----------------------|----------|-------|-----------------------------------------------------------------|-----------------------|-------------|----------------------|
| M5 Collection Period | M        |       | ENUMERATED<br>(ms1024, ms2048, ms5120, ms10240, min1, ...)      |                       | -           |                      |
| M5 Links to log      | M        |       | ENUMERATED<br>(uplink, downlink, both-uplink-and-downlink, ...) |                       | -           |                      |
| M5 Report Amount     | O        |       | ENUMERATED<br>(1, 2, 4, 8, 16, 32, 64, infinity, ...)           | Number of reports.    | YES         | ignore               |

### 9.3.1.153 M6 Configuration

This IE defines the parameters for M6 measurement collection.

| IE/Group Name      | Presence | Range | IE type and reference                                                                                                        | Semantics description | Criticality | Assigned Criticality |
|--------------------|----------|-------|------------------------------------------------------------------------------------------------------------------------------|-----------------------|-------------|----------------------|
| M6 Report Interval | M        |       | ENUMERATED<br>(ms120, ms240, ms640, ms1024, ms2048, ms5120, ms10240, ms20480, ms40960, min1, min6, min12, min30, ..., ms480) |                       | -           |                      |
| M6 Links to log    | M        |       | ENUMERATED<br>(uplink, downlink, both-uplink-and-downlink, ...)                                                              |                       | -           |                      |
| M6 Report Amount   | O        |       | ENUMERATED<br>(1, 2, 4, 8, 16, 32, 64, infinity, ...)                                                                        | Number of reports.    | YES         | ignore               |

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|---------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
|               |          |       | ...)                  |                       |             |                      |

### 9.3.1.154 M7 Configuration

This IE defines the parameters for M7 measurement collection.

| IE/Group Name        | Presence | Range | IE type and reference                                 | Semantics description | Criticality | Assigned Criticality |
|----------------------|----------|-------|-------------------------------------------------------|-----------------------|-------------|----------------------|
| M7 Collection Period | M        |       | INTEGER<br>(1..60, ...)                               | Unit: minutes         | -           |                      |
| M7 Links to log      | M        |       | ENUMERATED<br>(downlink, ...)                         |                       | -           |                      |
| M7 Report Amount     | O        |       | ENUMERATED<br>(1, 2, 4, 8, 16, 32, 64, infinity, ...) | Number of reports.    | YES         | ignore               |

### 9.3.1.155 NID

This IE is used to identify (together with a PLMN identifier) a Stand-alone Non-Public Network. The NID is specified in TS 23.003 [23].

| IE/Group Name | Presence | Range | IE type and reference    | Semantics description |
|---------------|----------|-------|--------------------------|-----------------------|
| NID           | M        |       | BIT STRING<br>(SIZE(44)) |                       |

### 9.3.1.156 NPN Support Information

This IE contains NPN related information associated with Network Slicing information.

| IE/Group Name                         | Presence | Range | IE type and reference | Semantics description |
|---------------------------------------|----------|-------|-----------------------|-----------------------|
| CHOICE <i>NPN Support Information</i> | M        |       |                       |                       |
| >SNPN Information                     |          |       |                       |                       |
| >>NID                                 | M        |       | 9.3.1.155             |                       |

### 9.3.1.157 NPN Broadcast Information

This IE contains NPN related broadcast information.

| IE/Group Name                                    | Presence | Range | IE type and reference                         | Semantics description |
|--------------------------------------------------|----------|-------|-----------------------------------------------|-----------------------|
| CHOICE <i>NPN Broadcast Information per PLMN</i> | M        |       |                                               |                       |
| >SNPN Information                                |          |       |                                               |                       |
| >>Broadcast SNPN ID List                         | M        |       | 9.3.1.158                                     |                       |
| >PNI-NPN Information                             |          |       |                                               |                       |
| >>Broadcast PNI-NPN ID List                      | M        |       | Broadcast PNI-NPN ID Information<br>9.3.1.162 |                       |

### 9.3.1.158 Broadcast SNPN ID List

This IE contains SNPN related broadcast information associated with a set of PLMNs.

| IE/Group Name                 | Presence | Range                         | IE type and reference | Semantics description |
|-------------------------------|----------|-------------------------------|-----------------------|-----------------------|
| <b>Broadcast SNPN ID List</b> |          | <i>1..&lt;maxnoofNIDs&gt;</i> |                       |                       |
| >PLMN Identity                | M        |                               | 9.3.1.14              |                       |
| >Broadcast NID List           | M        |                               | 9.3.1.159             |                       |

| Range bound | Explanation                                           |
|-------------|-------------------------------------------------------|
| maxnoofNIDs | Maximum no. of NIDs broadcast in a cell. Value is 12. |

### 9.3.1.159 Broadcast NID List

This IE contains a list of NIDs.

| IE/Group Name        | Presence | RangeNIDsupported                     | IE type and reference | Semantics description |
|----------------------|----------|---------------------------------------|-----------------------|-----------------------|
| <b>Broadcast NID</b> |          | <i>1..&lt;maxnoofNIDsupported&gt;</i> |                       |                       |
| >NID                 | M        |                                       | 9.3.1.155             |                       |

| Range bound         | Explanation                                           |
|---------------------|-------------------------------------------------------|
| maxnoofNIDsupported | Maximum no. of NIDs broadcast in a cell. Value is 12. |

### 9.3.1.160 Broadcast CAG-Identifier List

This IE contains a list of CAG-Identifiers.

| IE/Group Name                        | Presence | Range                                 | IE type and reference | Semantics description |
|--------------------------------------|----------|---------------------------------------|-----------------------|-----------------------|
| <b>Broadcast CAG-Identifier List</b> |          | <i>1..&lt;maxnoofCAGsupported&gt;</i> |                       |                       |
| >CAG ID                              | M        |                                       | 9.3.1.161             |                       |

| Range bound         | Explanation                                                      |
|---------------------|------------------------------------------------------------------|
| maxnoofCAGsupported | Maximum no. of CAG-Identifiers broadcast in a cell. Value is 12. |

### 9.3.1.161 CAG ID

This IE is used to identify (together with a PLMN identifier) a Public Network Integrated NPN, as defined in TS 23.003 [23].

| IE/Group Name | Presence | Range | IE type and reference  | Semantics description              |
|---------------|----------|-------|------------------------|------------------------------------|
| CAG ID        | M        |       | BIT STRING (SIZE (32)) | Closed Access Group ID used in NR. |

### 9.3.1.162 Broadcast PNI-NPN ID Information

This IE contains a list of PNI-NPN IDs.

| IE/Group Name                           | Presence | Range                           | IE type and reference | Semantics description |
|-----------------------------------------|----------|---------------------------------|-----------------------|-----------------------|
| <b>Broadcast PNI-NPN ID Information</b> |          | <i>1..&lt;maxnoofBPLMNs&gt;</i> |                       | Broadcast PLMNs       |
| >PLMN Identity                          | M        |                                 | 9.3.1.14              |                       |



|                                |   |  |           |  |
|--------------------------------|---|--|-----------|--|
| >Broadcast CAG-Identifier List | M |  | 9.3.1.160 |  |
|--------------------------------|---|--|-----------|--|

| Range bound   | Explanation                                            |
|---------------|--------------------------------------------------------|
| maxnoofBPLMNs | Maximum no. of broadcast PLMNs by a cell. Value is 12. |

### 9.3.1.163 Available SNPN ID List

This IE indicates the list of available SNPN ID.

| IE/Group Name                 | Presence | Range                         | IE type and reference           | Semantics description |
|-------------------------------|----------|-------------------------------|---------------------------------|-----------------------|
| <b>Available SNPN ID List</b> |          | <i>1..&lt;maxnoofNIDs&gt;</i> |                                 |                       |
| >PLMN Identity                | M        |                               | 9.3.1.14                        |                       |
| >Available NID List           | M        |                               | Broadcast NID List<br>9.3.1.159 |                       |

| Range bound | Explanation                                           |
|-------------|-------------------------------------------------------|
| maxnoofNIDs | Maximum no. of NIDs broadcast in a cell. Value is 12. |

### 9.3.1.164 Void

### 9.3.1.165 Extended Slice Support List

This IE indicates a list of supported slices.

| IE/Group Name                 | Presence | Range                                       | IE type and reference | Semantics description |
|-------------------------------|----------|---------------------------------------------|-----------------------|-----------------------|
| <b>Slice Support Item IEs</b> |          | <i>1..&lt;maxnoofExtendedSliceItems&gt;</i> |                       |                       |
| >S-NSSAI                      | M        |                                             | 9.3.1.38              |                       |

| Range bound          | Explanation                                                   |
|----------------------|---------------------------------------------------------------|
| maxnoofExtSliceItems | Maximum no. of signalled slice support items. Value is 65535. |

### 9.3.1.166 Positioning Measurement Result

The purpose of this information element is to provide the measurement result(s).

| IE/Group Name                    | Presence | Range                              | IE Type and Reference | Semantics Description | Criticality | Assigned Criticality |
|----------------------------------|----------|------------------------------------|-----------------------|-----------------------|-------------|----------------------|
| Positioning Measured Result Item |          | <i>1 .. &lt;maxnoofPosMeas&gt;</i> |                       |                       | -           |                      |
| >CHOICE Measured Results Value   | M        |                                    |                       |                       | -           |                      |
| >>UL Angle of Arrival            |          |                                    |                       |                       |             |                      |
| >>>UL Angle of Arrival           | M        |                                    | 9.3.1.167             |                       | -           |                      |
| >>UL SRS-RSRP                    |          |                                    |                       |                       |             |                      |
| >>>UL SRS-RSRP                   | M        |                                    | INTEGER (0..126)      |                       | -           |                      |
| >>UL RTOA                        |          |                                    |                       |                       |             |                      |
| >>>UL RTOA                       | M        |                                    | UL RTOA Measurement   |                       | -           |                      |

| IE/Group Name                                 | Presence | Range                              | IE Type and Reference                                           | Semantics Description                                                    | Criticality | Assigned Criticality |
|-----------------------------------------------|----------|------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------------|-------------|----------------------|
|                                               |          |                                    | 9.3.1.168                                                       |                                                                          |             |                      |
| >>gNB Rx-Tx Time Difference                   |          |                                    |                                                                 |                                                                          |             |                      |
| >>>gNB Rx-Tx Time Difference                  | M        |                                    | 9.3.1.170                                                       |                                                                          | -           |                      |
| >>Zenith Angle of Arrival Information         |          |                                    |                                                                 |                                                                          | YES         | reject               |
| >>>Zenith Angle of Arrival Information        | M        |                                    | 9.3.1.239                                                       |                                                                          | -           |                      |
| >>Multiple UL AoA                             |          |                                    |                                                                 |                                                                          | YES         | reject               |
| >>>Multiple UL AoA                            | M        |                                    | 9.3.1.245                                                       |                                                                          | -           |                      |
| >>UL SRS-RSRPP                                |          |                                    |                                                                 |                                                                          | YES         | reject               |
| >>>UL SRS-RSRPP                               | M        |                                    | 9.3.1.246                                                       |                                                                          | -           |                      |
| >>UL RSCP                                     |          |                                    |                                                                 |                                                                          | YES         | reject               |
| >>>UL RSCP                                    | M        |                                    | 9.3.1.335                                                       |                                                                          | -           |                      |
| >Time Stamp                                   | M        |                                    | 9.3.1.171                                                       |                                                                          | -           |                      |
| >Measurement Quality                          | O        |                                    | TRP Measurement Quality<br>9.3.1.172                            |                                                                          | -           |                      |
| >Measurement Beam Information                 | O        |                                    | 9.3.1.173                                                       |                                                                          | -           |                      |
| >ARP ID                                       | O        |                                    | 9.3.1.244                                                       |                                                                          | YES         | ignore               |
| >SRS Resource type                            | O        |                                    | 9.3.1.247                                                       |                                                                          | YES         | ignore               |
| >LoS/NLoS Information                         | O        |                                    | 9.3.1.249                                                       |                                                                          | YES         | ignore               |
| >Mobile TRP Location Information              | O        |                                    | 9.3.1.304                                                       |                                                                          | YES         | ignore               |
| >Measured Frequency Hops                      | O        |                                    | ENUMERATED<br>(singleHop, multiHop, ...)                        |                                                                          | YES         | ignore               |
| >Aggregated Positioning SRS Resource ID List  |          | 0..1                               |                                                                 | Indicates the used Positioning SRS resources across aggregated carriers. | YES         | ignore               |
| >>Aggregated Positioning SRS Resource ID Item |          | 2..<maxno aggregatedSRS-Resources> |                                                                 |                                                                          | -           |                      |
| >>>Positioning SRS Resource ID                | M        |                                    | INTEGER (0..63)                                                 |                                                                          | -           |                      |
| >>>Point A                                    | M        |                                    | INTEGER (0..3279165)                                            |                                                                          | YES         | ignore               |
| >>>SCS Specific Carrier                       |          | 1                                  |                                                                 |                                                                          | YES         | ignore               |
| >>>>Offset To Carrier                         | M        |                                    | INTEGER(0..2199,...)                                            |                                                                          | -           |                      |
| >>>>Subcarrier Spacing                        | M        |                                    | ENUMERATED<br>(kHz15, kHz30, kHz60, kHz120,..., kHz480, kHz960) |                                                                          | -           |                      |
| >>>>Carrier Bandwidth                         | M        |                                    | INTEGER (1..275,...)                                            |                                                                          | -           |                      |
| >>>PCI                                        | O        |                                    | INTEGER (0..1007)                                               |                                                                          | YES         | ignore               |
| >Measurement Based On Aggregated Resources    | O        |                                    | ENUMERATED<br>(true, ...)                                       |                                                                          | YES         | ignore               |

| Range bound                  | Explanation                                                                                              |
|------------------------------|----------------------------------------------------------------------------------------------------------|
| maxnoofPosMeas               | Maximum no. of measured quantities that can be configured and reported with one message. Value is 16384. |
| maxnoaggregatedSRS-Resources | Maximum no of aggregated SRS resources per UL BWP. Value is 3.                                           |

### 9.3.1.167 UL Angle of Arrival

This information element contains the uplink Angle of Arrival measurement.

| IE/Group Name              | Presence | Range | IE Type and Reference               | Semantics Description                                  |
|----------------------------|----------|-------|-------------------------------------|--------------------------------------------------------|
| Azimuth Angle of Arrival   | M        |       | INTEGER(0..3599)                    | TS 38.133 [38]                                         |
| Zenith Angle of Arrival    | O        |       | INTEGER(0..1799)                    | TS 38.133 [38]                                         |
| LCS to GCS Translation AoA | O        |       | LCS to GCS Translation<br>9.3.1.241 | If absent, the azimuth and zenith are provided in GCS. |

### 9.3.1.168 UL RTOA Measurement

This information element contains the uplink RTOA measurement.

| IE/Group Name                     | Presence | Range | IE Type and Reference  | Semantics Description                     | Criticality | Assigned Criticality |
|-----------------------------------|----------|-------|------------------------|-------------------------------------------|-------------|----------------------|
| CHOICE <i>UL RTOA Measurement</i> | M        |       |                        |                                           | -           |                      |
| >k0                               |          |       |                        |                                           |             |                      |
| >>k0                              | M        |       | INTEGER (0..1970049)   | TS 38.133 [38]                            | -           |                      |
| >k1                               |          |       |                        |                                           |             |                      |
| >>k1                              | M        |       | INTEGER (0..985025)    | TS 38.133 [38]                            | -           |                      |
| >k2                               |          |       |                        |                                           |             |                      |
| >>k2                              | M        |       | INTEGER (0..492513)    | TS 38.133 [38]                            | -           |                      |
| >k3                               |          |       |                        |                                           |             |                      |
| >>k3                              | M        |       | INTEGER (0..246257)    | TS 38.133 [38]                            | -           |                      |
| >k4                               |          |       |                        |                                           |             |                      |
| >>k4                              | M        |       | INTEGER (0..123129)    | TS 38.133 [38]                            | -           |                      |
| >k5                               |          |       |                        |                                           |             |                      |
| >>k5                              | M        |       | INTEGER (0..61565)     | TS 38.133 [38]                            | -           |                      |
| >kminus1                          |          |       |                        |                                           |             |                      |
| >>kminus1                         | M        |       | INTEGER (0..3940097)   | TS 38.133 [38]                            | YES         | ignore               |
| >kminus2                          |          |       |                        |                                           |             |                      |
| >>kminus2                         | M        |       | INTEGER (0..7880193)   | TS 38.133 [38]                            | YES         | ignore               |
| >kminus3                          |          |       |                        |                                           |             |                      |
| >>kminus3                         | M        |       | INTEGER (0..15760385)  | TS 38.133 [38]                            | YES         | ignore               |
| >kminus4                          |          |       |                        |                                           |             |                      |
| >>kminus4                         | M        |       | INTEGER (0..31520769)  | TS 38.133 [38]                            | YES         | ignore               |
| >kminus5                          |          |       |                        |                                           |             |                      |
| >>kminus5                         | M        |       | INTEGER (0..63041537)  | TS 38.133 [38]                            | YES         | ignore               |
| >kminus6                          |          |       |                        |                                           |             |                      |
| >>kminus6                         | M        |       | INTEGER (0..126083073) | TS 38.133 [38]                            | YES         | ignore               |
| Additional Path List              | O        |       | 9.3.1.169              | This IE is ignored if the <i>Extended</i> | -           |                      |

| IE/Group Name                 | Presence | Range | IE Type and Reference | Semantics Description                      | Criticality | Assigned Criticality |
|-------------------------------|----------|-------|-----------------------|--------------------------------------------|-------------|----------------------|
|                               |          |       |                       | <i>Additional Path List</i> IE is included |             |                      |
| Extended Additional Path List | O        |       | 9.3.1.248             |                                            | YES         | ignore               |
| TRP Rx TEG Information        | O        |       | 9.3.1.280             |                                            | YES         | ignore               |

### 9.3.1.169 Additional Path List

This information element contains the additional path results of time measurement.

| IE/Group Name                      | Presence | Range                          | IE Type and Reference             | Semantics Description | Criticality | Assigned Criticality |
|------------------------------------|----------|--------------------------------|-----------------------------------|-----------------------|-------------|----------------------|
| Additional Path Item               |          | <i>1..&lt;maxno ofPath&gt;</i> |                                   |                       | -           |                      |
| >CHOICE <i>Relative Path Delay</i> | M        |                                |                                   |                       | -           |                      |
| >>k0                               |          |                                |                                   |                       |             |                      |
| >>>k0                              | M        |                                | INTEGER(0..16351)                 |                       | -           |                      |
| >>k1                               |          |                                |                                   |                       |             |                      |
| >>>k1                              | M        |                                | INTEGER(0..8176)                  |                       | -           |                      |
| >>k2                               |          |                                |                                   |                       |             |                      |
| >>>k2                              | M        |                                | INTEGER(0..4088)                  |                       | -           |                      |
| >>k3                               |          |                                |                                   |                       |             |                      |
| >>>k3                              | M        |                                | INTEGER(0..2044)                  |                       | -           |                      |
| >>k4                               |          |                                |                                   |                       |             |                      |
| >>>k4                              | M        |                                | INTEGER(0..1022)                  |                       | -           |                      |
| >>k5                               |          |                                |                                   |                       |             |                      |
| >>>k5                              | M        |                                | INTEGER(0..511)                   |                       | -           |                      |
| >>kminus1                          |          |                                |                                   |                       |             |                      |
| >>>kminus1                         | M        |                                | INTEGER (0..32701)                | TS 38.133 [38]        | YES         | ignore               |
| >>kminus2                          |          |                                |                                   |                       |             |                      |
| >>>kminus2                         | M        |                                | INTEGER (0..65401)                | TS 38.133 [38]        | YES         | ignore               |
| >>kminus3                          |          |                                |                                   |                       |             |                      |
| >>>kminus3                         | M        |                                | INTEGER (0..130801)               | TS 38.133 [38]        | YES         | ignore               |
| >>kminus4                          |          |                                |                                   |                       |             |                      |
| >>>kminus4                         | M        |                                | INTEGER (0..261601)               | TS 38.133 [38]        | YES         | ignore               |
| >>kminus5                          |          |                                |                                   |                       |             |                      |
| >>>kminus5                         | M        |                                | INTEGER (0..523201)               | TS 38.133 [38]        | YES         | ignore               |
| >>kminus6                          |          |                                |                                   |                       |             |                      |
| >>>kminus6                         | M        |                                | INTEGER (0..1046401)              | TS 38.133 [38]        | YES         | ignore               |
| >Path Quality                      | O        |                                | TRP Measurement Quality 9.3.1.172 |                       | -           |                      |
| >Multiple UL AoA                   | O        |                                | 9.3.1.245                         |                       | YES         | ignore               |
| >Path Power                        | O        |                                | UL SRS-RSRPP 9.3.1.246            |                       | YES         | ignore               |

| Range bound | Explanation                                              |
|-------------|----------------------------------------------------------|
| maxnoofPath | Maximum no. of additional path measurements. Value is 2. |

### 9.3.1.170 gNB Rx-Tx Time Difference

This information element contains the gNB Rx-Tx Time Difference measurement.

| IE/Group Name                                       | Presence | Range | IE Type and Reference  | Semantics Description | Criticality | Assigned Criticality |
|-----------------------------------------------------|----------|-------|------------------------|-----------------------|-------------|----------------------|
| CHOICE <i>gNB Rx-Tx Time Difference Measurement</i> | M        |       |                        |                       | -           |                      |
| >k0                                                 |          |       |                        |                       |             |                      |
| >>k0                                                | M        |       | INTEGER (0..1970049)   | TS 38.133 [38]        | -           |                      |
| >k1                                                 |          |       |                        |                       |             |                      |
| >>k1                                                | M        |       | INTEGER (0..985025)    | TS 38.133 [38]        | -           |                      |
| >k2                                                 |          |       |                        |                       |             |                      |
| >>k2                                                | M        |       | INTEGER (0..492513)    | TS 38.133 [38]        | -           |                      |
| >k3                                                 |          |       |                        |                       |             |                      |
| >>k3                                                | M        |       | INTEGER (0..246257)    | TS 38.133 [38]        | -           |                      |
| >k4                                                 |          |       |                        |                       |             |                      |
| >>k4                                                | M        |       | INTEGER (0..123129)    | TS 38.133 [38]        | -           |                      |
| >k5                                                 |          |       |                        |                       |             |                      |
| >>k5                                                | M        |       | INTEGER (0..61565)     | TS 38.133 [38]        | -           |                      |
| >kminus1                                            |          |       |                        |                       |             |                      |
| >>kminus1                                           | M        |       | INTEGER (0..3940097)   | TS 38.133 [38]        | YES         | ignore               |
| >kminus2                                            |          |       |                        |                       |             |                      |
| >>kminus2                                           | M        |       | INTEGER (0..7880193)   | TS 38.133 [38]        | YES         | ignore               |
| >kminus3                                            |          |       |                        |                       |             |                      |
| >>kminus3                                           | M        |       | INTEGER (0..15760385)  | TS 38.133 [38]        | YES         | ignore               |
| >kminus4                                            |          |       |                        |                       |             |                      |
| >>kminus4                                           | M        |       | INTEGER (0..31520769)  | TS 38.133 [38]        | YES         | ignore               |
| >kminus5                                            |          |       |                        |                       |             |                      |
| >>kminus5                                           | M        |       | INTEGER (0..63041537)  | TS 38.133 [38]        | YES         | ignore               |
| >kminus6                                            |          |       |                        |                       |             |                      |
| >>kminus6                                           | M        |       | INTEGER (0..126083073) | TS 38.133 [38]        | YES         | ignore               |
| Additional Path List                                | O        |       | 9.3.1.169              |                       | -           |                      |
| Extended Additional Path List                       | O        |       | 9.3.1.248              |                       | YES         | ignore               |
| TRP TEG Information                                 | O        |       | 9.3.1.253              |                       | YES         | ignore               |

### 9.3.1.171 Time Stamp

This information element contains the time stamp associated with the measurement.

| IE/Group Name            | Presence | Range | IE Type and Reference | Semantics Description | Criticality | Assigned Criticality |
|--------------------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| System Frame Number      | M        |       | INTEGER(0..1023)      |                       | -           |                      |
| CHOICE <i>Slot Index</i> | M        |       |                       |                       | -           |                      |
| >SCS-15                  |          |       |                       |                       |             |                      |

| IE/Group Name    | Presence | Range | IE Type and Reference        | Semantics Description                   | Criticality | Assigned Criticality |
|------------------|----------|-------|------------------------------|-----------------------------------------|-------------|----------------------|
| >>SCS-15         | M        |       | INTEGER(0..9)                |                                         | -           |                      |
| >SCS-30          |          |       |                              |                                         |             |                      |
| >>SCS-30         | M        |       | INTEGER(0..19)               |                                         | -           |                      |
| >SCS-60          |          |       |                              |                                         |             |                      |
| >>SCS-60         | M        |       | INTEGER(0..39)               |                                         | -           |                      |
| >SCS-120         |          |       |                              |                                         |             |                      |
| >>SCS-120        | M        |       | INTEGER(0..79)               |                                         | -           |                      |
| >SCS-480         |          |       |                              |                                         |             |                      |
| >>SCS-480        | M        |       | INTEGER(0..319)              |                                         | YES         | reject               |
| >SCS-960         |          |       |                              |                                         | -           |                      |
| >>SCS-960        | M        |       | INTEGER(0..639)              |                                         | YES         | reject               |
| Measurement Time | O        |       | Relative Time 1900 9.3.1.183 |                                         | -           |                      |
| Symbol Index     | O        |       | INTEGER(0..13)               | Applicable to UL RSCP measurement only. | YES         | ignore               |

### 9.3.1.172 TRP Measurement Quality

This information element contains the TRP's best estimate of the quality of the measurement.

| IE/Group Name                         | Presence | Range | IE Type and Reference                | Semantics Description                                                                          | Criticality | Assigned Criticality |
|---------------------------------------|----------|-------|--------------------------------------|------------------------------------------------------------------------------------------------|-------------|----------------------|
| CHOICE <i>TRP Measurement Quality</i> | M        |       |                                      |                                                                                                | -           |                      |
| > <i>Timing Measurement Quality</i>   |          |       |                                      |                                                                                                |             |                      |
| >>Measurement Quality                 | M        |       | INTEGER(0..31)                       | TS 37.355 [39]                                                                                 | -           |                      |
| >>Resolution                          | M        |       | ENUMERATED (0.1m, 1m, 10m, 30m, ...) | TS 37.355 [39]                                                                                 | -           |                      |
| > <i>Angle Measurement Quality</i>    |          |       |                                      |                                                                                                |             |                      |
| >>Azimuth Quality                     | M        |       | INTEGER(0..255)                      |                                                                                                | -           |                      |
| >>Zenith Quality                      | O        |       | INTEGER(0..255)                      |                                                                                                | -           |                      |
| >>Resolution                          | M        |       | ENUMERATED (0.1deg, ...)             |                                                                                                | -           |                      |
| > <i>Phase Quality</i>                |          |       |                                      | Corresponds to information provided in <i>NR-PhaseQuality</i> IE as defined in TS 37.355 [39]. | YES         | ignore               |
| >>Phase Quality Index                 | M        |       | INTEGER(0..179)                      |                                                                                                | -           |                      |
| >>Phase Quality Resolution            | M        |       | ENUMERATED (0.1deg, 1deg, ...)       |                                                                                                | -           |                      |

### 9.3.1.173 Measurement Beam Information

This information element contains the receiving beam information when measuring UL signals.

| IE/Group Name       | Presence | Range | IE Type and Reference | Semantics Description |
|---------------------|----------|-------|-----------------------|-----------------------|
| PRS Resource ID     | O        |       | INTEGER(0..63)        |                       |
| PRS Resource Set ID | O        |       | INTEGER(0..7)         |                       |
| SSB Index           | O        |       | INTEGER(0..63)        |                       |

### 9.3.1.174 NG-RAN Access Point Position

This IE is used to identify the geographical position of an NG-RAN Access Point / TRP / TRP Antenna Reference Points. It is expressed as ellipsoid point with altitude and uncertainty ellipsoid according to TS 23.032 [36].

| IE/Group Name             | Presence | Range | IE Type and Reference                           | Semantics Description                                                                                                                                                                              |
|---------------------------|----------|-------|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Latitude Sign             | M        |       | ENUMERATED (North, South)                       |                                                                                                                                                                                                    |
| Degrees Of Latitude       | M        |       | INTEGER (0..2 <sup>23</sup> -1)                 | The IE value (N) is derived by this formula:<br>$N \leq 2^{23} \times X / 90 < N+1$<br>X being the latitude in degrees (0°.. 90°).                                                                 |
| Degrees Of Longitude      | M        |       | INTEGER (-2 <sup>23</sup> ..2 <sup>23</sup> -1) | The IE value (N) is derived by this formula:<br>$N \leq 2^{24} \times X / 360 < N+1$<br>X being the longitude in degrees (-180°..+180°).                                                           |
| Direction of Altitude     | M        |       | ENUMERATED (Height, Depth)                      |                                                                                                                                                                                                    |
| Altitude                  | M        |       | INTEGER (0..2 <sup>15</sup> -1)                 | The relation between the value (N) and the altitude (a) in meters it describes is $N \leq a < N+1$ , except for $N=2^{15}-1$ for which the range is extended to include all greater values of (a). |
| Uncertainty semi-major    | M        |       | INTEGER (0..127)                                | The uncertainty "r" is derived from the "uncertainty code" k by $r = 10 \times (1.1^k - 1)$ .                                                                                                      |
| Uncertainty semi-minor    | M        |       | INTEGER (0..127)                                | The uncertainty "r" is derived from the "uncertainty code" k by $r = 10 \times (1.1^k - 1)$ .                                                                                                      |
| Orientation of major axis | M        |       | INTEGER (0..179)                                |                                                                                                                                                                                                    |
| Uncertainty Altitude      | M        |       | INTEGER (0..127)                                | The uncertainty altitude "h" expressed in metres is derived from the "uncertainty code" k, by: $h = 45 \times (1.025^k - 1)$ .                                                                     |
| Confidence                | M        |       | INTEGER (0..100)                                | In percentage                                                                                                                                                                                      |

### 9.3.1.175 Requested SRS Transmission Characteristics

This IE contains the requested SRS configuration for the UE for positioning purposes.

| IE/Group Name                    | Presence                         | Range | IE Type and Reference       | Semantics Description                                                                                                    | Criticality | Assigned Criticality |
|----------------------------------|----------------------------------|-------|-----------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Number Of Periodic Transmissions | C-<br>ifResource<br>TypePeriodic |       | INTEGER (0..500,...)        | The number of periodic SRS transmissions requested. The value of '0' represents an infinite number of SRS transmissions. | -           |                      |
| Resource Type                    | M                                |       | ENUMERATED (periodic, semi- |                                                                                                                          | -           |                      |

| IE/Group Name                                   | Presence | Range                          | IE Type and Reference                                                                                                                   | Semantics Description                                                                         | Criticality | Assigned Criticality |
|-------------------------------------------------|----------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-------------|----------------------|
|                                                 |          |                                | persistent, aperiodic, ...)                                                                                                             |                                                                                               |             |                      |
| CHOICE <i>Bandwidth SRS</i>                     | M        |                                |                                                                                                                                         |                                                                                               | -           |                      |
| >FR1                                            |          |                                |                                                                                                                                         |                                                                                               |             |                      |
| >>FR1 Bandwidth                                 | M        |                                | ENUMERATED (5, 10, 20, 40, 50, 80, 100, ..., 160, 200, 15, 25, 30, 60, 35, 45, 70, 90)                                                  |                                                                                               | -           |                      |
| >FR2                                            |          |                                |                                                                                                                                         |                                                                                               |             |                      |
| >>FR2 Bandwidth                                 | M        |                                | ENUMERATED (50, 100, 200, 400,...,800,1600, 2000, 600)                                                                                  |                                                                                               | -           |                      |
| SRS Resource Set List                           |          | 0.. 1                          |                                                                                                                                         |                                                                                               | -           |                      |
| >SRS Resource Set Item                          |          | 1..<maxnoSRS-Resource Sets>    |                                                                                                                                         |                                                                                               | -           |                      |
| >>Number of SRS Resources Per Set               | O        |                                | INTEGER (1..16,...)                                                                                                                     | The number of SRS Resources per resource set for SRS transmission.                            | -           |                      |
| >>Periodicity List                              |          | 0.. 1                          |                                                                                                                                         |                                                                                               | -           |                      |
| >>>Periodicity List Item                        |          | 1..<maxno SRS-Resource PerSet> |                                                                                                                                         |                                                                                               | -           |                      |
| >>>>PeriodicitySRS                              | M        |                                | ENUMERATED (0.125, 0.25, 0.5, 0.625, 1, 1.25, 2, 2.5, 4, 5, 8, 10, 16, 20, 32, 40, 64, 80, 160, 320, 640, 1280, 2560, 5120, 10240, ...) | Milli-seconds                                                                                 | -           |                      |
| >>Spatial Relation Information                  | O        |                                | 9.3.1.181                                                                                                                               | This IE is ignored if the <i>Spatial Relation Information per SRS Resource</i> IE is present. | -           |                      |
| >>Pathloss Reference Information                | O        |                                | 9.3.1.201                                                                                                                               |                                                                                               | -           |                      |
| >>Spatial Relation Information per SRS Resource | O        |                                | 9.3.1.210                                                                                                                               |                                                                                               | YES         | ignore               |
| SSB Information                                 | O        |                                | 9.3.1.202                                                                                                                               |                                                                                               | -           |                      |
| SRS Frequency                                   | O        |                                | INTEGER(0..3279165)                                                                                                                     | NR ARFCN<br>The carrier frequency of SRS transmission bandwidth.                              | YES         | ignore               |
| Bandwidth Aggregation Request Indication        | O        |                                | ENUMERATED (true, ...)                                                                                                                  |                                                                                               | YES         | ignore               |
| Positioning Validity Area Cell List             | O        |                                | 9.3.1.336                                                                                                                               |                                                                                               | YES         | ignore               |
| Validity Area specific                          | O        |                                | 9.3.1.339                                                                                                                               | This IE is ignored                                                                            | YES         | ignore               |



| IE/Group Name                                   | Presence | Range | IE Type and Reference | Semantics Description                                                        | Criticality | Assigned Criticality |
|-------------------------------------------------|----------|-------|-----------------------|------------------------------------------------------------------------------|-------------|----------------------|
| SRS Information                                 |          |       |                       | if the <i>Validity Area Specific SRS Information Extended</i> IE is present. |             |                      |
| Validity Area Specific SRS Information Extended | O        |       | 9.3.1.351             |                                                                              | YES         | ignore               |

| Condition              | Explanation                                                                             |
|------------------------|-----------------------------------------------------------------------------------------|
| ifResourceTypePeriodic | This IE shall be present if the <i>Resource Type</i> IE is set to the value "Periodic". |

| Range bound             | Explanation                                                                  |
|-------------------------|------------------------------------------------------------------------------|
| maxnoSRS-ResourceSets   | Maximum no of requested SRS Resource Sets for SRS transmission. Value is 16. |
| maxnoSRS-ResourcePerSet | Maximum no of SRS Resources per set. Value is 16.                            |

### 9.3.1.176 TRP Information

The *TRP Information* IE contains information for one TRP within a gNB-DU.

| IE/Group Name                               | Presence | Range                             | IE Type and Reference              | Semantics Description | Criticality | Assigned Criticality |
|---------------------------------------------|----------|-----------------------------------|------------------------------------|-----------------------|-------------|----------------------|
| TRP ID                                      | M        |                                   | 9.3.1.197                          |                       | -           |                      |
| TRP Information Type Response List          |          | 1                                 |                                    |                       | -           |                      |
| >TRP Information Type Response Item         |          | 1 ..<br><maxnoof<br>TRPInfoTypes> |                                    |                       | -           |                      |
| >>CHOICE TRP Information Type Response Item | M        |                                   |                                    |                       | -           |                      |
| >>>NR PCI                                   |          |                                   |                                    |                       |             |                      |
| >>>>NR PCI                                  | M        |                                   | INTEGER<br>(0..1007)               | NR Physical Cell ID   | -           |                      |
| >>>NR CGI                                   |          |                                   |                                    |                       |             |                      |
| >>>>NR CGI                                  |          |                                   | 9.3.1.12                           |                       | -           |                      |
| >>>NR ARFCN                                 |          |                                   |                                    |                       |             |                      |
| >>>>NR ARFCN                                | M        |                                   | INTEGER<br>(0..3279165)            |                       | -           |                      |
| >>>PRS Configuration                        |          |                                   |                                    |                       |             |                      |
| >>>>PRS Configuration                       | M        |                                   | 9.3.1.177                          |                       | -           |                      |
| >>>SSB Information                          |          |                                   |                                    |                       |             |                      |
| >>>>SSB Information                         | M        |                                   | 9.3.1.202                          |                       | -           |                      |
| >>>SFN Initialisation Time                  |          |                                   |                                    |                       |             |                      |
| >>>>SFN Initialisation Time                 | M        |                                   | Relative Time<br>1900<br>9.3.1.183 |                       | -           |                      |
| >>>Spatial Direction Information            |          |                                   |                                    |                       |             |                      |
| >>>>Spatial Direction Information           | M        |                                   | 9.3.1.179                          |                       | -           |                      |
| >>>Geographical                             |          |                                   |                                    |                       |             |                      |

| IE/Group Name                       | Presence          | Range | IE Type and Reference                                              | Semantics Description                                                                              | Criticality | Assigned Criticality |
|-------------------------------------|-------------------|-------|--------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-------------|----------------------|
| <i>Coordinates</i>                  |                   |       |                                                                    |                                                                                                    |             |                      |
| >>>>Geographical Coordinates        | M                 |       | 9.3.1.184                                                          |                                                                                                    | -           |                      |
| >>>TRP Type                         |                   |       |                                                                    |                                                                                                    | YES         | reject               |
| >>>>TRP Type                        | M                 |       | ENUMERATED (prs-only-tp, srs-only-rp, tp, rp, trp,..., mobile-trp) | TS 38.305 [42]                                                                                     | -           |                      |
| >>>>On-demand PRS TRP Information   |                   |       |                                                                    |                                                                                                    | YES         | reject               |
| >>>>On-demand PRS TRP Information   | M                 |       | 9.3.1.240                                                          |                                                                                                    | -           |                      |
| >>>TRP Tx TEG Association           |                   |       |                                                                    |                                                                                                    | YES         | reject               |
| >>>>TRP Tx TEG Association          | M                 |       | 9.3.1.252                                                          |                                                                                                    | -           |                      |
| >>>TRP Beam Antenna                 |                   |       |                                                                    |                                                                                                    | YES         | reject               |
| >>>>TRP Beam Antenna Information    | M                 |       | 9.3.1.256                                                          |                                                                                                    | -           |                      |
| >>>Mobile TRP Location              |                   |       |                                                                    |                                                                                                    |             |                      |
| >>>>Mobile TRP Location Information | M                 |       | 9.3.1.304                                                          |                                                                                                    | YES         | ignore               |
| Mobile IAB-MT UE ID                 | C-<br>ifMobileTRP |       | OCTET STRING                                                       | The UE ID of the IAB-MT associated with the mobile TRP, includes GPSI as defined in TS 29.571 [50] | YES         | reject               |

| Range bound         | Explanation                                                                                           |
|---------------------|-------------------------------------------------------------------------------------------------------|
| maxnoofTRPInfoTypes | Maximum no of TRP information types that can be requested and reported with one message. Value is 64. |

| Condition   | Explanation                                                                         |
|-------------|-------------------------------------------------------------------------------------|
| ifMobileTRP | This IE shall be present if the <i>TRP type</i> IE is set to the value 'mobile-trp' |

### 9.3.1.177 PRS Configuration

This information element contains the DL PRS configuration for the TRP.

| IE/Group Name                | Presence | Range                        | IE Type and Reference                         | Semantics Description | Criticality | Assigned Criticality |
|------------------------------|----------|------------------------------|-----------------------------------------------|-----------------------|-------------|----------------------|
| <b>PRS Resource Set List</b> | M        | 1..<maxno ofPRSresourceSets> |                                               |                       | -           |                      |
| >PRS Resource Set ID         | M        |                              | INTEGER(0..7)                                 |                       | -           |                      |
| >Subcarrier Spacing          | M        |                              | ENUMERATED (kHz15, kHz30, kHz60, kHz120, ...) |                       | -           |                      |

| IE/Group Name                   | Presence | Range                       | IE Type and Reference                                                                                            | Semantics Description                                                                                   | Criticality | Assigned Criticality |
|---------------------------------|----------|-----------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|-------------|----------------------|
| >PRS bandwidth                  | M        |                             | INTEGER(1..63)                                                                                                   | 24,28,...,272 PRBs                                                                                      | -           |                      |
| >Start PRB                      | M        |                             | INTEGER(0..2176)                                                                                                 | Starting PRB to Point A                                                                                 | -           |                      |
| >Point A                        | M        |                             | INTEGER (0..3279165)                                                                                             | NR ARFCN                                                                                                | -           |                      |
| >Comb Size                      | M        |                             | ENUMERATED (2, 4, 6, 12, ...)                                                                                    |                                                                                                         | -           |                      |
| >CP Type                        | M        |                             | ENUMERATED (normal, extended, ...)                                                                               |                                                                                                         | -           |                      |
| >Resource Set Periodicity       | M        |                             | ENUMERATED (4,5,8,10,16,20, 32,40,64,80,160,320,640,1280, 2560,5120,10240,20480,40960,81920, ..., 128, 256, 512) | Slots                                                                                                   | -           |                      |
| >Resource Set Slot Offset       | M        |                             | INTEGER(0..81919,...)                                                                                            |                                                                                                         | -           |                      |
| >Resource Repetition Factor     | M        |                             | ENUMERATED (rf1,rf2,rf4,rf6,rf8,rf16,rf32,...)                                                                   |                                                                                                         | -           |                      |
| >Resource Time Gap              | M        |                             | ENUMERATED (tg1,tg2,tg4,tg8, tg16,tg32,...)                                                                      |                                                                                                         | -           |                      |
| >Resource Number of Symbols     | M        |                             | ENUMERATED (n2,n4,n6,n12, ...,n1)                                                                                |                                                                                                         | -           |                      |
| >PRS Muting                     | O        |                             |                                                                                                                  |                                                                                                         | -           |                      |
| >>Option1                       | O        |                             |                                                                                                                  |                                                                                                         | -           |                      |
| >>>Muting Pattern               | M        |                             | DL-PRS Muting Pattern 9.3.1.178                                                                                  | Muting pattern option 1 is used to mute the whole PRS resource set (within a period)                    | -           |                      |
| >>>Muting Bit Repetition Factor | M        |                             | ENUMERATED (rf1,rf2,rf4,rf8,...)                                                                                 |                                                                                                         | -           |                      |
| >>Option2                       | O        |                             |                                                                                                                  |                                                                                                         | -           |                      |
| >>>Muting Pattern               | M        |                             | DL-PRS Muting Pattern 9.3.1.178                                                                                  | Muting pattern option 2 is used to mute the selected repetition of the resource set (within the period) | -           |                      |
| >PRS Resource Transmit Power    | M        |                             | INTEGER(-60..50)                                                                                                 |                                                                                                         | -           |                      |
| >PRS Resource List              | M        | 1..<maxno of PRS resources> |                                                                                                                  | NR-DL-PRS-Resource-r16 as defined in TS 37.355 [39]                                                     | -           |                      |
| >>PRS Resource ID               | M        |                             | INTEGER(0..63)                                                                                                   |                                                                                                         | -           |                      |
| >>Sequence ID                   | M        |                             | INTEGER(0..4095)                                                                                                 |                                                                                                         | -           |                      |
| >>RE Offset                     | M        |                             | INTEGER(0..11, ...)                                                                                              |                                                                                                         | -           |                      |
| >>Resource Slot Offset          | M        |                             | INTEGER(0..511)                                                                                                  |                                                                                                         | -           |                      |
| >>Resource Symbol Offset        | M        |                             | INTEGER(0..12)                                                                                                   | This IE is ignored if the <i>Extended Resource Symbol Offset</i> IE is                                  | -           |                      |

| IE/Group Name                      | Presence | Range | IE Type and Reference | Semantics Description                                                        | Criticality | Assigned Criticality |
|------------------------------------|----------|-------|-----------------------|------------------------------------------------------------------------------|-------------|----------------------|
|                                    |          |       |                       | present.                                                                     |             |                      |
| >>CHOICE QCL Info                  | O        |       |                       |                                                                              | -           |                      |
| >>>SSB                             |          |       |                       |                                                                              |             |                      |
| >>>>PCI                            | M        |       | INTEGER (0..1007)     |                                                                              | -           |                      |
| >>>>SSB Index                      | O        |       | INTEGER(0..63)        |                                                                              | -           |                      |
| >>>DL-PRS                          |          |       |                       |                                                                              |             |                      |
| >>>>QCL Source PRS Resource Set ID | M        |       | INTEGER(0..7)         |                                                                              | -           |                      |
| >>>>QCL Source PRS Resource ID     | O        |       | INTEGER(0..63)        | If absent, the QCL source PRS resource ID is the same as the PRS resource ID | -           |                      |
| >>Extended Resource Symbol Offset  | O        |       | INTEGER(0..13,...)    |                                                                              | YES         | ignore               |
| Aggregated PRS Resource Set List   | O        |       | 9.3.1.338             |                                                                              | YES         | ignore               |

| Range bound            | Explanation                                                    |
|------------------------|----------------------------------------------------------------|
| maxnoofPRSresourceSets | Maximum no of PRS resource sets. Value is 8.                   |
| maxnoofPRSresources    | Maximum no of PRS resources per PRS resource set. Value is 64. |

### 9.3.1.178 DL-PRS Muting Pattern

This information element contains the DL-PRS muting pattern.

| IE/Group Name                | Presence | Range | IE Type and Reference | Semantics Description |
|------------------------------|----------|-------|-----------------------|-----------------------|
| CHOICE DL-PRS Muting Pattern | M        |       |                       |                       |
| >Two                         |          |       |                       |                       |
| >>Two                        | M        |       | BIT STRING (SIZE(2))  |                       |
| >Four                        |          |       |                       |                       |
| >>Four                       | M        |       | BIT STRING (SIZE(4))  |                       |
| >Six                         |          |       |                       |                       |
| >>Six                        | M        |       | BIT STRING (SIZE(6))  |                       |
| >Eight                       |          |       |                       |                       |
| >>Eight                      | M        |       | BIT STRING (SIZE(8))  |                       |
| >Sixteen                     |          |       |                       |                       |
| >>Sixteen                    | M        |       | BIT STRING (SIZE(16)) |                       |
| >Thirty-two                  |          |       |                       |                       |
| >>Thirty-two                 | M        |       | BIT STRING (SIZE(32)) |                       |

### 9.3.1.179 Spatial Direction Information

This information element contains the spatial direction information of the DL PRS resources for the TRP.

| IE/Group Name           | Presence | Range | IE Type and Reference | Semantics Description                              |
|-------------------------|----------|-------|-----------------------|----------------------------------------------------|
| NR-PRS Beam Information | M        |       | 9.3.1.198             | The spatial directions of DL-PRS Resources for TRP |

### 9.3.1.180 SRS Resource Set ID

This information element indicates a resource set in the UE for UL SRS transmission.

| IE/Group Name       | Presence | Range | IE Type and Reference | Semantics Description      |
|---------------------|----------|-------|-----------------------|----------------------------|
| SRS Resource Set ID | M        |       | INTEGER (0..15, ...)  | According to TS 38.331 [8] |

### 9.3.1.181 Spatial Relation Information

This information element indicates a spatial relation for transmission of UL SRS by a UE.

| IE/Group Name                                    | Presence | Range                                   | IE Type and Reference | Semantics Description                         |
|--------------------------------------------------|----------|-----------------------------------------|-----------------------|-----------------------------------------------|
| <b>Spatial Relation for Resource ID</b>          |          | <i>1</i>                                |                       | According to TS 38.321 [16] and TS 38.331 [8] |
| <b>&gt;Spatial Relation for Resource ID Item</b> |          | <i>1..&lt;maxnoSpatialRelations&gt;</i> |                       |                                               |
| >>CHOICE <i>Reference Signal</i>                 | M        |                                         |                       |                                               |
| >>>NZP CSI-RS                                    |          |                                         |                       |                                               |
| >>>>NZP CSI-RS Resource ID                       | M        |                                         | INTEGER (0..191)      |                                               |
| >>>SSB                                           |          |                                         |                       |                                               |
| >>>>PCI                                          | M        |                                         | INTEGER (0..1007)     |                                               |
| >>>>SSB Index                                    | O        |                                         | INTEGER (0..63)       |                                               |
| >>>SRS                                           |          |                                         |                       |                                               |
| >>>>SRS Resource ID                              | M        |                                         | INTEGER (0..63)       |                                               |
| >>>Positioning SRS                               |          |                                         |                       |                                               |
| >>>>Positioning SRS Resource ID                  | M        |                                         | INTEGER (0..63)       |                                               |
| >>>DL-PRS                                        |          |                                         |                       |                                               |
| >>>>DL-PRS ID                                    | M        |                                         | INTEGER (0..255)      |                                               |
| >>>>DL-PRS Resource Set ID                       | M        |                                         | INTEGER (0..7)        |                                               |
| >>>>DL PRS Resource ID                           | O        |                                         | INTEGER (0..63)       |                                               |

| Range bound           | Explanation                                                           |
|-----------------------|-----------------------------------------------------------------------|
| maxnoSpatialRelations | Maximum no. of Spatial Relations that can be configured. Value is 64. |

### 9.3.1.182 SRS Resource Trigger

This information element indicates a DCI code point according to a SRS resource set configuration.

| IE/Group Name                              | Presence | Range                                      | IE Type and Reference | Semantics Description      |
|--------------------------------------------|----------|--------------------------------------------|-----------------------|----------------------------|
| <b>Aperiodic SRS Resource Trigger List</b> |          | <i>1..&lt;maxnoSRS - TriggerStates&gt;</i> |                       | According to TS 38.331 [8] |
| >Aperiodic SRS Resource Trigger            |          |                                            | INTEGER (1..3)        |                            |

| Range bound            | Explanation                                    |
|------------------------|------------------------------------------------|
| maxnoSRS-TriggerStates | Maximum no. of SRS trigger states. Value is 3. |

### 9.3.1.183 Relative Time 1900

This information element indicates the initialisation time (e.g. SFN Initialisation Time for a cell, requested time for an action, etc).

| IE/Group Name      | Presence | Range | IE Type and Reference    | Semantics Description                                                                                                                                                                                                                                                                                                                                       |
|--------------------|----------|-------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Relative Time 1900 | M        |       | BIT STRING<br>(SIZE(64)) | Time in seconds relative to 00:00:00 on 1 January 1900 (calculated as continuous time without leap seconds and traceable to a common time reference) where binary encoding of the integer part is in the first 32 bits and binary encoding of the fraction part in the last 32 bits. The fraction part is expressed with a granularity of $1/2^{32}$ second |

### 9.3.1.184 Geographical Coordinates

This information element contains the geographical coordinates for the TRP and any associated ARP(s).

| IE/Group Name                         | Presence | Range | IE Type and Reference                                   | Semantics Description                                                                        | Criticality | Assigned Criticality |
|---------------------------------------|----------|-------|---------------------------------------------------------|----------------------------------------------------------------------------------------------|-------------|----------------------|
| CHOICE TRP Position Definition Type   | M        |       |                                                         |                                                                                              | -           |                      |
| >Direct                               |          |       |                                                         |                                                                                              |             |                      |
| >>CHOICE Accuracy                     | M        |       |                                                         |                                                                                              | -           |                      |
| >>>normal accuracy                    |          |       |                                                         |                                                                                              |             |                      |
| >>>>TRP Position                      | M        |       | NG-RAN Access Point Position<br>9.3.1.174               | The configured estimated geographical position of the antenna of the cell/TRP.               | -           |                      |
| >>>>high accuracy                     |          |       |                                                         |                                                                                              |             |                      |
| >>>>TRP High Accuracy Access Position | M        |       | NG-RAN High Accuracy Access Point Position<br>9.3.1.190 | The configured estimated geographical high accuracy position of the antenna of the cell/TRP. | -           |                      |
| >Referenced                           |          |       |                                                         |                                                                                              |             |                      |
| >>Reference Point                     | M        |       | 9.3.1.188                                               | The reference point is used to derive the TRP position                                       | -           |                      |
| >>CHOICE Type                         | M        |       |                                                         |                                                                                              | -           |                      |
| >>>Geodetic                           |          |       |                                                         |                                                                                              |             |                      |
| >>>>TRP Position Relative Geodetic    | M        |       | Relative Geodetic Location<br>9.3.1.186                 | The configured estimated relative geodetic coordinate of the antenna of the cell/TRP         | -           |                      |
| >>>>Cartesian                         |          |       |                                                         |                                                                                              |             |                      |
| >>>>TRP Position Relative Cartesian   | M        |       | Relative Cartesian                                      | The configured estimated relative                                                            | -           |                      |

| IE/Group Name               | Presence | Range | IE Type and Reference | Semantics Description                                      | Criticality | Assigned Criticality |
|-----------------------------|----------|-------|-----------------------|------------------------------------------------------------|-------------|----------------------|
|                             |          |       | Location<br>9.3.1.187 | Cartesian coordinate of the antenna of the cell/TRP        |             |                      |
| DL-PRS Resource Coordinates | O        |       | 9.3.1.185             | DL-PRS Resource Coordinates relative to the TRP coordinate | -           |                      |
| ARP Location Information    | O        |       | 9.3.1.243             |                                                            | YES         | ignore               |

### 9.3.1.185 DL-PRS Resource Coordinates

This information element contains the geographical coordinates of the antenna reference points (ARP) for the DL-PRS Resources of a TRP.

| IE/Group Name                                   | Presence | Range                                        | IE Type and Reference | Semantics Description                                                                                                                               |
|-------------------------------------------------|----------|----------------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>DL-PRS Resource Set ARP List</b>             | M        | <i>1..&lt;maxnoofPRS-ResourceSets&gt;</i>    |                       |                                                                                                                                                     |
| >DL-PRS Resource Set ID                         | M        |                                              | INTEGER (0..7)        |                                                                                                                                                     |
| >CHOICE <i>DL-PRS Resource Set ARP Location</i> | M        |                                              |                       | Relative to the geographical coordinates for the TRP. If this IE is absent, the Relative Location is zero for the indicated DL-PRS Resource Set ID. |
| >>Geodetic                                      |          |                                              |                       |                                                                                                                                                     |
| >>>Relative Geodetic Location                   | M        |                                              | 9.3.1.186             |                                                                                                                                                     |
| >>Cartesian                                     |          |                                              |                       |                                                                                                                                                     |
| >>>Relative Cartesian Location                  | M        |                                              | 9.3.1.187             |                                                                                                                                                     |
| <b>&gt;DL-PRS Resource ARP List</b>             | M        | <i>1..&lt;maxnoofPRS-ResourcesPerSet&gt;</i> |                       |                                                                                                                                                     |
| >>DL-PRS Resource ID                            | M        |                                              | INTEGER (0..63)       |                                                                                                                                                     |
| >>CHOICE <i>DL-PRS Resource ARP Location</i>    | M        |                                              |                       | Relative to the DL-PRS Resource Set ARP Location. If this IE is absent, the Relative Location is zero for the indicated DL-PRS Resource ID.         |
| >>>Geodetic                                     |          |                                              |                       |                                                                                                                                                     |
| >>>>Relative Geodetic Location                  | M        |                                              | 9.3.1.186             |                                                                                                                                                     |
| >>>Cartesian                                    |          |                                              |                       |                                                                                                                                                     |
| >>>>Relative Cartesian Location                 | M        |                                              | 9.3.1.187             |                                                                                                                                                     |

| Range bound                | Explanation                                                                        |
|----------------------------|------------------------------------------------------------------------------------|
| maxnoofPRS-ResourceSets    | Maximum no of DL-PRS resource sets per TRP. Value is 2.                            |
| maxnoofPRS-ResourcesPerSet | Maximum no of DL-PRS resources of the DL-PRS resource set of the TRP. Value is 64. |

### 9.3.1.186 Relative Geodetic Location

This information element provides a location relative to some known reference location in a relative geodetic coordinate system.

| IE/Group Name          | Presence | Range | IE Type and Reference          | Semantics Description                                                                     |
|------------------------|----------|-------|--------------------------------|-------------------------------------------------------------------------------------------|
| Milli-Arc-Second Units | M        |       | ENUMERATED (0.03, 0.3, 3, ...) | Units and scale factor for the delta-latitude and delta-longitude fields, TS 37.355 [39]. |
| Height Units           | M        |       | ENUMERATED (mm, cm, m, ...)    | Units and scale factor for the delta-height field, TS 37.355 [39].                        |
| Delta Latitude         | M        |       | INTEGER (-1024..1023)          | Delta value in latitude in the unit provided in Milli-Arc-Second Units, TS 37.355 [39].   |
| Delta Longitude        | M        |       | INTEGER (-1024..1023)          | Delta value in longitude in the unit provided in Milli-Arc-Second Units, TS 37.355 [39].  |
| Delta Height           | M        |       | INTEGER (-1024..1023)          | Delta value in ellipsoidal height in the unit provided in Height Units, TS 37.355 [39].   |
| Location uncertainty   | M        |       | 9.3.1.189                      |                                                                                           |

### 9.3.1.187 Relative Cartesian Location

This information element provides a location relative to some known reference location in a relative Cartesian coordinate.

| IE/Group Name        | Presence | Range | IE Type and Reference           | Semantics Description                                                                                                             |
|----------------------|----------|-------|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| XYZ unit             | M        |       | ENUMERATED (mm, cm, dm,...)     |                                                                                                                                   |
| X value              | M        |       | INTEGER ( $-2^{16}..2^{16}-1$ ) | Positive value represents easting from reference point, in units of <i>XYZ Unit</i> IE.                                           |
| Y value              | M        |       | INTEGER ( $-2^{16}..2^{16}-1$ ) | Positive value represents northing from reference point in units of <i>XYZ Unit</i> IE.                                           |
| Z value              | M        |       | INTEGER ( $-2^{15}..2^{15}-1$ ) | Height with respect to reference point in units of <i>XYZ Unit</i> IE, where the XY-plane is horizontal and the Z-axis points up. |
| Location uncertainty | M        |       | 9.3.1.189                       |                                                                                                                                   |

### 9.3.1.188 Reference Point

This information element provides a reference point location information.

| IE/Group Name                              | Presence | Range | IE Type and Reference                  | Semantics Description                                                | Criticality | Assigned Criticality |
|--------------------------------------------|----------|-------|----------------------------------------|----------------------------------------------------------------------|-------------|----------------------|
| CHOICE <i>ReferencePoint</i>               | M        |       |                                        | Reference point to which relative location information is related to | -           |                      |
| >Coordinate ID                             |          |       |                                        |                                                                      |             |                      |
| >>Coordinate ID                            | M        |       | INTEGER(0.. $2^9-1$ ,...)              | Referential ID mapped via OAM                                        | -           |                      |
| >Reference Point Coordinates               |          |       |                                        |                                                                      |             |                      |
| >>Reference Point Position                 | M        |       | NG-RAN Access Point Position 9.3.1.174 |                                                                      | -           |                      |
| >Reference Point Coordinates High Accuracy |          |       |                                        |                                                                      |             |                      |



| IE/Group Name                                   | Presence | Range | IE Type and Reference                                   | Semantics Description                                                                                                 | Criticality | Assigned Criticality |
|-------------------------------------------------|----------|-------|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| >>Reference Point High Accuracy Access Position | M        |       | NG-RAN High Accuracy Access Point Position<br>9.3.1.190 |                                                                                                                       | -           |                      |
| >LocalOrigin                                    |          |       |                                                         |                                                                                                                       | YES         | ignore               |
| >>Coordinate ID                                 | M        |       | INTEGER(0.. 2 <sup>9</sup> -1,...)                      | Referential ID mapped via OAM                                                                                         | -           |                      |
| >>Horizontal Axes Orientation                   | M        |       | INTEGER (0..3599)                                       | Indicates the local coordinate system horizontal orientation angle clockwise from northing. Scale factor 0.1 degrees. | -           |                      |
| >>Reference Point High Accuracy Access Position | O        |       | NG-RAN High Accuracy Access Point Position<br>9.3.1.190 |                                                                                                                       | -           |                      |

### 9.3.1.189 Location Uncertainty

This information element provides the location uncertainty information.

| IE/Group Name          | Presence | Range | IE Type and Reference | Semantics Description                                                                                                                    |
|------------------------|----------|-------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Horizontal Uncertainty | M        |       | INTEGER (0..255)      | Horizontal uncertainty of the ARP latitude/longitude. Corresponds to the encoded high accuracy uncertainty as defined in TS 23.032 [36]. |
| Horizontal Confidence  | M        |       | INTEGER (0..100)      | Corresponds to confidence as defined in TS 23.032 [36].                                                                                  |
| Vertical Uncertainty   | M        |       | INTEGER (0..255)      | Vertical uncertainty of the ARP altitude. Corresponds to the encoded high accuracy uncertainty as defined in TS 23.032 [36].             |
| Vertical Confidence    | M        |       | INTEGER (0..100)      | Corresponds to confidence as defined in TS 23.032 [36].                                                                                  |

### 9.3.1.190 NG-RAN High Accuracy Access Point Position

The *NG-RAN High Accuracy Access Point Position* IE is used to identify the geographical position of an NG-RAN Access Point. It is expressed as High Accuracy Ellipsoid point with altitude and uncertainty ellipsoid according to TS 23.032 [36].

| IE/Group Name          | Presence | Range | IE Type and Reference            | Semantics Description |
|------------------------|----------|-------|----------------------------------|-----------------------|
| Degrees of Latitude    | M        |       | INTEGER(-2147483648..2147483647) |                       |
| Degrees of Longitude   | M        |       | INTEGER(-2147483648..2147483647) |                       |
| Altitude               | M        |       | INTEGER(-64000..1280000)         |                       |
| Uncertainty Semi Major | M        |       | INTEGER (0..255)                 |                       |
| Uncertainty Semi Minor | M        |       | INTEGER (0..255)                 |                       |
| Orientation Major Axis | M        |       | INTEGER (0..179)                 |                       |

| IE/Group Name         | Presence | Range | IE Type and Reference | Semantics Description |
|-----------------------|----------|-------|-----------------------|-----------------------|
| Horizontal Confidence | M        |       | INTEGER (0..100)      |                       |
| Uncertainty Altitude  | M        |       | INTEGER (0..255)      |                       |
| Vertical Confidence   | M        |       | INTEGER (0..100)      |                       |

### 9.3.1.191 Positioning Broadcast Cells

This IE is used to indicate the cells that are requested to broadcast, or failed to broadcast, the associated posSIB(s).

| IE/Group Name                      | Presence | Range                     | IE type and reference | Semantics description |
|------------------------------------|----------|---------------------------|-----------------------|-----------------------|
| <b>Positioning Broadcast Cells</b> |          | 1 ..<br><maxnoBcast Cell> |                       |                       |
| >NR CGI                            | M        |                           | 9.3.1.12              |                       |

| Range bound     | Explanation                                                            |
|-----------------|------------------------------------------------------------------------|
| maxnoBcastCells | Maximum no. of cells broadcasting a posSIB in a NB-DU. Value is 16384. |

### 9.3.1.192 SRS Configuration

This information element contains the SRS configuration configured by the gNB-CU for the UE.

| IE/Group Name                            | Presence | Range                   | IE Type and Reference                                        | Semantics Description                                  | Criticality | Assigned Criticality |
|------------------------------------------|----------|-------------------------|--------------------------------------------------------------|--------------------------------------------------------|-------------|----------------------|
| <b>SRS Carrier List</b>                  |          | 1..<maxno SRS-Carriers> |                                                              |                                                        | -           |                      |
| >Point A                                 | M        |                         | INTEGER (0..3279165)                                         | NR ARFCN                                               | -           |                      |
| <b>&gt;Uplink Channel BW-PerSCS-List</b> |          | 1..<maxno SCSs>         |                                                              | SCS-SpecificCarrier TS 38.331 [8]                      | -           |                      |
| >>Offset To Carrier                      | M        |                         | INTEGER(0..21 99,...)                                        | First usable RB to Point A in the number of PRBs       | -           |                      |
| >>Subcarrier Spacing                     | M        |                         | ENUMERATED (kHz15, kHz30, kHz60, kHz120,..., kHz480, kHz960) |                                                        | -           |                      |
| >>Carrier Bandwidth                      | M        |                         | INTEGER(1..27 5,...)                                         |                                                        | -           |                      |
| <b>&gt;Active UL BWP</b>                 | M        |                         |                                                              | Only the configuration in the active UL BWP is needed. | -           |                      |
| >>Location And Bandwidth                 | M        |                         | INTEGER(0..37 949,...)                                       | BWP TS 38.331 [8]                                      | -           |                      |
| >>Subcarrier Spacing                     | M        |                         | ENUMERATED (kHz15, kHz30, kHz60, kHz120,..., kHz480, kHz960) |                                                        | -           |                      |
| >>Cyclic Prefix                          | M        |                         | ENUMERATED (Normal, Extended)                                |                                                        | -           |                      |
| >>Tx Direct Current                      | M        |                         | INTEGER(0..33                                                |                                                        | -           |                      |

| IE/Group Name                                | Presence | Range                          | IE Type and Reference | Semantics Description                                      | Criticality | Assigned Criticality |
|----------------------------------------------|----------|--------------------------------|-----------------------|------------------------------------------------------------|-------------|----------------------|
| Location                                     |          |                                | 01,...)               |                                                            |             |                      |
| >>Shift7dot5kHz                              | O        |                                | ENUMERATED (true,...) |                                                            | -           |                      |
| >>SRS Config                                 | M        |                                |                       | SRS-Config as defined in TS 38.331 [8]                     | -           |                      |
| >>>SRS Resource List                         |          | 0..<maxno SRS-Resources>       |                       |                                                            | -           |                      |
| >>>>SRS Resource                             | M        |                                | 9.3.1.193             | SRS-Resource as defined in TS 38.331 [8]                   | -           |                      |
| >>>Positioning SRS Resource List             |          | 0..<maxno SRS-PosResources>    |                       |                                                            | -           |                      |
| >>>>Positioning SRS Resource                 | M        |                                | 9.3.1.194             | SRS-PosResource-r16 as defined in TS 38.331 [8]            | -           |                      |
| >>>SRS Resource Set List                     |          | 0..<maxno SRS-ResourceSets>    |                       |                                                            | -           |                      |
| >>>>SRS Resource Set                         | M        |                                | 9.3.1.195             | SRS-ResourceSet as defined in TS 38.331 [8]                | -           |                      |
| >>>Positioning SRS Resource Set List         |          | 0..<maxno SRS-PosResourceSets> |                       |                                                            | -           |                      |
| >>>>Positioning SRS Resource Set             | M        |                                | 9.3.1.196             | SRS-PosResourceSet-r16 as defined in TS 38.331 [8]         | -           |                      |
| >PCI                                         | O        |                                | INTEGER (0..1007)     | Physical Cell ID of the cell that contains the SRS carrier | -           |                      |
| Aggregated Positioning SRS Resource Set List | O        |                                | 9.3.1.337             |                                                            | YES         | ignore               |

| Range bound              | Explanation                                                          |
|--------------------------|----------------------------------------------------------------------|
| maxnoSRS-Carriers        | Maximum no of carriers for SRS. Value is 32.                         |
| maxnoSCSs                | Maximum no of SCS spacings for a carrier. Value is 5.                |
| maxnoSRS-Resources       | Maximum no of SRS resources per UL BWP. Value is 64.                 |
| maxnoSRS-PosResources    | Maximum no of positioning SRS resources per UL BWP. Value is 64.     |
| maxnoSRS-ResourceSets    | Maximum no of SRS resource sets. Value is 16.                        |
| maxnoSRS-PosResourceSets | Maximum no of positioning SRS resource sets per UL BWP. Value is 16. |

### 9.3.1.193 SRS Resource

This information element contains the SRS resource.

| IE/Group Name   | Presence | Range | IE Type and Reference | Semantics Description | Criticality | Assigned Criticality |
|-----------------|----------|-------|-----------------------|-----------------------|-------------|----------------------|
| SRS Resource ID | M        |       | INTEGER (0..63)       |                       | -           |                      |
| Number of Ports | M        |       | ENUMERATED            |                       | -           |                      |

| IE/Group Name                   | Presence | Range | IE Type and Reference                                                                                                                                      | Semantics Description                                                       | Criticality | Assigned Criticality |
|---------------------------------|----------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------|----------------------|
|                                 |          |       | (ports1, ports2, ports4)                                                                                                                                   |                                                                             |             |                      |
| CHOICE <i>Transmission Comb</i> | M        |       |                                                                                                                                                            |                                                                             | -           |                      |
| > <i>Comb Two</i>               |          |       |                                                                                                                                                            |                                                                             |             |                      |
| >> <i>Comb Offset</i>           | M        |       | INTEGER(0..1)                                                                                                                                              |                                                                             | -           |                      |
| >> <i>Cyclic Shift</i>          | M        |       | INTEGER(0..7)                                                                                                                                              |                                                                             | -           |                      |
| > <i>Comb Four</i>              |          |       |                                                                                                                                                            |                                                                             |             |                      |
| >> <i>Comb Offset</i>           | M        |       | INTEGER(0..3)                                                                                                                                              |                                                                             | -           |                      |
| >> <i>Cyclic Shift</i>          | M        |       | INTEGER(0..11)                                                                                                                                             |                                                                             | -           |                      |
| > <i>Comb Eight</i>             | M        |       |                                                                                                                                                            |                                                                             | YES         | reject               |
| >> <i>Comb Offset</i>           | M        |       | INTEGER(0..7)                                                                                                                                              |                                                                             | -           |                      |
| >> <i>Cyclic Shift</i>          | M        |       | INTEGER(0..5)                                                                                                                                              |                                                                             | -           |                      |
| Start Position                  | M        |       | INTEGER(0..13)                                                                                                                                             |                                                                             | -           |                      |
| Number of Symbols               | M        |       | ENUMERATED (1,2,4)                                                                                                                                         | This IE is ignored if the <i>Number of Symbols Extended</i> IE is included. | -           |                      |
| Repetition Factor               | M        |       | ENUMERATED (1,2,4)                                                                                                                                         | This IE is ignored if the <i>Repetition Factor Extended</i> IE is included. | -           |                      |
| Frequency Domain Position       | M        |       | INTEGER(0..67)                                                                                                                                             |                                                                             | -           |                      |
| Frequency Domain Shift          | M        |       | INTEGER(0..268)                                                                                                                                            |                                                                             | -           |                      |
| C-SRS                           | M        |       | INTEGER(0..63)                                                                                                                                             |                                                                             | -           |                      |
| B-SRS                           | M        |       | INTEGER(0..3)                                                                                                                                              |                                                                             | -           |                      |
| B-Hop                           | M        |       | INTEGER(0..3)                                                                                                                                              |                                                                             | -           |                      |
| Group or Sequence Hopping       | M        |       | ENUMERATED (Neither, groupHopping, sequenceHopping)                                                                                                        |                                                                             | -           |                      |
| CHOICE <i>Resource Type</i>     | M        |       |                                                                                                                                                            |                                                                             | -           |                      |
| > <i>Periodic</i>               |          |       |                                                                                                                                                            |                                                                             |             |                      |
| >>Periodicity                   | M        |       | ENUMERATED (slot1, slot2, slot4, slot5, slot8, slot10, slot16, slot20, slot32, slot40, slot64, slot80, slot160, slot320, slot640, slot1280, slot2560, ...) |                                                                             | -           |                      |
| >>Offset                        | M        |       | INTEGER(0..2559, ...)                                                                                                                                      |                                                                             | -           |                      |
| > <i>Semi-persistent</i>        |          |       |                                                                                                                                                            |                                                                             |             |                      |
| >>Periodicity                   | M        |       | ENUMERATED (slot1, slot2, slot4, slot5, slot8, slot10, slot16, slot20, slot32, slot40, slot64, slot80, slot160, slot320, slot640,                          |                                                                             | -           |                      |

| IE/Group Name              | Presence | Range | IE Type and Reference                               | Semantics Description | Criticality | Assigned Criticality |
|----------------------------|----------|-------|-----------------------------------------------------|-----------------------|-------------|----------------------|
|                            |          |       | slot1280,<br>slot2560, ...)                         |                       |             |                      |
| >>Offset                   | M        |       | INTEGER(0..2559, ...)                               |                       | -           |                      |
| >Aperiodic                 |          |       |                                                     |                       |             |                      |
| >>Aperiodic Resource Type  | M        |       | ENUMERATED (true,...)                               |                       | -           |                      |
| Sequence ID                | M        |       | INTEGER(0..1023)                                    |                       | -           |                      |
| Number of Symbols Extended | O        |       | ENUMERATED (n8,n10,n12, n14, ...)                   |                       | YES         | ignore               |
| Repetition Factor Extended | O        |       | ENUMERATED (r3, r5, r6, r7, r8, r10, r12, r14, ...) |                       | YES         | ignore               |
| Start RB Hopping           | O        |       | ENUMERATED (enable)                                 |                       | YES         | ignore               |
| CHOICE Start RB Index      | O        |       |                                                     |                       | YES         | ignore               |
| >FreqScalingFactor2        |          |       | INTEGER (0..1)                                      |                       | -           |                      |
| >FreqScalingFactor4        |          |       | INTEGER (0..3)                                      |                       | -           |                      |

### 9.3.1.194 Positioning SRS Resource

This information element contains the SRS resource for positioning.

| IE/Group Name                               | Presence | Range | IE Type and Reference                               | Semantics Description | Criticality | Assigned Criticality |
|---------------------------------------------|----------|-------|-----------------------------------------------------|-----------------------|-------------|----------------------|
| Positioning SRS Resource ID                 | M        |       | INTEGER (0..63)                                     |                       | -           |                      |
| CHOICE <i>Transmission Comb Positioning</i> | M        |       |                                                     |                       | -           |                      |
| >Comb Two                                   |          |       |                                                     |                       |             |                      |
| >>Comb Offset                               | M        |       | INTEGER(0..1)                                       |                       | -           |                      |
| >>Cyclic Shift                              | M        |       | INTEGER(0..7)                                       |                       | -           |                      |
| >Comb Four                                  |          |       |                                                     |                       |             |                      |
| >>Comb Offset                               | M        |       | INTEGER(0..3)                                       |                       | -           |                      |
| >>Cyclic Shift                              | M        |       | INTEGER(0..11)                                      |                       | -           |                      |
| >Comb Eight                                 |          |       |                                                     |                       |             |                      |
| >>Comb Offset                               | M        |       | INTEGER(0..7)                                       |                       | -           |                      |
| >>Cyclic Shift                              | M        |       | INTEGER(0..5)                                       |                       | -           |                      |
| Start Position                              | M        |       | INTEGER(0..13)                                      |                       | -           |                      |
| Number of Symbols                           | M        |       | ENUMERATED (1,2,4,8,12)                             |                       | -           |                      |
| Frequency Domain Shift                      | M        |       | INTEGER(0..268)                                     |                       | -           |                      |
| C-SRS                                       | M        |       | INTEGER(0..63)                                      |                       | -           |                      |
| Group or Sequence Hopping                   | M        |       | ENUMERATED (Neither, groupHopping, sequenceHopping) |                       | -           |                      |
| CHOICE <i>Resource Type Positioning</i>     | M        |       |                                                     |                       | -           |                      |
| >Periodic                                   |          |       |                                                     |                       |             |                      |
| >>Periodicity                               | M        |       | SRS Periodicity 9.3.1.342                           |                       | -           |                      |
| >>Offset                                    | M        |       | INTEGER(0..81919,...)                               |                       | -           |                      |
| >>SRS                                       | O        |       | ENUMERATED                                          | Indicates even or     | YES         | ignore               |

| IE/Group Name                                  | Presence | Range | IE Type and Reference        | Semantics Description                                                                                                 | Criticality | Assigned Criticality |
|------------------------------------------------|----------|-------|------------------------------|-----------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| PosPeriodicConfigHy<br>perSFN Index            |          |       | (even0, odd1)                | odd hyper SFN in which the SRS for positioning is transmitted for the periodicity value of 20480ms.                   |             |                      |
| > <i>Semi-persistent</i>                       |          |       |                              |                                                                                                                       |             |                      |
| >>Periodicity                                  | M        |       | SRS Periodicity<br>9.3.1.342 |                                                                                                                       | -           |                      |
| >>Offset                                       | M        |       | INTEGER(0..81<br>919,...)    |                                                                                                                       | -           |                      |
| >>SRS<br>PosPeriodicConfigHy<br>perSFN Index   | O        |       | ENUMERATED<br>(even0, odd1)  | Indicates even or odd hyper SFN in which the SRS for positioning is transmitted for the periodicity value of 20480ms. | YES         | ignore               |
| > <i>Aperiodic</i>                             |          |       |                              |                                                                                                                       |             |                      |
| >>Slot offset                                  | M        |       | INTEGER(0..32<br>)           |                                                                                                                       | -           |                      |
| Sequence ID                                    | M        |       | INTEGER(0..65<br>535)        |                                                                                                                       | -           |                      |
| CHOICE <i>Spatial<br/>Relation Positioning</i> | O        |       |                              |                                                                                                                       | -           |                      |
| > <i>SSB</i>                                   |          |       |                              |                                                                                                                       |             |                      |
| >>PCI                                          | M        |       | INTEGER<br>(0..1007)         |                                                                                                                       | -           |                      |
| >>SSB index                                    | O        |       | INTEGER(0..63<br>)           |                                                                                                                       | -           |                      |
| > <i>PRS</i>                                   |          |       |                              |                                                                                                                       |             |                      |
| >>PRS ID                                       | M        |       | INTEGER(0..25<br>5)          |                                                                                                                       | -           |                      |
| >>PRS Resource Set<br>ID                       | M        |       | INTEGER(0..7)                |                                                                                                                       | -           |                      |
| >>PRS Resource ID                              | O        |       | INTEGER(0..63<br>)           |                                                                                                                       | -           |                      |
| Tx Hopping<br>Configuration                    | O        |       | 9.3.1.343                    |                                                                                                                       | YES         | ignore               |

### 9.3.1.195 SRS Resource Set

This information element indicates a SRS resource set in the UE for UL SRS transmission.

| IE/Group Name                       | Presence | Range                                | IE Type and Reference    | Semantics Description |
|-------------------------------------|----------|--------------------------------------|--------------------------|-----------------------|
| SRS Resource Set ID                 | M        |                                      | INTEGER(0..15, ...)      |                       |
| <b>SRS Resource ID List</b>         |          | 1..<maxnoSRS<br>-<br>ResourcePerSet> |                          |                       |
| >SRS Resource ID                    | M        |                                      | INTEGER (0..63)          |                       |
| CHOICE <i>Resource Set<br/>Type</i> | M        |                                      |                          |                       |
| > <i>Periodic</i>                   |          |                                      |                          |                       |
| >>PeriodicSet                       | M        |                                      | ENUMERATED(true<br>,...) |                       |
| > <i>Semi-persistent</i>            |          |                                      |                          |                       |
| >>Semi-persistentSet                | M        |                                      | ENUMERATED(true<br>,...) |                       |
| > <i>Aperiodic</i>                  |          |                                      |                          |                       |
| >>SRS Resource Trigger<br>List      | M        |                                      | INTEGER(1..3)            |                       |

| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
|---------------|----------|-------|-----------------------|-----------------------|
| >>Slot offset | M        |       | INTEGER(0..32)        |                       |

| Range bound             | Explanation                                                    |
|-------------------------|----------------------------------------------------------------|
| maxnoSRS-ResourcePerSet | Maximum no of SRS resources per SRS resource set. Value is 16. |

### 9.3.1.196 Positioning SRS Resource Set

This information element indicates a positioning SRS resource set in the UE for UL SRS transmission.

| IE/Group Name                           | Presence | Range                             | IE Type and Reference | Semantics Description | Criticality | Assigned Criticality |
|-----------------------------------------|----------|-----------------------------------|-----------------------|-----------------------|-------------|----------------------|
| Positioning SRS Resource Set ID         | M        |                                   | INTEGER(0..15)        |                       | -           |                      |
| <b>Positioning SRS Resource ID List</b> |          | $1..<maxnoSRS-PosResourcePerSet>$ |                       |                       | -           |                      |
| >Positioning SRS Resource ID            | M        |                                   | INTEGER(0..63)        |                       | -           |                      |
| CHOICE <i>Resource Type</i>             | M        |                                   |                       |                       | -           |                      |
| > <i>Periodic</i>                       |          |                                   |                       |                       | -           |                      |
| >>PosperiodicSet                        | M        |                                   | ENUMERATED(true,...)  |                       | -           |                      |
| > <i>Semi-persistent</i>                |          |                                   |                       |                       | -           |                      |
| >>Possemi-persistentSet                 | M        |                                   | ENUMERATED(true,...)  |                       | -           |                      |
| > <i>Aperiodic</i>                      |          |                                   |                       |                       | -           |                      |
| >>SRS Resource Trigger List             | M        |                                   | INTEGER(1..3)         |                       | -           |                      |

| Range bound                | Explanation                                                                            |
|----------------------------|----------------------------------------------------------------------------------------|
| maxnoSRS-PosResourcePerSet | Maximum no of positioning SRS resources per positioning SRS resource set. Value is 16. |

### 9.3.1.197 TRP ID

The *TRP ID* IE is used to identify a TRP uniquely within a gNB-CU.

| IE/Group Name  | Presence | Range | IE Type and Reference | Semantics Description             |
|----------------|----------|-------|-----------------------|-----------------------------------|
| TRP Identifier | M        |       | INTEGER(1..65535,...) | Identifies a TRP within an gNB-CU |

### 9.3.1.198 NR-PRS Beam Information

This IE contains spatial direction information of the DL-PRS Resources.

| IE/Group Name                       | Presence | Range                          | IE Type and Reference | Semantics Description | Criticality | Assigned Criticality |
|-------------------------------------|----------|--------------------------------|-----------------------|-----------------------|-------------|----------------------|
| <b>NR-PRS Beam Information List</b> |          | 1                              |                       |                       | -           |                      |
| >NR-PRS Beam Information Item       |          | $1..<maxnoofPRS-ResourceSets>$ |                       |                       | -           |                      |

| IE/Group Name               | Presence | Range                             | IE Type and Reference | Semantics Description                                                  | Criticality | Assigned Criticality |
|-----------------------------|----------|-----------------------------------|-----------------------|------------------------------------------------------------------------|-------------|----------------------|
| >>PRS Resource Set ID       | M        |                                   | INTEGER (0..7)        | The resource set in which the resources are associated with the angle. | -           |                      |
| >>PRS Angle List            |          | 1                                 |                       |                                                                        | -           |                      |
| >>>PRS Angle Item           |          | 1..<maxnoofPRS-ResourcesPerSet>   |                       |                                                                        | -           |                      |
| >>>>NR PRS Azimuth          | M        |                                   | INTEGER (0..359)      |                                                                        | -           |                      |
| >>>>NR PRS Azimuth fine     | O        |                                   | INTEGER (0..9)        | Fine angles                                                            | -           |                      |
| >>>>NR PRS Elevation        | O        |                                   | INTEGER (0..180)      |                                                                        | -           |                      |
| >>>>NR PRS Elevation fine   | O        |                                   | INTEGER (0..9)        | Fine angles                                                            | -           |                      |
| >>>>PRS Resource ID         | O        |                                   | INTEGER(0..63)        |                                                                        | YES         | ignore               |
| LCS to GCS Translation List |          | 0..1                              |                       | If absent, the azimuth and elevation are provided in GCS.              | -           |                      |
| >LCS to GCS Translation     |          | 1 .. <maxnooflcs-gcs-translation> |                       |                                                                        | -           |                      |
| >>Alpha                     | M        |                                   | INTEGER (0..359)      |                                                                        | -           |                      |
| >>Alpha-fine                | O        |                                   | INTEGER (0..9)        | Fine angles                                                            | -           |                      |
| >>Beta                      | M        |                                   | INTEGER (0..359)      |                                                                        | -           |                      |
| >>Beta-fine                 | O        |                                   | INTEGER (0..9)        | Fine angles                                                            | -           |                      |
| >>Gamma                     | M        |                                   | INTEGER (0..359)      |                                                                        | -           |                      |
| >>Gamma-fine                | O        |                                   | INTEGER (0..9)        | Fine angles                                                            | -           |                      |

| Range bound                | Explanation                                                                                                                                       |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| maxnoofPRS-ResourceSets    | Maximum no of DL-PRS resource sets per TRP. Value is 2.                                                                                           |
| maxnoofPRS-ResourcesPerSet | Maximum no of DL-PRS resources of the DL-PRS resource set of the TRP. Value is 64.                                                                |
| maxnooflcs-gcs-translation | Maximum no. of LCS-GS-Translation-Parameters that can reported with one message. Value is 3. The current version of the specification supports 1. |

### 9.3.1.199 E-CID Measurement Result

The purpose of this IE is to provide the E-CID measurement result.

| IE/Group Name            | Presence | Range | IE Type and Reference | Semantics Description                                                      | Criticality | Assigned Criticality |
|--------------------------|----------|-------|-----------------------|----------------------------------------------------------------------------|-------------|----------------------|
| Geographical Coordinates | O        |       | 9.3.1.184             | The configured estimated geographical position of the antenna of the cell. | -           |                      |
| Measured Results List    |          | 0..1  |                       |                                                                            | -           |                      |
| >E-CID Measured          |          | 1 ..  |                       |                                                                            | -           |                      |



| IE/Group Name                                       | Presence | Range                              | IE Type and Reference                        | Semantics Description                                                                                                 | Criticality | Assigned Criticality |
|-----------------------------------------------------|----------|------------------------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| <b>Results Item</b>                                 |          | <i>&lt;maxnoMeasE-CID&gt;</i>      |                                              |                                                                                                                       |             |                      |
| >>CHOICE<br><i>Measured Results Value</i>           | M        |                                    |                                              |                                                                                                                       | -           |                      |
| >>>Value Angle of Arrival NR                        |          |                                    |                                              |                                                                                                                       |             |                      |
| >>>>Value Angle of Arrival NR                       | M        |                                    | UL Angle of Arrival<br>9.3.1.167             |                                                                                                                       | -           |                      |
| >>>>Value Timing Advance NR                         |          |                                    |                                              |                                                                                                                       |             |                      |
| >>>>>Value Timing Advance NR                        | M        |                                    | INTEGER (0..7690)                            | As defined in TS 38.215 [43]                                                                                          | YES         | ignore               |
| Mobile Access Point Location Information            | O        |                                    | Mobile TRP Location Information<br>9.3.1.304 | The location information of the mobile access point of the cell that is associated to the mobile TRP.                 | YES         | ignore               |
| <b>Measured Results Associated Information List</b> |          | <i>0..1</i>                        |                                              | The <i>Measured Results Associated Information Item</i> IEs are in the same order as the <i>Measured Results</i> IEs. | YES         | ignore               |
| >Measured Results Associated Information Item       |          | <i>1 .. &lt;maxnoMeasE-CID&gt;</i> |                                              |                                                                                                                       | -           |                      |
| >>Time Stamp                                        | O        |                                    | 9.3.1.171                                    | Time Stamp of the corresponding measured result.                                                                      | -           |                      |
| >>Measurement Quality                               | O        |                                    | 9.3.1.172                                    | Measurement Quality of the corresponding measured result.                                                             | -           |                      |

| Range bound    | Explanation                                                                                           |
|----------------|-------------------------------------------------------------------------------------------------------|
| maxnoMeasE-CID | Maximum no. of measured quantities that can be configured and reported with one message. Value is 64. |

### 9.3.1.200 Cell Portion ID

This IE gives the current Cell Portion associated with the target UE. The Cell Portion ID is the unique identifier for a cell portion within a cell.

| IE/Group Name   | Presence | Range | IE type and reference  | Semantics description |
|-----------------|----------|-------|------------------------|-----------------------|
| Cell Portion ID | M        |       | INTEGER (0..4095, ...) |                       |

### 9.3.1.201 Pathloss Reference Information

This information element indicates a pathloss reference for transmission of UL SRS by a UE.

| IE/Group Name                           | Presence | Range | IE Type and Reference | Semantics Description |
|-----------------------------------------|----------|-------|-----------------------|-----------------------|
| CHOICE <i>Pathloss Reference Signal</i> | M        |       |                       |                       |
| >SSB                                    |          |       |                       |                       |
| >>PCI                                   | M        |       | INTEGER (0..1007)     |                       |
| >>SSB Index                             | O        |       | INTEGER (0..63)       |                       |
| >DL-PRS                                 |          |       |                       |                       |
| >>DL-PRS ID                             | M        |       | INTEGER (0..255)      |                       |
| >>DL-PRS Resource Set ID                | M        |       | INTEGER (0..7)        |                       |
| >>DL PRS Resource ID                    | O        |       | INTEGER (0..63)       |                       |

### 9.3.1.202 SSB Information

This information element contains the SSB time/frequency information for the TRPs.

| IE/Group Name               | Presence | Range                        | IE Type and Reference                               | Semantics Description |
|-----------------------------|----------|------------------------------|-----------------------------------------------------|-----------------------|
| <b>SSB Information List</b> |          | <i>1</i>                     |                                                     |                       |
| >SSB Information Item       |          | <i>1...&lt;maxNoSSBs&gt;</i> |                                                     |                       |
| >>SSB Configuration         | M        |                              | SSB<br>Time/Frequency<br>Configuration<br>9.3.1.203 |                       |
| >>PCI                       | M        |                              | INTEGER (0..1007)                                   |                       |

| Range bound | Explanation                                                                   |
|-------------|-------------------------------------------------------------------------------|
| maxNoSSBs   | Maximum no of SSBs for which the configuration can be provided. Value is 255. |

### 9.3.1.203 SSB Time/Frequency Configuration

This information element contains the time and frequency configuration of an SSB.

| IE/Group Name           | Presence | Range | IE Type and Reference                                                | Semantics Description                                                  |
|-------------------------|----------|-------|----------------------------------------------------------------------|------------------------------------------------------------------------|
| SSB frequency           | M        |       | INTEGER (0..3279165)                                                 | ARFCN                                                                  |
| SSB subcarrier spacing  | M        |       | ENUMERATED(kHz 15, kHz30, kHz60, kHz120, kHz240,..., kHz480, kHz960) | The value 60kHz is not supported in this version of the specification. |
| SSB Transmit power      | M        |       | INTEGER (-60..50)                                                    | EPRE of SSS                                                            |
| SSB periodicity         | M        |       | ENUMERATED(ms 5, ms10, ms20, ms40, ms80, ms160, ...)                 |                                                                        |
| SSB half frame index    | M        |       | INTEGER(0..1)                                                        |                                                                        |
| SSB SFN offset          | M        |       | INTEGER(0..15)                                                       |                                                                        |
| SSB Positions in Burst  | O        |       | 9.3.1.138                                                            |                                                                        |
| SFN Initialisation Time | O        |       | Relative Time 1900<br>9.3.1.183                                      |                                                                        |

### 9.3.1.204 Search Window Information

This information element contains search window information for the TRP.

| IE/Group Name              | Presence | Range | IE Type and Reference        | Semantics Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------|----------|-------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Expected Propagation Delay | M        |       | INTEGER<br>(-3841..3841,...) | Indicates when the SRS is expected to arrive in time at the TRP relative to the UL RTOA Reference Time.<br>The UL RTOA Reference Time for a target SRS is defined as $T_0 + t_{\text{SRS}}$ , where<br>- $T_0$ is the SFN Initialisation Time<br>- $t_{\text{SRS}} = (10n_f + n_{\text{sf}}) \times 10^{-3}$ , where $n_f$ and $n_{\text{sf}}$ are the system frame number and the subframe number of the SRS, respectively.<br>Granularity 4Ts, where $T_s = 1/(15 \cdot 10^3 \cdot 2048)$ seconds.<br>Centre of the search window. |
| Delay Uncertainty          | M        |       | INTEGER<br>(1..246,...)      | Indicates the uncertainty of the expected SRS arrival time at the TRP<br>Granularity 4Ts, where $T_s = 1/(15 \cdot 10^3 \cdot 2048)$ seconds.<br>Single-sided search window.                                                                                                                                                                                                                                                                                                                                                         |

### 9.3.1.205 Extended gNB-DU Name

This IE provides extended human readable name of the gNB-DU.

| IE/Group Name       | Presence | Range | IE type and reference                | Semantics description |
|---------------------|----------|-------|--------------------------------------|-----------------------|
| gNB-DU Name Visible | O        |       | VisibleString<br>(SIZE(1..150, ...)) |                       |
| gNB-DU Name UTF8    | O        |       | UTF8String<br>(SIZE(1..150, ...))    |                       |

### 9.3.1.206 Extended gNB-CU Name

This IE provides extended human readable name of the gNB-CU.

| IE/Group Name       | Presence | Range | IE type and reference                | Semantics description |
|---------------------|----------|-------|--------------------------------------|-----------------------|
| gNB-CU Name Visible | O        |       | VisibleString<br>(SIZE(1..150, ...)) |                       |
| gNB-CU Name UTF8    | O        |       | UTF8String<br>(SIZE(1..150, ...))    |                       |

### 9.3.1.207 F1-C Transfer Path

This IE indicates the transmission path of the F1-C traffic.

| IE/Group Name | Presence | Range | IE type and reference      | Semantics description                                                 |
|---------------|----------|-------|----------------------------|-----------------------------------------------------------------------|
| F1-C Path NSA | M        |       | ENUMERATED (lte, nr, both) | This IE indicates the transmission path of the F1-C traffic in EN-DC. |

### 9.3.1.208 SFN Offset

This IE contains the time offset between an absolute time reference and the SFN0 start. The IE is calculated assuming

that the SFN transmission started at the absolute time reference. The absolute time reference chosen is the 1980-01-06 T00:00:19 International Atomic Time (TAI).

| IE/Group Name   | Presence | Range | IE type and reference | Semantics description                                                                                                                                                                                                                           |
|-----------------|----------|-------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SFN Time Offset | M        |       | BIT STRING (SIZE(24)) | Time offset in microseconds between the absolute time reference "1980-01-06 T00:00:19 International Atomic Time (TAI)" and the SFN0 start. The maximum usable value is $(1024 \times 10^4 - 1)$ . Values higher than the maximum are discarded. |

### 9.3.1.209 Transmission Stop Indicator

This IE indicates to stop the data transmission at gNB-DU side for an DRB not subject to DAPS Handover.

| IE/Group Name               | Presence | Range | IE type and reference  | Semantics description |
|-----------------------------|----------|-------|------------------------|-----------------------|
| Transmission Stop Indicator | M        |       | ENUMERATED (true, ...) |                       |

### 9.3.1.210 Spatial Relation Information per SRS Resource

This information element indicates a spatial relation for transmission of each UL SRS resource recommended by LMF.

| IE/Group Name                                 | Presence | Range                                       | IE Type and Reference | Semantics Description |
|-----------------------------------------------|----------|---------------------------------------------|-----------------------|-----------------------|
| <b>Spatial Relation per SRS Resource List</b> |          | <i>1</i>                                    |                       |                       |
| >Spatial Relation per SRS Resource Item       |          | <i>1..&lt;maxnoSRS - ResourcePerSet&gt;</i> |                       |                       |
| >>CHOICE Reference Signal                     | M        |                                             |                       |                       |
| >>>NZP CSI-RS                                 |          |                                             |                       |                       |
| >>>>NZP CSI-RS Resource ID                    | M        |                                             | INTEGER (0..191)      |                       |
| >>>SSB                                        |          |                                             |                       |                       |
| >>>>NR PCI                                    | M        |                                             | INTEGER (0..1007)     |                       |
| >>>>SSB Index                                 | O        |                                             | INTEGER (0..63)       |                       |
| >>>SRS                                        |          |                                             |                       |                       |
| >>>>SRS Resource ID                           | M        |                                             | INTEGER (0..63)       |                       |
| >>>Positioning SRS                            |          |                                             |                       |                       |
| >>>>Positioning SRS Resource ID               | M        |                                             | INTEGER (0..63)       |                       |
| >>>DL-PRS                                     |          |                                             |                       |                       |
| >>>>DL-PRS ID                                 | M        |                                             | INTEGER (0..255)      |                       |
| >>>>DL-PRS Resource Set ID                    | M        |                                             | INTEGER (0..7)        |                       |
| >>>>DL-PRS Resource ID                        | O        |                                             | INTEGER (0..63)       |                       |

| Range bound             | Explanation                                                    |
|-------------------------|----------------------------------------------------------------|
| maxnoSRS-ResourcePerSet | Maximum no of SRS resources per SRS resource set. Value is 16. |

### 9.3.1.211 CCO Assistance Information

This IE provides assistance information for the Capacity and Coverage (CCO) actions for specific CCO issues detected, and for network energy saving.

| IE/Group Name            | Presence | Range | IE type and reference                                                 | Semantics description                                                     |
|--------------------------|----------|-------|-----------------------------------------------------------------------|---------------------------------------------------------------------------|
| CCO issue detection      | O        |       | ENUMERATED (coverage, cell edge capacity, ..., network energy saving) | Indicates the type of CCO issue detected, or network energy saving cause. |
| Affected Cells and Beams | O        |       | 9.3.1.212                                                             |                                                                           |

### 9.3.1.212 Affected Cells and Beams

This IE includes a list of cells and/or SS/PBCH block indexes affected by the detected CCO issue.

| IE/Group Name                | Presence | Range                                | IE type and reference | Semantics description |
|------------------------------|----------|--------------------------------------|-----------------------|-----------------------|
| <b>Affected Cell List</b>    |          | <i>1 .. &lt;maxAffectedCells&gt;</i> |                       |                       |
| >NR CGI                      | M        |                                      | 9.3.1.12              |                       |
| <b>&gt;Affected SSB List</b> |          | <i>0..&lt;maxnoofSSBAreas&gt;</i>    |                       |                       |
| >>SSB Index                  | M        |                                      | INTEGER (0..63)       |                       |

| Range bound      | Explanation                                                                  |
|------------------|------------------------------------------------------------------------------|
| maxAffectedCells | Maximum numbers of cells affected by a CCO issue. Value is 32.               |
| maxnoofSSBAreas  | Maximum no. SSB Areas that can be served by a NG-RAN node cell. Value is 64. |

### 9.3.1.213 Coverage Modification Notification

This IE includes a list of cells and/or SS/PBCH block indexes with the corresponding coverage configuration selected by the gNB-DU.

| IE/Group Name                                     | Presence | Range                              | IE type and reference | Semantics description                                                                                                                                              | Criticality | Assigned Criticality |
|---------------------------------------------------|----------|------------------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| <b>Coverage Modification List</b>                 |          | <i>1</i>                           |                       |                                                                                                                                                                    | -           |                      |
| <b>&gt;Coverage Modification Item</b>             |          | <i>1 .. &lt;maxCellingNBdu&gt;</i> |                       |                                                                                                                                                                    | -           |                      |
| >>NR CGI                                          | M        |                                    | 9.3.1.12              |                                                                                                                                                                    | -           |                      |
| >>Cell Coverage State                             |          |                                    | INTEGER (0..63, ...)  | Value '0' indicates that the cell is inactive. Other values Indicates that the cell is active and also indicates the coverage configuration of the concerned cell. | -           |                      |
| <b>&gt;&gt;SSB Coverage Modification List</b>     |          | <i>0..1</i>                        |                       |                                                                                                                                                                    | -           |                      |
| <b>&gt;&gt;&gt;SSB Coverage Modification Item</b> |          | <i>1..&lt;maxnoofSSBAreas&gt;</i>  |                       |                                                                                                                                                                    | -           |                      |
| >>>>SSB Index                                     | M        |                                    | INTEGER (0..63)       |                                                                                                                                                                    | -           |                      |
| >>>>SSB Coverage State                            | M        |                                    | INTEGER (0..15, ...)  | Value '0' indicates that the SS/PBCH                                                                                                                               | -           |                      |

| IE/Group Name                 | Presence | Range | IE type and reference                                                 | Semantics description                                                                                                                                    | Criticality | Assigned Criticality |
|-------------------------------|----------|-------|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|                               |          |       |                                                                       | block is inactive. Other values Indicates that the SS/PBCH block is active and also indicates the coverage configuration of the concerned SS/PBCH block. |             |                      |
| >>Coverage Modification Cause | O        |       | ENUMERATED (coverage, cell edge capacity, ..., network energy saving) |                                                                                                                                                          | YES         | ignore               |

| Range bound     | Explanation                                                                  |
|-----------------|------------------------------------------------------------------------------|
| maxCellingNBDU  | Maximum numbers of cells that can be served by a gNB-DU. Value is 512.       |
| maxnoofSSBAreas | Maximum no. SSB Areas that can be served by a NG-RAN node cell. Value is 64. |

### 9.3.1.214 Cells for SON List

This IE contains a list of served cells in potential PRACH conflict and it may contain neighbour cell PRACH configuration.

| IE/Group Name                    | Presence | Range                      | IE Type and Reference | Semantics Description |
|----------------------------------|----------|----------------------------|-----------------------|-----------------------|
| <b>Cells for SON Item</b>        |          | 1 .. <maxServedCellforSON> |                       |                       |
| >NR CGI                          | M        |                            | 9.3.1.12              |                       |
| >Neighbour NR Cells for SON List | O        |                            | 9.3.1.215             |                       |

| Range bound         | Explanation                                                                     |
|---------------------|---------------------------------------------------------------------------------|
| maxServedCellforSON | Maximum numbers of served cells where PRACH conflict is possible. Value is 256. |

### 9.3.1.215 Neighbour NR Cells for SON List

This IE contains the configuration of NR neighbour cells which the gNB-DU may take into consideration for SON purposes.

NOTE: If multiple served cells share a common neighbour cell and thus multiple copies of *Neighbour NR Cells for SON Item* IE for the neighbour cell are needed to be contained in an F1AP message, IEs other than the *NR CGI* IE may be omitted in the copies other than the first one present in the message.

| IE/Group Name                          | Presence | Range                         | IE Type and Reference | Semantics Description |
|----------------------------------------|----------|-------------------------------|-----------------------|-----------------------|
| <b>Neighbour NR Cells for SON Item</b> |          | 1 .. <maxNeighbourCellforSON> |                       |                       |
| >NR CGI                                | M        |                               | 9.3.1.12              |                       |
| >NR Mode Info Rel16                    | O        |                               | 9.3.1.216             |                       |
| >SSB Positions In Burst                | O        |                               | 9.3.1.138             |                       |
| >NR Cell PRACH Configuration           | O        |                               | 9.3.1.139             |                       |

| Range bound            | Explanation                                                                                                                           |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| maxNeighbourCellforSON | Maximum numbers of neighbour cells which the gNB-DU may take into consideration for SON purposes on a given served cell. Value is 32. |

### 9.3.1.216 NR Mode Info Rel16

This IE contains the information of a NR cell which needs to be encoded differently for FDD and TDD.

| IE/Group Name                        | Presence | Range | IE type and reference             | Semantics description                                                                                                            |
|--------------------------------------|----------|-------|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| CHOICE <i>NR-Mode-Info-Rel16</i>     | M        |       |                                   |                                                                                                                                  |
| > <i>FDD</i>                         |          |       |                                   |                                                                                                                                  |
| >> <b>FDD Info Rel16</b>             |          | 1     |                                   |                                                                                                                                  |
| >>>UL Frequency Info                 | O        |       | Frequency Info Rel16<br>9.3.1.217 |                                                                                                                                  |
| >>>SUL Frequency Info                | O        |       | Frequency Info Rel16<br>9.3.1.217 |                                                                                                                                  |
| > <i>TDD</i>                         |          |       |                                   |                                                                                                                                  |
| >> <b>TDD Info Rel16</b>             |          | 1     |                                   |                                                                                                                                  |
| >>>TDD Frequency Info                | O        |       | Frequency Info Rel16<br>9.3.1.217 |                                                                                                                                  |
| >>>SUL Frequency Info                | O        |       | Frequency Info Rel16<br>9.3.1.217 |                                                                                                                                  |
| >>>TDD DL-UL Configuration Common NR | O        |       | OCTET STRING                      | Includes the <i>tdd-UL-DL-ConfigurationCommon</i> contained in the <i>ServingCellConfigCommon</i> IE as defined in TS 38.331 [8] |

### 9.3.1.217 Frequency Info Rel16

This IE contains the information of a NR cell which should be encoded separately among FDD NDL, FDD NUL, TDD NDL+NUL and SUL.

| IE/Group Name          | Presence | Range | IE type and reference         | Semantics description                                                                                                                                                                                                                                           |
|------------------------|----------|-------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NR ARFCN               | O        |       | INTEGER (0..maxNRARFCN)       | RF Reference Frequency as defined in TS 38.104 [17] section 5.4.2.1. The frequency provided in this IE identifies the absolute frequency position of the reference resource block (Common RB 0) of the carrier. Its lowest subcarrier is also known as Point A. |
| Frequency Shift 7p5khz | O        |       | ENUMERATED (false, true, ...) | Indicate whether the value of $\Delta_{\text{shift}}$ is 0kHz or 7.5kHz when calculating $F_{\text{REF,shift}}$ as defined in Section 5.4.2.1 of TS 38.104 [17].                                                                                                |
| Carrier List           | O        |       | NR Carrier List<br>9.3.1.137  |                                                                                                                                                                                                                                                                 |

| Range bound | Explanation                                   |
|-------------|-----------------------------------------------|
| maxNRARFCN  | Maximum value of NR ARFCNs. Value is 3279165. |

### 9.3.1.218 MBS Session ID

This IE indicates the MBS Session ID uniquely identifies an MBS session.

| IE/Group Name | Presence | Range | IE type and reference  | Semantics description                                                      |
|---------------|----------|-------|------------------------|----------------------------------------------------------------------------|
| TMGI          | M        |       | OCTET STRING (SIZE(6)) | Coded as Temporary Mobile Group Identity (TMGI) defined in TS 23.003 [23]. |
| NID           | O        |       | 9.3.1.155              |                                                                            |

### 9.3.1.219 gNB-CU MBS F1AP ID

The gNB-CU MBS F1AP ID uniquely identifies the MBS association over the F1 interface within the gNB-CU.

NOTE: If F1-C signalling transport is shared among multiple interface instances, the value of the gNB-CU MBS F1AP ID is allocated so that it can be associated with the corresponding F1-C interface instance.

| IE/Group Name      | Presence | Range | IE type and reference        | Semantics description |
|--------------------|----------|-------|------------------------------|-----------------------|
| gNB-CU MBS F1AP ID | M        |       | INTEGER (0 .. $2^{32} - 1$ ) |                       |

### 9.3.1.220 gNB-DU MBS F1AP ID

The gNB-DU MBS F1AP ID uniquely identifies the MBS association over the F1 interface within the gNB-DU.

NOTE: If F1-C signalling transport is shared among multiple interface instances, the value of the gNB-DU MBS F1AP ID is allocated so that it can be associated with the corresponding F1-C interface instance.

| IE/Group Name      | Presence | Range | IE type and reference        | Semantics description |
|--------------------|----------|-------|------------------------------|-----------------------|
| gNB-DU MBS F1AP ID | M        |       | INTEGER (0 .. $2^{32} - 1$ ) |                       |

### 9.3.1.221 MBS Area Session ID

This IE indicates the Area Session ID for MBS Session with location dependent context.

| IE/Group Name       | Presence | Range | IE type and reference     | Semantics description |
|---------------------|----------|-------|---------------------------|-----------------------|
| MBS Area Session ID | M        |       | INTEGER (0 .. 65535, ...) |                       |

### 9.3.1.222 MBS Service Area

This IE contains the MBS service area.

| IE/Group Name                                          | Presence | Range                                       | IE type and reference | Semantics description |
|--------------------------------------------------------|----------|---------------------------------------------|-----------------------|-----------------------|
| CHOICE <i>Session Type</i>                             | M        |                                             |                       |                       |
| > <i>location independent</i>                          |          |                                             |                       |                       |
| >>MBS Service Area Information                         | M        |                                             | 9.3.1.223             |                       |
| > <i>location dependent</i>                            |          |                                             |                       |                       |
| >>MBS Service Area Information Location Dependent List |          | 1.. <i>maxnoofMBSServiceAreaInformation</i> |                       |                       |
| >>>MBS Area Session ID                                 | M        |                                             | 9.3.1.221             |                       |



| IE/Group Name                   | Presence | Range | IE type and reference | Semantics description |
|---------------------------------|----------|-------|-----------------------|-----------------------|
| >>>MBS Service Area Information | M        |       | 9.3.1.223             |                       |

| Range bound                      | Explanation                                                                                                                              |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| maxnoofMBSServiceAreaInformation | Maximum no. of MBS Service Area Information elements in the <i>MBS Service Area Information Location Dependent List</i> IE. Value is 256 |

### 9.3.1.223 MBS Service Area Information

This IE contains MBS service area information.

| IE/Group Name                     | Presence | Range                                | IE type and reference | Semantics description |
|-----------------------------------|----------|--------------------------------------|-----------------------|-----------------------|
| <b>MBS Service Area Cell List</b> |          | <i>0..&lt;maxnoofCellsforMBS&gt;</i> |                       |                       |
| >NR CGI                           | M        |                                      | 9.3.1.12              |                       |
| <b>MBS Service Area TAI List</b>  |          | <i>0..&lt;maxnoofTAIforMBS&gt;</i>   |                       |                       |
| >PLMN Identity                    | M        |                                      | 9.3.1.14              |                       |
| >5GS TAC                          | M        |                                      | 9.3.1.29              |                       |

| Range bound        | Explanation                                                             |
|--------------------|-------------------------------------------------------------------------|
| maxnoofCellsforMBS | Maximum no. of cells allowed within one MBS Service Area. Value is 512. |
| maxnoofTAIforMBS   | Maximum no. of TAs allowed within one MBS Service Area. Value is 512.   |

### 9.3.1.224 MRB ID

This IE indicates the MRB ID as specified in TS 38.401 [4].

| IE/Group Name | Presence | Range | IE type and reference  | Semantics description |
|---------------|----------|-------|------------------------|-----------------------|
| MRB ID        | M        |       | INTEGER (1.. 512, ...) |                       |

### 9.3.1.225 MBS CU to DU RRC Information

This IE indicates the MBS CU to DU RRC Information.

| IE/Group Name                  | Presence | Range                              | IE type and reference | Semantics description                                                                                                 |
|--------------------------------|----------|------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------|
| <b>MBS Broadcast Cell List</b> | M        |                                    |                       |                                                                                                                       |
| >MBS Broadcast Cell Item       |          | <i>1 .. &lt;maxCellingNBDU&gt;</i> |                       |                                                                                                                       |
| >>NR CGI                       | M        |                                    | 9.3.1.12              |                                                                                                                       |
| >>mtch-neighbourCell           | O        |                                    | OCTET STRING          | Includes the <i>mtch-NeighbourCell-r17</i> contained in the <i>MBS-SessionInfoList</i> IE, as defined in TS 38.331[8] |
| <b>MBS Broadcast MRB List</b>  |          | <i>1</i>                           |                       |                                                                                                                       |
| >MBS Broadcast MRB Item        |          | <i>1 .. &lt;maxnoofMRBs&gt;</i>    |                       |                                                                                                                       |
| >>MRB ID                       | M        |                                    | 9.3.1.224             |                                                                                                                       |
| >>MRB PDCP Config Broadcast    | M        |                                    | OCTET STRING          | Includes the <i>MRB-PDCP-ConfigBroadcast</i> IE, as defined in TS 38.331 [8].                                         |

| Range bound    | Explanation                                                                        |
|----------------|------------------------------------------------------------------------------------|
| maxCellingNBDU | Maximum no. cells that can be served by a gNB-DU. Value is 512.                    |
| maxnoofMRBs    | Maximum no. MRBs allowed to be setup for one MBS session, the maximum value is 32. |

### 9.3.1.226 MBS Broadcast Neighbour Cell List

This IE indicates a list of neighbour cells where ongoing MBS sessions provided via broadcast MRB in the current cells are also provided.

| IE/Group Name                     | Presence | Range | IE type and reference | Semantics description                                                    |
|-----------------------------------|----------|-------|-----------------------|--------------------------------------------------------------------------|
| MBS Broadcast Neighbour Cell List | M        |       | OCTET STRING          | Includes the <i>MBS-NeighbourCellList</i> IE, as defined in TS 38.331[8] |

### 9.3.1.227 IAB Congestion Indication

This IE contains the IAB downlink congestion indication. This IE is only applicable if the gNB-DU is an IAB-DU or IAB-donor-DU.

| IE/Group Name                             | Presence | Range                                            | IE type and reference          | Semantics description                                                                                                             |
|-------------------------------------------|----------|--------------------------------------------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| <b>IAB Congestion Indication List</b>     |          | <i>1</i>                                         |                                |                                                                                                                                   |
| <b>&gt;IAB Congestion Indication Item</b> |          | <i>1..<br/>&lt;maxnoofIABCongInd&gt;</i>         |                                |                                                                                                                                   |
| >>Child Node Identifier                   | M        |                                                  | BAP Address<br>9.3.1.111       | This IE identifies the child node, the link to which is congested.                                                                |
| <b>&gt;&gt;BH RLC CH List</b>             |          | <i>0..1</i>                                      |                                |                                                                                                                                   |
| <b>&gt;&gt;&gt;BH RLC CH Item</b>         |          | <i>1..<br/>&lt;maxnoofBHR<br/>LCChannels&gt;</i> |                                |                                                                                                                                   |
| >>>>BH RLC CH ID                          | M        |                                                  | BH RLC Channel ID<br>9.3.1.113 | This IE identifies the congested BH RLC channel over the link towards the node identified by the <i>Child Node Identifier</i> IE. |

| Range bound           | Explanation                                                                              |
|-----------------------|------------------------------------------------------------------------------------------|
| maxnoofIABCongInd     | Maximum no. of congestion indications, the maximum value is 1024.                        |
| maxnoofBHRRLCChannels | Maximum no. of BH RLC channels allowed towards one IAB-node, the maximum value is 65536. |

### 9.3.1.228 F1-C Transfer Path NRDC

This IE indicates the transmission path of the F1-C traffic in NR-DC. This IE is only applicable if the UE is an IAB-MT.

| IE/Group Name  | Presence | Range | IE type and reference          | Semantics description                                                 |
|----------------|----------|-------|--------------------------------|-----------------------------------------------------------------------|
| F1-C Path NRDC | M        |       | ENUMERATED<br>(mcg, scg, both) | This IE indicates the transmission path of the F1-C traffic in NR-DC. |

### 9.3.1.229 IAB TNL Address Exception

This IE indicates the list of TNL addresses, pertaining to the packets to be forwarded via the inter-IAB-donor-DU tunnel by the IAB-donor-DU.

| IE/Group Name             | Presence | Range                    | IE type and reference | Semantics description |
|---------------------------|----------|--------------------------|-----------------------|-----------------------|
| IAB TNL Address List      |          | 1                        |                       |                       |
| >IAB IAB TNL Address Item |          | 1..<br><maxnoofTLAs IAB> |                       |                       |
| >>IAB TNL Address         | M        |                          | 9.3.1.102             |                       |

| Range bound    | Explanation                                                                                                           |
|----------------|-----------------------------------------------------------------------------------------------------------------------|
| maxnoofTLAsIAB | Maximum no. of individual IPv4/IPv6 addresses or IPv6 address prefixes in one procedure execution. The value is 1024. |

### 9.3.1.230 RB Set Configuration

This IE contains the RB Set Configuration. The IE is only applicable if the gNB-DU is an IAB-DU.

| IE/Group Name      | Presence | Range | IE type and reference                                                            | Semantics description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------|----------|-------|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Subcarrier Spacing | M        |       | ENUMERATED<br>(kHz15, kHz30, kHz60, kHz120, kHz240, spare3, spare2, spare1, ...) | Subcarrier spacing used as reference for the RB set configuration.                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| RB Set Size        | M        |       | ENUMERATED<br>(rb2, rb4, rb8, rb16, rb32, rb64)                                  | Number of PRBs in each RB set. If the RB sets of IAB-DU H/S/NA resource configuration do not cover the entire carrier bandwidth, the remaining RBs not part of an RB set configuration are considered as included in the last RB set.                                                                                                                                                                                                                                                                        |
| Number of RB Sets  | M        |       | INTEGER(1..<br>maxnoofRBsetsPerCell)                                             | Number of configured RB sets. The RB sets are contiguous and non-overlapping. If <i>NR Carrier List</i> IE(9.3.1.137) is provided, the start RB index of the first RB set is the RB index of the lowest common RB with the SCS provided by <i>RB Set Configuration</i> IE, which overlaps with the lowest usable RB across all SCS-specific carriers provided by the <i>NR Carrier List</i> IE for the IAB-DU cell. Otherwise, the start RB of the first RB set is aligned with point A for the IAB-DU cell. |

| Range bound          | Explanation                                         |
|----------------------|-----------------------------------------------------|
| maxnoofRBsetsPerCell | Maximum no. of RB sets per IAB-DU cell. Value is 8. |

### 9.3.1.231 Survival Time

This IE indicates the Survival Time of the TSC QoS flow as defined in TS 23.501 [21].

| IE/Group Name | Presence | Range | IE type and reference         | Semantics description       |
|---------------|----------|-------|-------------------------------|-----------------------------|
| Survival Time | M        |       | INTEGER (0..<br>1920000, ...) | Expressed in units of 1 us. |

### 9.3.1.232 PDC Measurement Result

The purpose of this IE is to provide the PDC measurement result.

| IE/Group Name                        | Presence | Range                  | IE Type and Reference   | Semantics Description                             |
|--------------------------------------|----------|------------------------|-------------------------|---------------------------------------------------|
| <b>PDC Measured Results List</b>     |          | 1                      |                         |                                                   |
| <b>&gt;PDC Measured Results Item</b> |          | 1 ..<br><maxnoMeasPDC> |                         |                                                   |
| >>CHOICE Measured Results Value      | M        |                        |                         |                                                   |
| >>>NR PDC Timing Advance             |          |                        |                         |                                                   |
| >>>>NR PDC Timing Advance            | M        |                        | INTEGER (0..62500, ...) | Value is expressed in unit of $[64 \cdot T_c]$ ns |
| >>>>PDC gNB Rx-Tx Time Difference    |          |                        |                         |                                                   |
| >>>>>PDC gNB Rx-Tx Time Difference   | M        |                        | INTEGER (0..61565, ...) | Report mapping as defined in TS 38.133 [38]       |

| Range bound  | Explanation                                                                                                                         |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------|
| maxnoMeasPDC | Maximum no. of measured quantities that can be configured and reported with one message. Value is 16. Maximum is 1 in this release. |

### 9.3.1.233 SCG Activation Request

This IE indicates whether the SCG resources are required to be activated or deactivated.

| IE/Group Name          | Presence | Range | IE type and reference                          | Semantics description |
|------------------------|----------|-------|------------------------------------------------|-----------------------|
| SCG Activation Request | M        |       | ENUMERATED (activate SCG, deactivate SCG, ...) |                       |

### 9.3.1.234 SCG Activation Status

This IE indicates the status of SCG resources.

| IE/Group Name         | Presence | Range | IE type and reference                            | Semantics description |
|-----------------------|----------|-------|--------------------------------------------------|-----------------------|
| SCG Activation Status | M        |       | ENUMERATED (SCG activated, SCG deactivated, ...) |                       |

### 9.3.1.235 Requested DL PRS Transmission Characteristics

This IE contains the requested PRS configuration for transmission by the gNB-CU.

| IE/Group Name                                 | Presence | Range                          | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|-----------------------------------------------|----------|--------------------------------|-----------------------|-----------------------|-------------|----------------------|
| <b>Requested DL-PRS Resource Set List</b>     |          | 1                              |                       |                       | -           |                      |
| <b>&gt;Requested DL-PRS Resource Set Item</b> |          | 1..<maxno of PRS resourceSets> |                       |                       | -           |                      |
| >>PRS bandwidth                               | O        |                                | INTEGER(1..63)        | 24,28,...,272 PRBs    | -           |                      |

| IE/Group Name                                      | Presence | Range | IE type and reference                                                                                      | Semantics description                                                  | Criticality | Assigned Criticality |
|----------------------------------------------------|----------|-------|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|-------------|----------------------|
| >>Comb Size                                        | O        |       | ENUMERATED (2, 4, 6, 12, ...)                                                                              |                                                                        | -           |                      |
| >>Resource Set Periodicity                         | O        |       | ENUMERATED (4,5,8,10,16,20,32,40,64,80,160,320,640,1280,2560,5120,10240,20480,40960,81920,...,128,256,512) | Slots                                                                  | -           |                      |
| >>Resource Repetition Factor                       | O        |       | ENUMERATED (rf1,rf2,rf4,rf6,rf8,rf16,rf32,...)                                                             |                                                                        | -           |                      |
| >>Resource Number of Symbols                       | O        |       | ENUMERATED (n2,n4,n6,n12,...,n1)                                                                           |                                                                        | -           |                      |
| >>Requested DL-PRS Resource List                   | O        |       | 9.3.1.250                                                                                                  |                                                                        | -           |                      |
| >>Resource Set Start Time and Duration             | O        |       | Start Time and Duration<br>9.3.1.236                                                                       | This IE is ignored if the <i>Start Time and Duration</i> IE is present | -           |                      |
| Number of Frequency Layers                         | O        |       | INTEGER(1..4)                                                                                              |                                                                        | -           |                      |
| Start Time and Duration                            | O        |       | 9.3.1.236                                                                                                  |                                                                        | -           |                      |
| PRS Bandwidth Aggregation Request Information List | O        |       | 9.3.1.347                                                                                                  |                                                                        | YES         | ignore               |

| Range bound            | Explanation                                  |
|------------------------|----------------------------------------------|
| maxnoofPRSresourceSets | Maximum no of PRS resources set. Value is 8. |

### 9.3.1.236 Start Time and Duration

This IE contains the start time and/or duration for the on-demand DL-PRS.

| IE/Group Name | Presence | Range | IE type and reference           | Semantics description |
|---------------|----------|-------|---------------------------------|-----------------------|
| Start Time    | O        |       | Relative Time 1900<br>9.3.1.183 |                       |
| Duration      | O        |       | INTEGER (0..90060, ...)         | Unit: seconds         |

### 9.3.1.237 PRS Transmission Off Information

This IE contains the information to turn off particular PRS transmissions.

| IE/Group Name                  | Presence | Range                      | IE Type and Reference | Semantics Description |
|--------------------------------|----------|----------------------------|-----------------------|-----------------------|
| CHOICE <i>level</i>            | M        |                            |                       |                       |
| >TRP <i>level</i>              |          |                            | NULL                  |                       |
| >PRS <i>resource set level</i> |          |                            |                       |                       |
| >>PRS Resource Set List        |          | 1                          |                       |                       |
| >>>PRS Resource Set Item       |          | 1..<maxnoofPRSresourceSet> |                       |                       |
| >>>>PRS Resource Set ID        | M        |                            | INTEGER(0..7)         |                       |
| >PRS <i>resource level</i>     |          |                            |                       |                       |

| IE/Group Name            | Presence | Range                        | IE Type and Reference | Semantics Description |
|--------------------------|----------|------------------------------|-----------------------|-----------------------|
| >>PRS Resource Set List  |          | 1                            |                       |                       |
| >>>PRS Resource Set Item |          | $1..<maxnoofPRSresourceSet>$ |                       |                       |
| >>>>PRS Resource Set ID  | M        |                              | INTEGER(0..7)         |                       |
| >>>>PRS Resource List    |          | 1                            |                       |                       |
| >>>>>PRS Resource Item   |          | $1..<maxnoofPRSresource>$    |                       |                       |
| >>>>>>PRS Resource ID    | M        |                              | INTEGER(0..63)        |                       |

| Range bound           | Explanation                                                    |
|-----------------------|----------------------------------------------------------------|
| maxnoofPRSresourceSet | Maximum no of PRS resources set. Value is 8.                   |
| maxnoofPRSresource    | Maximum no of PRS resources per PRS resource set. Value is 64. |

### 9.3.1.238 UL-AoA Assistance Information

This information element contains the expected uplink Angle of Arrival and uncertainty range.

| IE/Group Name                             | Presence | Range | IE Type and Reference | Semantics Description                                                                                                                    |
|-------------------------------------------|----------|-------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| CHOICE<br><i>AngleMeasurement</i>         | M        |       |                       |                                                                                                                                          |
| >Expected UL Angle of Arrival             |          |       |                       |                                                                                                                                          |
| >>Expected Azimuth AoA                    |          | 1     |                       | Defined as $(\phi_{AOA} - \Delta\phi_{AOA}/2, \phi_{AOA} + \Delta\phi_{AOA}/2)$                                                          |
| >>>Expected Azimuth AoA Value             | M        |       | INTEGER(0..3599)      | $\phi_{AOA}$ component of Expected Azimuth AoA                                                                                           |
| >>>Expected Azimuth AoA Uncertainty Range | M        |       | INTEGER(0..3599)      | $\Delta\phi_{AOA}$ component of Expected Azimuth AoA                                                                                     |
| >>Expected Zenith AoA                     |          | 0..1  |                       | Defined as $(\theta_{ZOA} - \Delta\theta_{ZOA}/2, \theta_{ZOA} + \Delta\theta_{ZOA}/2)$                                                  |
| >>>Expected Zenith AoA Value              | M        |       | INTEGER(0..1799)      | $\theta_{ZOA}$ component of Expected Zenith AoA                                                                                          |
| >>>Expected Zenith AoA Uncertainty Range  | M        |       | INTEGER(0..1799)      | $\Delta\theta_{ZOA}$ component of Expected Zenith AoA                                                                                    |
| >Expected UL Angle of Arrival Zenith Only |          |       |                       | Defined as $(\theta_{ZOA} - \Delta\theta_{ZOA}/2, \theta_{ZOA} + \Delta\theta_{ZOA}/2)$                                                  |
| >>Expected Zenith AoA Value               | M        |       | INTEGER(0..1799)      | $\theta_{ZOA}$ component of Expected Zenith AoA                                                                                          |
| >>Expected Zenith AoA Uncertainty Range   | M        |       | INTEGER(0..1799)      | $\Delta\theta_{ZOA}$ component of Expected Zenith AoA                                                                                    |
| LCS to GCS Translation                    | O        |       | 9.3.1.241             | If absent, the azimuth and zenith are provided in GCS. In case of zenith only, the z-axis of LCS is defined along the linear array axis. |

### 9.3.1.239 Zenith Angle of Arrival Information

This information element contains the Zenith Angle of Arrival, which can correspond to linear array measurement.

| IE/Group Name           | Presence | Range | IE Type and Reference | Semantics Description             |
|-------------------------|----------|-------|-----------------------|-----------------------------------|
| Zenith Angle of Arrival | M        |       | INTEGER(0..1799)      | TS 38.133 [38]                    |
| LCS to GCS Translation  | O        |       | 9.3.1.241             | If absent, the zenith is provided |

|  |  |  |  |                                                                  |
|--|--|--|--|------------------------------------------------------------------|
|  |  |  |  | in GCS. the z-axis of LCS is defined along the linear array axis |
|--|--|--|--|------------------------------------------------------------------|

### 9.3.1.240 On-demand PRS TRP Information

This IE contains on-demand PRS information for the TRP.

| IE/Group Name                             | Presence | Range | IE Type and Reference | Semantics Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------|----------|-------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| On-demand PRS Request Allowed             | M        |       | BIT STRING (SIZE(16)) | Each position in the bitmap represents an on-demand PRS transmission parameter:<br>first bit: Resource Set Periodicity<br>second bit: PRS Bandwidth<br>third bit: Resource Repetition Factor<br>fourth bit: Resource Number of Symbols<br>fifth bit: Comb Size<br>sixth bit: Number of Frequency Layers<br>seventh bit: Start Time and Duration<br>eighth bit: Off Indication<br>ninth bit: QCL Information<br>tenth bit: PRS Bandwidth Aggregation<br>Other bits reserved for future use. Value '1' indicates 'request allowed', Value '0' indicates 'request not allowed'. |
| Allowed Resource Set Periodicity Values   | O        |       | BIT STRING (SIZE(24)) | This IE applies only if the first bit of the <i>On-demand PRS Request Allowed</i> IE is set to '1'.<br><br>Each position in the bitmap represents a value of the <i>Resource Set Periodicity</i> IE defined in subclause 9.2.235, first bit = 4 and so on. Bit 24 is reserved for future use. Value '1' indicates 'request allowed', Value '0' indicates 'request not allowed'. If this IE is absent, all Resource Set Periodicity values are allowed to be requested.                                                                                                       |
| Allowed PRS Bandwidth Values              | O        |       | BIT STRING (SIZE(64)) | This IE applies only if the second bit of the <i>On-demand PRS Request Allowed</i> IE is set to '1'.<br><br>Each position in the bitmap represents a value of the <i>PRS Bandwidth</i> IE defined in subclause 9.3.1.235, first bit = 1 and so on. Bit 64 is reserved for future use. Value '1' indicates 'request allowed', Value '0' indicates 'request not allowed'. If this IE is absent, all PRS Bandwidth values are allowed to be requested.                                                                                                                          |
| Allowed Resource Repetition Factor Values | O        |       | BIT STRING (SIZE(8))  | This IE applies only if the third bit of the <i>On-demand PRS Request Allowed</i> IE is set to '1'.                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| IE/Group Name                             | Presence | Range | IE Type and Reference | Semantics Description                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------|----------|-------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                           |          |       |                       | Each position in the bitmap represents a value of the <i>Resource Repetition Factor</i> IE defined in subclause 9.3.1.235, first bit = rf1 and so on. Bit 8 is reserved for future use. Value '1' indicates 'request allowed', Value '0' indicates 'request not allowed'. If this IE is absent, all Resource Repetition Factor values are allowed to be requested.                                                                                                                |
| Allowed Resource Number of Symbols Values | O        |       | BIT STRING (SIZE(8))  | This IE applies only if the fourth bit of the <i>On-demand PRS Request Allowed</i> IE is set to '1'.<br><br>Each position in the bitmap represents a value of the <i>Resource Number of Symbols</i> IE defined in subclause 9.3.1.235, first bit = n2 and so on. Bits 6-8 are reserved for future use. Value '1' indicates 'request allowed', Value '0' indicates 'request not allowed'. If this IE is absent, all Resource Number of Symbols values are allowed to be requested. |
| Allowed Comb Size Values                  | O        |       | BIT STRING (SIZE(8))  | This IE applies only if the fifth bit of the <i>On-demand PRS Request Allowed</i> IE is set to '1'.<br><br>Each position in the bitmap represents a value of the <i>Comb Size</i> IE defined in subclause 9.3.1.235, first bit = 2 and so on. Bits 5-8 are reserved for future use. Value '1' indicates 'request allowed', Value '0' indicates 'request not allowed'. If this IE is absent, all Comb Size values are allowed to be requested.                                     |

### 9.3.1.241 LCS to GCS Translation

This IE contains the LCS to GCS Translation information.

| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
|---------------|----------|-------|-----------------------|-----------------------|
| Alpha         | M        |       | INTEGER (0..3599)     |                       |
| Beta          | M        |       | INTEGER (0..3599)     |                       |
| Gamma         | M        |       | INTEGER (0..3599)     |                       |

### 9.3.1.242 Response Time

This information element contains the response time of the measurement results reporting.

| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
|---------------|----------|-------|-----------------------|-----------------------|
| Time          | M        |       | INTEGER(1..128, ...)  |                       |
| Time Unit     | M        |       | ENUMERATED(sec)       |                       |



|  |  |  |                                             |  |
|--|--|--|---------------------------------------------|--|
|  |  |  | ond, ten-seconds,<br>ten-milliseconds, ...) |  |
|--|--|--|---------------------------------------------|--|

### 9.3.1.243 ARP Location Information

This IE contains the relative position of ARP(s) to the TRP.

| IE/Group Name                            | Presence | Range                       | IE Type and Reference                    | Semantics Description |
|------------------------------------------|----------|-----------------------------|------------------------------------------|-----------------------|
| <b>ARP Location Information</b>          |          | <i>1</i>                    |                                          |                       |
| <b>&gt;ARP Location Information Item</b> |          | <i>1..&lt;maxnoARPs&gt;</i> |                                          |                       |
| >>ARP ID                                 | M        |                             | 9.3.1.244                                |                       |
| >>CHOICE ARP Location Type               | M        |                             |                                          |                       |
| >>>geodetic                              |          |                             |                                          |                       |
| >>>>ARP Position Relative Geodetic       | M        |                             | Relative Geodetic Location<br>9.3.1.186  |                       |
| >>>cartesian                             |          |                             |                                          |                       |
| >>>>ARP Position Relative Cartesian      | M        |                             | Relative Cartesian Location<br>9.3.1.187 |                       |

| Range bound | Explanation                                             |
|-------------|---------------------------------------------------------|
| maxnoARPs   | Maximum no. of ARPs associated with a TRP. Value is 16. |

### 9.3.1.244 ARP ID

This IE is used to uniquely identify an ARP associated with a TRP.

| IE/Group Name  | Presence | Range | IE Type and Reference | Semantics Description |
|----------------|----------|-------|-----------------------|-----------------------|
| ARP Identifier | M        |       | INTEGER (1..16, ...)  |                       |

### 9.3.1.245 Multiple UL AoA

This information element contains the list of the multiple UL AOAs values.

| IE/Group Name                           | Presence | Range                           | IE Type and Reference | Semantics Description |
|-----------------------------------------|----------|---------------------------------|-----------------------|-----------------------|
| <b>UL AoA List</b>                      |          | <i>1</i>                        |                       |                       |
| <b>&gt;UL AoA item</b>                  |          | <i>1..&lt;maxnoofULAoAs&gt;</i> |                       |                       |
| >>CHOICE AngleMeasurement               | M        |                                 |                       |                       |
| >>>UL Angle of Arrival                  |          |                                 |                       |                       |
| >>>>UL Angle of Arrival                 | M        |                                 | 9.3.1.167             |                       |
| >>>>UL Zenith Angle of Arrival          |          |                                 |                       |                       |
| >>>>Zenith Angle of Arrival Information | M        |                                 | 9.3.1.239             |                       |

| Range bound   | Explanation                                                  |
|---------------|--------------------------------------------------------------|
| maxnoofULAoAs | Maximum no of UL-AOAs values (pair of AOA & ZOA values) that |

|  |                             |
|--|-----------------------------|
|  | can be reported. Value is 8 |
|--|-----------------------------|

### 9.3.1.246 UL SRS-RSRPP

This information element contains the UL SRS RSRPP measurement.

| IE/Group Name         | Presence | Range | IE Type and Reference | Semantics Description |
|-----------------------|----------|-------|-----------------------|-----------------------|
| First Path RSRP Power | M        |       | INTEGER (0..126)      |                       |

### 9.3.1.247 SRS Resource type

This IE contains the SRS resource type.

| IE/Group Name                  | Presence | Range | IE Type and Reference                            | Semantics Description                                                                         | Criticality | Assigned Criticality |
|--------------------------------|----------|-------|--------------------------------------------------|-----------------------------------------------------------------------------------------------|-------------|----------------------|
| CHOICE <i>Reference Signal</i> | M        |       |                                                  |                                                                                               | -           |                      |
| > <i>SRS</i>                   |          |       |                                                  |                                                                                               |             |                      |
| >>SRS Resource ID              | M        |       | INTEGER(0..63)                                   |                                                                                               | -           |                      |
| > <i>Positioning SRS</i>       |          |       |                                                  |                                                                                               |             |                      |
| >>Positioning SRS Resource ID  | M        |       | INTEGER(0..63)                                   |                                                                                               | -           |                      |
| SRS Port Index                 | O        |       | ENUMERATED (id1000, id1001, id1002, id1003, ...) | This IE may be present if the SRS <i>Resource ID</i> IE is present, and is ignored otherwise. | YES         | ignore               |

### 9.3.1.248 Extended Additional Path List

This IE contains the extended additional path results of time measurement.

| IE/Group Name                      | Presence | Range                                 | IE Type and Reference | Semantics Description | Criticality | Assigned Criticality |
|------------------------------------|----------|---------------------------------------|-----------------------|-----------------------|-------------|----------------------|
| Additional Path Item               |          | 1..<<br><i>maxNoPathExtended</i><br>> |                       |                       | -           |                      |
| >CHOICE <i>Relative Path Delay</i> | M        |                                       |                       |                       | -           |                      |
| >> <i>k0</i>                       |          |                                       |                       |                       |             |                      |
| >>>k0                              | M        |                                       | INTEGER(0..16351)     |                       | -           |                      |
| >> <i>k1</i>                       |          |                                       |                       |                       |             |                      |
| >>>k1                              | M        |                                       | INTEGER(0..8176)      |                       | -           |                      |
| >> <i>k2</i>                       |          |                                       |                       |                       |             |                      |
| >>>k2                              | M        |                                       | INTEGER(0..4088)      |                       | -           |                      |
| >> <i>k3</i>                       |          |                                       |                       |                       |             |                      |
| >>>k3                              | M        |                                       | INTEGER(0..2044)      |                       | -           |                      |
| >> <i>k4</i>                       |          |                                       |                       |                       |             |                      |
| >>>k4                              | M        |                                       | INTEGER(0..1022)      |                       | -           |                      |
| >> <i>k5</i>                       |          |                                       |                       |                       |             |                      |
| >>>k5                              | M        |                                       | INTEGER(0..511)       |                       | -           |                      |
| >> <i>kminus1</i>                  |          |                                       |                       |                       |             |                      |
| >>>kminus1                         | M        |                                       | INTEGER (0..          | TS 38.133 [38]        | YES         | ignore               |

| IE/Group Name    | Presence | Range | IE Type and Reference             | Semantics Description | Criticality | Assigned Criticality |
|------------------|----------|-------|-----------------------------------|-----------------------|-------------|----------------------|
|                  |          |       | 32701)                            |                       |             |                      |
| >>kminus2        |          |       |                                   |                       |             |                      |
| >>>kminus2       | M        |       | INTEGER (0..65401)                | TS 38.133 [38]        | YES         | ignore               |
| >>kminus3        |          |       |                                   |                       |             |                      |
| >>>kminus3       | M        |       | INTEGER (0..130801)               | TS 38.133 [38]        | YES         | ignore               |
| >>kminus4        |          |       |                                   |                       |             |                      |
| >>>kminus4       | M        |       | INTEGER (0..261601)               | TS 38.133 [38]        | YES         | ignore               |
| >>kminus5        |          |       |                                   |                       |             |                      |
| >>>kminus5       | M        |       | INTEGER (0..523201)               | TS 38.133 [38]        | YES         | ignore               |
| >>kminus6        |          |       |                                   |                       |             |                      |
| >>>kminus6       | M        |       | INTEGER (0..1046401)              | TS 38.133 [38]        | YES         | ignore               |
| >Path Quality    | O        |       | TRP Measurement Quality 9.3.1.172 |                       | -           |                      |
| >Multiple UL AoA | O        |       | 9.3.1.245                         |                       | -           |                      |
| >Path Power      | O        |       | UL SRS-RSRPP 9.3.1.246            |                       | -           |                      |

| Range bound       | Explanation                                             |
|-------------------|---------------------------------------------------------|
| maxNoPathExtended | Maximum no. of additional path measurement. Value is 8. |

### 9.3.1.249 LoS/NLoS Information

This IE contains the LoS/NLoS information for UL measurement.

| IE/Group Name                    | Presence | Range | IE Type and Reference  | Semantics Description                                                                                                                                                 |
|----------------------------------|----------|-------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CHOICE <i>LoS/NLoS Indicator</i> | M        |       |                        |                                                                                                                                                                       |
| >Soft Indicator                  |          |       |                        |                                                                                                                                                                       |
| >>LoS/NLoS Indicator Soft        | M        |       | INTEGER (0..10)        | Values provide the likelihood of a LOS propagation path in the range between 0 and 1 with 0.1 steps resolution. Value '0' indicates NLOS and value '1' indicates LOS. |
| >Hard Indicator                  |          |       |                        |                                                                                                                                                                       |
| >>LoS/NLoS Indicator Hard        | M        |       | ENUMERATED (NLoS, LoS) |                                                                                                                                                                       |

### 9.3.1.250 Requested DL-PRS Resource List

This IE contains the requested DL-PRS resource list.

| IE/Group Name                   | Presence | Range                    | IE Type and Reference | Semantics Description                               |
|---------------------------------|----------|--------------------------|-----------------------|-----------------------------------------------------|
| Requested DL-PRS Resource List  |          | 1                        |                       | NR-DL-PRS-Resource-r16 as defined in TS 37.355 [39] |
| >Requested DL-PRS Resource Item |          | 1..<maxnoofP RSresource> |                       |                                                     |
| >>CHOICE QCL Info               | O        |                          |                       |                                                     |
| >>>SSB                          |          |                          |                       |                                                     |
| >>>>NR PCI                      | M        |                          | INTEGER(0..1007)      |                                                     |
| >>>>SSB Index                   | O        |                          | INTEGER(0..63)        |                                                     |
| >>>DL-PRS                       |          |                          |                       |                                                     |

|                                    |   |  |                |  |
|------------------------------------|---|--|----------------|--|
| >>>>QCL Source PRS Resource Set ID | M |  | INTEGER(0..7)  |  |
| >>>>QCL Source PRS Resource ID     | O |  | INTEGER(0..63) |  |

| Range bound        | Explanation                                                    |
|--------------------|----------------------------------------------------------------|
| maxnoofPRSresource | Maximum no of PRS resources per PRS resource set. Value is 64. |

### 9.3.1.251 Void

### 9.3.1.252 TRP Tx TEG Association

This information element contains the TRP Tx TEG information.

| IE/Group Name             | Presence | Range                                        | IE type and reference | Semantics description |
|---------------------------|----------|----------------------------------------------|-----------------------|-----------------------|
| <b>TRP TEG item</b>       |          | <i>1 .. &lt;maxnoTRPTEGs&gt;</i>             |                       |                       |
| >TRP Tx TEG Information   | M        |                                              | 9.3.1.281             |                       |
| >DL-PRS Resource Set ID   | M        |                                              | INTEGER (0..7)        |                       |
| >DL-PRS Resource ID List  |          | <i>0..1</i>                                  |                       |                       |
| >>DL-PRS Resource ID Item |          | <i>1..&lt;maxnoofPRS-ResourcesPerSet&gt;</i> |                       |                       |
| >>>DL-PRS Resource ID     | M        |                                              | INTEGER (0..63)       |                       |

| Range bound                | Explanation                                                                        |
|----------------------------|------------------------------------------------------------------------------------|
| maxnoTRPTEGs               | Maximum no of reported TRP Tx TEG association. Value is 8.                         |
| maxnoofPRS-ResourcesPerSet | Maximum no of DL-PRS resources of the DL-PRS resource set of the TRP. Value is 64. |

### 9.3.1.253 TRP TEG Information

This information element contains the TRP TEG information.

| IE/Group Name              | Presence | Range | IE type and reference | Semantics description |
|----------------------------|----------|-------|-----------------------|-----------------------|
| <b>CHOICE TRP TEG</b>      | M        |       |                       |                       |
| >RxTx TEG                  |          |       |                       |                       |
| >>TRP RxTx TEG Information | M        |       | 9.3.1.282             |                       |
| >>TRP Tx TEG Information   | O        |       | 9.3.1.281             |                       |
| >Rx TEG                    |          |       |                       |                       |
| >>TRP Rx TEG Information   | M        |       | 9.3.1.280             |                       |
| >>TRP Tx TEG Information   | M        |       | 9.3.1.281             |                       |

### 9.3.1.254 Measurement Characteristics Request Indicator

This IE contains the measurement characteristic information requested by the gNB-CU.

| IE/Group Name                                | Presence | Range | IE Type and Reference | Semantics Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------------------------------|----------|-------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measurement characteristic request indicator | M        |       | BIT STRING (SIZE(16)) | <p>Each position in the bitmap represents a requested measurement characteristic:</p> <p>first bit: Measurement Beam Information</p> <p>Second bit: Extended Additional Path List</p> <p>Third bit: Additional Path Power</p> <p>Fourth Bit: Multiple UL AoA of Additional Path</p> <p>Fifth bit: LoS/NLoS Information</p> <p>Sixth bit: TRP Rx TEG association for UL-TDOA</p> <p>Seventh bit: TRP RxTxTEG-ID information for DL+UL positioning.</p> <p>Eighth bit: SRS Resource Type</p> <p>Ninth bit: Multiple Measurement Instances</p> <p>Tenth bit: Mobile TRP location information</p> <p>Eleventh bit: SRS bandwidth aggregation used for joint UL positioning measurement.</p> <p>Twelfth bit: Aggregated Positioning SRS resources IDs used for joint UL positioning measurement.</p> <p>Other bits reserved for future use. Value '1' indicates 'requested measurement characteristic', Value '0' indicates 'not requested'.</p> |

### 9.3.1.255 UE Reporting Information

This IE contains the UE Reporting Information.

| IE/Group Name         | Presence | Range | IE type and reference                             | Semantics description                                                                  | Criticality | Assigned Criticality |
|-----------------------|----------|-------|---------------------------------------------------|----------------------------------------------------------------------------------------|-------------|----------------------|
| Reporting Amount      | M        |       | ENUMERATED (0, 1, 2, 4, 8, 16, 32, 64)            | Value 0 represents an infinite number of periodic reporting                            |             |                      |
| Reporting Interval    | M        |       | ENUMERATED (none, 1, 2, 4, 8, 10, 16, 20, 32, 64) | Unit: seconds<br>This IE is ignored when the <i>ReportingIntervalMs</i> IE is present. | -           |                      |
| Reporting IntervalIMs | O        |       | INTEGER(1..999)                                   | Indicates the interval between                                                         | YES         | ignore               |

| IE/Group Name | Presence | Range | IE type and reference | Semantics description                                                                                                                            | Criticality | Assigned Criticality |
|---------------|----------|-------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
|               |          |       |                       | location information reports and the response time requirement for the first location information report in milliseconds.<br>Unit: milliseconds. |             |                      |

### 9.3.1.256 TRP Beam Antenna Information

The IE provides the beam antenna information of the TRP. It includes either the explicit beam antenna information, or a reference to another TRP's signalled configuration, or the indication that no change has occurred with respect to previously signalled configuration.

| IE/Group Name                            | Presence | Range | IE type and reference | Semantics description                                                                                                                       |
|------------------------------------------|----------|-------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| CHOICE <i>TRP Beam Antenna Info Item</i> | M        |       |                       |                                                                                                                                             |
| >Reference                               |          |       |                       |                                                                                                                                             |
| >>Associated TRP ID                      | M        |       | TRP ID<br>9.3.1.197   | This IE specifies the TRP ID of the associated TRP from which the beam information parameters are adopted in Local Coordinate System (LCS). |
| >Explicit                                |          |       |                       |                                                                                                                                             |
| >>TRP Beam Antenna Angles                | M        |       | 9.3.1.257             |                                                                                                                                             |
| >>LCS to GCS Translation                 | O        |       | 9.3.1.241             | Included if the azimuth and elevation are not provided in GCS.                                                                              |
| >No Change                               |          |       | NULL                  | No change compared to previously signalled configuration for this TRP.                                                                      |

### 9.3.1.257 TRP Beam Antenna Angles

The IE provides the beam antenna information of the TRP.

| IE/Group Name                | Presence | Range                     | IE type and reference | Semantics description                                                                                                                                                     |
|------------------------------|----------|---------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TRP Beam Antenna Angles Item |          | 1..<maxnoAzimuthAngles>   |                       |                                                                                                                                                                           |
| >TRP Azimuth Angle           | M        |                           | INTEGER (0..3599)     | For GCS, the azimuth angle is measured counter-clockwise from geographical North.<br>For LCS, the azimuth angle is measured counter-clockwise from the x-axis of the LCS. |
| >TRP Azimuth Angle fine      | O        |                           | INTEGER (0..9)        | Fine angle                                                                                                                                                                |
| >TRP Elevation Angle List    |          | 1                         |                       |                                                                                                                                                                           |
| >>TRP Elevation Angle Item   |          | 1..<maxnoElevationAngles> |                       |                                                                                                                                                                           |

| IE/Group Name                       | Presence | Range                                | IE type and reference | Semantics description                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------|----------|--------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| >>>TRP Elevation Angle              | M        |                                      | INTEGER (0..1800)     | For GCS, the elevation angle is measured relative to zenith and positive to the horizontal direction (elevation 0 deg. points to zenith, 90 deg to the horizon). For LCS, the elevation angle is measured relative to the z-axis of the LCS (elevation 0 deg. points to the z-axis, 90 deg to the x-y plane).                                                         |
| >>>TRP Elevation Angle fine         | O        |                                      | INTEGER (0..9)        | Fine angle                                                                                                                                                                                                                                                                                                                                                            |
| >>>TRP Beam Power List              |          | 1                                    |                       | Relative power between DL-PRS Resources for the given Azimuth and Elevation Angle. The first Relative Power element in this list provides the peak power for this Azimuth/Elevation angle and is defined as 0dB power. All the remaining Relative Power Element's in this list provide the relative DL-PRS Resource power relative to this first element in the list. |
| >>>>TRP Beam Power Item             |          | 2..<<br>maxNumResourcesPerAngle<br>> |                       |                                                                                                                                                                                                                                                                                                                                                                       |
| >>>>>PRS Resource Set ID            | O        |                                      | INTEGER (0..7)        | DL-PRS Resource Set ID of the DL-PRS Resource for which the Relative Power is provided. If this field is absent, the DL-PRS Resource Set ID for this instance of the Beam Power List is the same as the DL-PRS Resource Set ID of the previous instance in the Beam Power List. This field shall be included at least in the first instance of the Beam Power List.   |
| >>>>>PRS Resource ID                | M        |                                      | INTEGER (0..63)       | DL-PRS Resource for which the Relative Power is provided.                                                                                                                                                                                                                                                                                                             |
| >>>>>TRP Beam Relative Power        | M        |                                      | INTEGER (0..30)       | The power values span from -30 to 0dB                                                                                                                                                                                                                                                                                                                                 |
| >>>>>TRP Beam Relative Power "fine" | O        |                                      | INTEGER (0..9)        | Relative Power with 0.1dB resolution. The power spans from -0.9 to 0dB                                                                                                                                                                                                                                                                                                |

| Range bound             | Explanation                                                              |
|-------------------------|--------------------------------------------------------------------------|
| maxNumResourcesPerAngle | Maximum number of DL-PRS Resources per angle per TRP. Value is 24.       |
| maxnoAzimuthAngles      | Maximum number of azimuth angles per TRP. Value is 3600.                 |
| maxnoElevationAngles    | Maximum number of elevation angles per azimuth angle/TRP. Value is 1801. |

### 9.3.1.258 NR Paging eDRX Information

This IE indicates the NR Paging eDRX parameters for RRC\_IDLE as defined in TS 38.304 [24].

| IE/Group Name             | Presence | Range | IE type and reference                  | Semantics description                                            |
|---------------------------|----------|-------|----------------------------------------|------------------------------------------------------------------|
| NR Paging eDRX Cycle Idle | M        |       | ENUMERATED(hfq<br>uarter, hfhalf, hf1, | T <sub>eDRX,CN</sub> defined in TS 38.304 [24]. Unit: [number of |

| IE/Group Name         | Presence | Range | IE type and reference                                                                                                                                                  | Semantics description |
|-----------------------|----------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
|                       |          |       | hf2, hf4, hf8, hf16, hf32, hf64, hf128, hf256, hf512, hf1024, ...)                                                                                                     | hyperframes].         |
| NR Paging Time Window | O        |       | ENUMERATED(s1, s2, s3, s4, s5, s6, s7, s8, s9, s10, s11, s12, s13, s14, s15, s16, ..., s17, s18, s19, s20, s21, s22, s23, s24, s25, s26, s27, s28, s29, s30, s31, s32) | Unit: [1.28 second].  |

### 9.3.1.259 NR Paging eDRX Information for RRC INACTIVE

This IE indicates the NR Paging eDRX parameters for RRC\_INACTIVE as defined in TS 38.304 [24].

| IE/Group Name                 | Presence | Range | IE type and reference                    | Semantics description                                                    |
|-------------------------------|----------|-------|------------------------------------------|--------------------------------------------------------------------------|
| NR Paging eDRX Cycle Inactive | M        |       | ENUMERATED (hfquarter, hfhalf, hf1, ...) | $T_{eDRX,RAN}$ defined in TS 38.304 [24]. Unit: [number of hyperframes]. |

### 9.3.1.260 QoE Metrics

This IE provides the RAN visible QoE measurement report to gNB-DU.

| IE/Group Name                       | Presence | Range | IE type and reference | Semantics description        |
|-------------------------------------|----------|-------|-----------------------|------------------------------|
| Application Layer Buffer Level List | O        |       | OCTET STRING          | As defined in TS 38.331 [8]. |
| Playout Delay for Media Startup     | O        |       | OCTET STRING          | As defined in TS 38.331 [8]. |

### 9.3.1.261 CG-SDT Session Info

This IE identifies an CG-SDT session for a UE.

| IE/Group Name     | Presence | Range | IE type and reference | Semantics description |
|-------------------|----------|-------|-----------------------|-----------------------|
| gNB-CU UE F1AP ID | M        |       | 9.3.1.4               |                       |
| gNB-DU UE F1AP ID | M        |       | 9.3.1.5               |                       |

### 9.3.1.262 SDT Information

This IE is used to indicate an SDT transaction and to provide the assistant information from the UE.

| IE/Group Name             | Presence | Range | IE Type and Reference                             | Semantics Description                                                                                                                |
|---------------------------|----------|-------|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| SDT Indicator             | M        |       | ENUMERATED (true,...)                             |                                                                                                                                      |
| SDT Assistant Information | O        |       | ENUMERATED (single packet, multiple packets, ...) | "single packet" indicates no subsequent SDT transmission is expected.<br>"multiple packets" indicates subsequent SDT transmission is |



| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
|---------------|----------|-------|-----------------------|-----------------------|
|               |          |       |                       | expected.             |

### 9.3.1.263 Path Switch Configuration

This IE provides information for switching to an indirect path from a direct path or from another indirect path. This IE is also used for only releasing the direct path during MP.

| IE/Group Name      | Presence | Range | IE type and reference                                                  | Semantics description                                                                                                 |
|--------------------|----------|-------|------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Target Relay UE ID | M        |       | BIT STRING (SIZE(24))                                                  | Corresponds to the <i>targetRelayUE-Identity</i> contained in the <i>CellGroupConfig</i> IE, defined in TS 38.331 [8] |
| Remote UE Local ID | M        |       | 9.3.1.267                                                              |                                                                                                                       |
| T420               | M        |       | ENUMERATED (ms50, ms100, ms150, ms200, ms500, ms1000, ms2000, ms10000) | Corresponds to the <i>t420</i> contained in the <i>CellGroupConfig</i> IE, defined in TS 38.331 [8]                   |

### 9.3.1.264 Sidelink Relay Configuration

This IE provides information of a U2N Remote UE when accessing the network via a U2N Relay UE.

| IE/Group Name                    | Presence | Range | IE type and reference        | Semantics description                                                                                                                                         |
|----------------------------------|----------|-------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| gNB-DU UE F1AP ID of Relay UE    | M        |       | gNB-DU UE F1AP ID<br>9.3.1.5 |                                                                                                                                                               |
| Remote UE Local ID               | M        |       | 9.3.1.267                    |                                                                                                                                                               |
| Sidelink Configuration Container | O        |       | OCTET STRING                 | Includes the <i>SL-ConfigDedicatedNR</i> IE as defined in subclause 6.3.5 in TS 38.331 [8] to carry PC5 Relay RLC channel configuration for Remote UE's SRB1. |

### 9.3.1.265 PC5 RLC Channel ID

This IE uniquely identifies a PC5 Relay RLC channel for a L2 U2N Remote UE, or a L2 U2N Relay UE, or a L2 U2U Remote UE, or L2 U2U Relay UE.

| IE/Group Name      | Presence | Range | IE type and reference  | Semantics description |
|--------------------|----------|-------|------------------------|-----------------------|
| PC5 RLC Channel ID | M        |       | INTEGER (1.. 512, ...) |                       |

### 9.3.1.266 Uu RLC Channel ID

This IE uniquely identifies a Uu Relay RLC channel for a L2 U2N Relay UE or a L2 MP Relay UE using N3C.

| IE/Group Name     | Presence | Range | IE type and reference | Semantics description                                                                                |
|-------------------|----------|-------|-----------------------|------------------------------------------------------------------------------------------------------|
| Uu RLC Channel ID | M        |       | INTEGER (1..32)       | Corresponds to information provided in the <i>Uu-RelayRLC-ChannelID</i> IE defined in TS 38.331 [8]. |

### 9.3.1.267 Remote UE Local ID

This IE uniquely identifies a L2 U2N Remote UE within the connected Relay UE.

| IE/Group Name      | Presence | Range | IE type and reference | Semantics description                                                                                          |
|--------------------|----------|-------|-----------------------|----------------------------------------------------------------------------------------------------------------|
| Remote UE Local ID | M        |       | INTEGER (0..255, ...) | Corresponds to the <i>sl-LocalIdentity</i> contained in the <i>SL-SRAP-Config</i> IE defined in TS 38.331 [8]. |

### 9.3.1.268 5G ProSe Authorized

This IE provides information on the authorization status of the UE for NR ProSe services.

| IE/Group Name                        | Presence | Range | IE type and reference                        | Semantics description                                                                                | Criticality | Assigned Criticality |
|--------------------------------------|----------|-------|----------------------------------------------|------------------------------------------------------------------------------------------------------|-------------|----------------------|
| 5G ProSe Direct Discovery            | O        |       | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized for 5G ProSe Direct Discovery                                 | -           |                      |
| 5G ProSe Direct Communication        | O        |       | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized for 5G ProSe Direct Communication                             | -           |                      |
| 5G ProSe Layer-2 UE-to-Network Relay | O        |       | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized for 5G ProSe Layer-2 UE-to-Network Relay                      | -           |                      |
| 5G ProSe Layer-3 UE-to-Network Relay | O        |       | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized for 5G ProSe Layer-3 UE-to-Network Relay                      | -           |                      |
| 5G ProSe Layer-2 Remote UE           | O        |       | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized for 5G ProSe Layer-2 Remote UE                                | -           |                      |
| 5G ProSe Layer-2 Multi-path          | O        |       | ENUMERATED (authorized, not authorized, ...) | Indicates whether the 5G ProSe Layer-2 Remote UE is authorized for 5G ProSe multi-path transmission. | YES         | ignore               |
| 5G ProSe Layer-2 UE-to-UE Relay      | O        |       | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized for 5G ProSe Layer-2 UE-to-UE Relay UE                        | YES         | ignore               |
| 5G ProSe Layer-2 UE-to-UE Remote     | O        |       | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized for 5G ProSe Layer-2 UE-to-UE Remote UE.                      | YES         | ignore               |

### 9.3.1.269 PEIPS Assistance Information

This IE provides the information related to CN paging subgrouping for a particular UE, as specified in TS 38.304 [24].

| IE/Group Name  | Presence | Range | IE type and reference | Semantics description |
|----------------|----------|-------|-----------------------|-----------------------|
| CN Subgroup ID | M        |       | INTEGER (0..7, ...)   |                       |

### 9.3.1.270 UE Paging Capability

This IE provides the UE Paging Capability information needed for paging.

| IE/Group Name                   | Presence | Range | IE type and reference      | Semantics description                                                                                                                 | Criticality | Assigned Criticality |
|---------------------------------|----------|-------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| INACTIVE State PO-Determination | O        |       | ENUMERATED (supported,...) | Corresponds to the <i>inactiveStatePO-Determination</i> contained in the <i>UERadioPagingInformation</i> IE defined in TS 38.331 [8]. | -           |                      |
| RedCap Indication               | O        |       | ENUMERATED (true,...)      | Indicates that the paged UE is a Redcap UE or an eRedCap UE.                                                                          | YES         | ignore               |

### 9.3.1.271 gNB-DU UE Slice Maximum Bit Rate List

This IE contains the UE Slice Maximum Bit Rate List as specified in TS 23.501 [21].

| IE/Group Name                         | Presence | Range                               | IE type and reference | Semantics description                                                                      |
|---------------------------------------|----------|-------------------------------------|-----------------------|--------------------------------------------------------------------------------------------|
| <b>UE Slice Maximum Bit Rate Item</b> |          | <i>1..&lt;maxnoofSMBRValues&gt;</i> |                       |                                                                                            |
| >S-NSSAI                              | M        |                                     | 9.3.1.38              |                                                                                            |
| >UE Slice Maximum Bit Rate Uplink     | M        |                                     | Bit Rate<br>9.3.1.22  | This IE indicates the UE-Slice-MBR as specified in TS 23.501 [21] in the uplink direction. |

| Range bound       | Explanation                                                        |
|-------------------|--------------------------------------------------------------------|
| maxnoofSMBRValues | Maximum no. of SLICE MAXIMUM BIT RATE values for a UE. Value is 8. |

### 9.3.1.272 Multicast MBS Session List

This IE indicates the Multicast MBS Sessions the UE has joined.

| IE/Group Name                     | Presence | Range                                    | IE type and reference | Semantics description |
|-----------------------------------|----------|------------------------------------------|-----------------------|-----------------------|
| <b>Multicast MBS Session Item</b> |          | <i>1..&lt;maxnoofMBSSessionsofUE&gt;</i> |                       |                       |
| >MBS Session ID                   | M        |                                          | 9.3.1.218             |                       |

| Range bound            | Explanation                                                       |
|------------------------|-------------------------------------------------------------------|
| maxnoofMBSSessionsofUE | Maximum no. of MBS sessions allowed towards one UE. Value is 256. |

### 9.3.1.273 TAI NSAG Support List

This IE indicates the list of NSAGs configured at the gNB-DU and their associated S-NSSAIs as defined in TS 23.501 [21].

| IE/Group Name            | Presence | Range                          | IE type and reference                    | Semantics description                                  |
|--------------------------|----------|--------------------------------|------------------------------------------|--------------------------------------------------------|
| <b>NSAG Support Item</b> |          | <i>1..&lt;maxnoofNSAGs&gt;</i> |                                          |                                                        |
| >NSAG ID                 | M        |                                | INTEGER (0.. 255, ...)                   |                                                        |
| >NSAG Slice Support List | M        |                                | Extended Slice Support List<br>9.3.1.165 | Indicates the list of slices which belong to the NSAG. |

| Range bound  | Explanation                                   |
|--------------|-----------------------------------------------|
| maxnoofNSAGs | Maximum no. of signalled NSAGs. Value is 256. |

### 9.3.1.274 MDT PLMN Modification List

The purpose of the *MDT PLMN List Modification* IE is to provide the modified list of PLMN allowed for MDT.

| IE/Group Name                     | Presence | Range                             | IE type and reference | Semantics description                                     |
|-----------------------------------|----------|-----------------------------------|-----------------------|-----------------------------------------------------------|
| <b>MDT PLMN Modification List</b> |          | <i>0..&lt;maxnoofMDTPLMNs&gt;</i> |                       | An empty list indicates there is no PLMN allowed for MDT. |
| >PLMN Identity                    | M        |                                   | 9.3.1.14              |                                                           |

| Range bound     | Explanation                                             |
|-----------------|---------------------------------------------------------|
| maxnoofMDTPLMNs | Maximum no. of PLMNs in the MDT PLMN list. Value is 16. |

### 9.3.1.275 MRB RLC Configuration

This ID provides MRB RLC Configuration Information and is provided by the gNB-DU.

| IE/Group Name         | Presence | Range | IE type and reference                                                                                                                               | Semantics description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------|----------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MRB RLC Configuration | M        |       | ENUMERATED ( rlc-um-ptp, rlc-am-ptp, rlc-um-dl-ptm, two-rlc-um-dl-ptp-and-dl-ptm, three-rlc-um-dl-ptp-ul-ptp-dl-ptm, two-rlc-am-ptp-um-dl-ptm, ...) | The various codepoints correspond to MRB configurations specified in TS 38.300 [6] as follows:<br>"rlc-um-ptp ": Multicast MRB with DL only RLC-UM or bidirectional RLC-UM configuration for PTP transmission;<br>"rlc-am-ptp " Multicast MRB with RLC-AM entity configuration for PTP transmission;<br>" rlc-um-dl-ptm " Multicast MRB with DL only RLC-UM entity for PTM transmission;<br>"two-rlc-um-dl-ptp-and-dl-ptm ": Multicast MRB with two RLC-UM entities, one DL only RLC-UM entity for PTP transmission and the other DL only RLC-UM entity for PTM transmission;<br>"three-rlc-um-dl-ptp-ul-ptp-dl-ptm ": Multicast MRB with three RLC- |

| IE/Group Name | Presence | Range | IE type and reference | Semantics description                                                                                                                                                                                                                                                                     |
|---------------|----------|-------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               |          |       |                       | UM entities, one DL RLC-UM entity for PTP transmission and the other DL only RLC-UM entity for PTM transmission;<br>"two-rlc-am-ptp-um-dl-ptm ";<br>Multicast MRB with two RLC entities, one RLC-AM entity for PTP transmission and the other DL only RLC-UM entity for PTM transmission; |

### 9.3.1.276 Timing Error Margin

This information element contains the Timing error margin for the TRP Rx TEG, or TRP Tx TEG.

| IE/Group Name       | Presence | Range | IE type and reference                                                                                     | Semantics description |
|---------------------|----------|-------|-----------------------------------------------------------------------------------------------------------|-----------------------|
| Timing Error Margin | M        |       | ENUMERATED(Tc0, Tc2, Tc4, Tc6, Tc8, Tc12, Tc16, Tc20, Tc24, Tc32, Tc40, Tc48, Tc56, Tc64, Tc72, Tc80,...) |                       |

### 9.3.1.277 SDT Bearer Configuration Info

This IE contains RLC bearer configuration of each SDT bearer.

| IE/Group Name                               | Presence | Range                                 | IE type and reference | Semantics description                                                               |
|---------------------------------------------|----------|---------------------------------------|-----------------------|-------------------------------------------------------------------------------------|
| <b>SDT Bearer Config List</b>               |          | <b>1</b>                              |                       |                                                                                     |
| <b>&gt;SDT Bearer Config Item IEs</b>       |          | <b>1 .. &lt;maxnoofSDTBearers&gt;</b> |                       |                                                                                     |
| <b>&gt;&gt;CHOICE SDT Bearer Type</b>       | M        |                                       |                       |                                                                                     |
| <b>&gt;&gt;&gt;SRB</b>                      |          |                                       |                       |                                                                                     |
| <b>&gt;&gt;&gt;&gt;SRB ID</b>               | M        |                                       | 9.3.1.7               |                                                                                     |
| <b>&gt;&gt;&gt;&gt;DRB</b>                  |          |                                       |                       |                                                                                     |
| <b>&gt;&gt;&gt;&gt;DRB ID</b>               | M        |                                       | 9.3.1.8               |                                                                                     |
| <b>&gt;&gt;SDT RLC Bearer Configuration</b> | M        |                                       | OCTET STRING          | Includes the <i>RLC-BearerConfig</i> IE defined in subclause 6.3.2 of TS 38.331 [8] |

| Range bound       | Explanation                                                                                       |
|-------------------|---------------------------------------------------------------------------------------------------|
| maxnoofSDTBearers | Maximum no. of SDT bearers. Value is the summation of maximum numbers of DRBs and SRBs, i.e., 72. |

### 9.3.1.278 PosSIType List

This IE is used to indicate the list of positioning SI message to be broadcast.

| IE/Group Name              | Presence | Range                                | IE type and reference | Semantics description        |
|----------------------------|----------|--------------------------------------|-----------------------|------------------------------|
| <b>PosSI type item IEs</b> |          | <b>1.. &lt;maxnoofPosSITypes&gt;</b> |                       |                              |
| <b>&gt;PosSI Type</b>      | M        |                                      | INTEGER (1..32, ...)  | Value "1" corresponds to the |

| IE/Group Name | Presence | Range | IE type and reference | Semantics description                                                                                                                                                                                                                                                                                                                 |
|---------------|----------|-------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               |          |       |                       | positioning SI message identified by the first SI message indicated in the <i>posSI-SchedulingInfo</i> IE in the <i>SIB1</i> message, value "2" to the positioning SI message identified by the second SI message indicated in the <i>posSI-SchedulingInfo</i> IE in the <i>SIB1</i> message, and so on, as defined in TS 38.331 [8]. |

| Range bound       | Explanation                                                   |
|-------------------|---------------------------------------------------------------|
| maxnoofPosSITypes | Maximum no. of positioning SI types, the maximum value is 32. |

### 9.3.1.279 IAB-DU Cell Resource Configuration-Mode-Info

This IE contains the IAB-DU Cell Resource Configuration-Mode-Info.

| IE/Group Name                                              | Presence | Range | IE type and reference                        | Semantics description                                                                                                     | Criticality | Assigned Criticality |
|------------------------------------------------------------|----------|-------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| CHOICE <i>IAB-DU Cell Resource Configuration-Mode-Info</i> | M        |       |                                              |                                                                                                                           | -           |                      |
| > <i>FDD</i>                                               |          |       |                                              |                                                                                                                           |             |                      |
| >> <i>FDD Info</i>                                         |          | 1     |                                              |                                                                                                                           | -           |                      |
| >>>gNB-DU Cell Resource Configuration-FDD-UL               | M        |       | gNB-DU Cell Resource Configuration 9.3.1.107 | Contains FDD UL resource configuration of the gNB-DU cell. Only applicable if the gNB-DU is an IAB-DU or an IAB-donor-DU. | -           |                      |
| >>>gNB-DU Cell Resource Configuration-FDD-DL               | M        |       | gNB-DU Cell Resource Configuration 9.3.1.107 | Contains FDD DL resource configuration of the gNB-DU cell. Only applicable if the gNB-DU is an IAB-DU or an IAB-donor-DU. | -           |                      |
| >>>UL Frequency Info                                       | O        |       | NR Frequency Info 9.3.1.17                   |                                                                                                                           | YES         | reject               |
| >>>UL Transmission Bandwidth                               | O        |       | Transmission Bandwidth 9.3.1.15              |                                                                                                                           | YES         | reject               |
| >>>UL Carrier List                                         | O        |       | NR Carrier List 9.3.1.137                    | If included, the <i>UL Transmission Bandwidth</i> IE shall be ignored.                                                    | YES         | reject               |
| >>>DL Frequency Info                                       | O        |       | NR Frequency Info 9.3.1.17                   |                                                                                                                           | YES         | reject               |
| >>>DL Transmission Bandwidth                               | O        |       | Transmission Bandwidth 9.3.1.15              |                                                                                                                           | YES         | reject               |
| >>>DL Carrier List                                         | O        |       | NR Carrier List 9.3.1.137                    | If included, the <i>DL Transmission Bandwidth</i> IE shall be ignored.                                                    | YES         | reject               |
| > <i>TDD</i>                                               |          |       |                                              |                                                                                                                           |             |                      |

| IE/Group Name                             | Presence | Range | IE type and reference                        | Semantics description                                                                                                  | Criticality | Assigned Criticality |
|-------------------------------------------|----------|-------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| >>TDD Info                                |          | 1     |                                              |                                                                                                                        | -           |                      |
| >>>gNB-DU Cell Resource Configuration-TDD | M        |       | gNB-DU Cell Resource Configuration 9.3.1.107 | Contains TDD resource configuration of the gNB-DU cell. Only applicable if the gNB-DU is an IAB-DU or an IAB-donor-DU. | -           |                      |
| >>>NR Frequency Info                      | O        |       | 9.3.1.17                                     |                                                                                                                        | YES         | reject               |
| >>>Transmission Bandwidth                 | O        |       | 9.3.1.15                                     |                                                                                                                        | YES         | reject               |
| >>>Carrier List                           | O        |       | NR Carrier List 9.3.1.137                    | If included, the <i>Transmission Bandwidth</i> IE shall be ignored.                                                    | YES         | reject               |

### 9.3.1.280 TRP Rx TEG Information

This information element contains the TRP Rx TEG information.

| IE/Group Name              | Presence | Range | IE type and reference         | Semantics description                                |
|----------------------------|----------|-------|-------------------------------|------------------------------------------------------|
| TRP Rx TEG ID              | M        |       | INTEGER (0..31)               |                                                      |
| TRP Rx Timing Error Margin | M        |       | Timing Error Margin 9.3.1.276 | Timing error margin associated to the TRP Rx TEG ID. |

### 9.3.1.281 TRP Tx TEG Information

This information element contains the TRP Tx TEG information.

| IE/Group Name              | Presence | Range | IE type and reference         | Semantics description                                |
|----------------------------|----------|-------|-------------------------------|------------------------------------------------------|
| TRP Tx TEG ID              | M        |       | INTEGER (0..7)                |                                                      |
| TRP Tx Timing Error Margin | M        |       | Timing Error Margin 9.3.1.276 | Timing error margin associated to the TRP Tx TEG ID. |

### 9.3.1.282 TRP RxTx TEG Information

This information element contains the TRP RxTx TEG information.

| IE/Group Name                | Presence | Range | IE type and reference                                                                                            | Semantics description                                  |
|------------------------------|----------|-------|------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| TRP RxTx TEG ID              | M        |       | INTEGER (0..255)                                                                                                 |                                                        |
| TRP RxTx Timing Error Margin | M        |       | ENUMERATED(Tc0 dot5, Tc1, Tc2, Tc4, Tc8, Tc12, Tc16, Tc20, Tc24, Tc32, Tc40, Tc48, Tc64, Tc80, Tc96, Tc128, ...) | Timing error margin associated to the TRP RxTx TEG ID. |

### 9.3.1.283 Uplink TxDirectCurrentTwoCarrierList Information

This IE contains the Uplink TxDirectCurrentTwoCarrierList information that is configured by the UE.

| IE/Group Name                                     | Presence | Range | IE type and reference | Semantics description                                                                   |
|---------------------------------------------------|----------|-------|-----------------------|-----------------------------------------------------------------------------------------|
| Uplink TxDirectCurrentTwoCarrier List Information | M        |       | OCTET STRING          | Includes the <i>UplinkTxDirectCurrentTwoCarrierList</i> IE as defined in TS 38.331 [8]. |

### 9.3.1.284 Uplink TxDirectCurrentMoreCarrierList Information

This IE contains the Uplink TxDirectCurrentMoreCarrierList information that is configured by the UE.

| IE/Group Name                                      | Presence | Range | IE type and reference | Semantics description                                                                    |
|----------------------------------------------------|----------|-------|-----------------------|------------------------------------------------------------------------------------------|
| Uplink TxDirectCurrentMoreCarrier List Information | M        |       | OCTET STRING          | Includes the <i>UplinkTxDirectCurrentMoreCarrierList</i> IE as defined in TS 38.331 [8]. |

### 9.3.1.285 Extended UE Identity Index Value

This IE is used by the gNB-DU to calculate the Paging Frame and Paging Occasion for eDRX, and the UE\_ID based subgroup ID as specified in TS 38.304 [24].

| IE/Group Name                    | Presence | Range | IE type and reference | Semantics description |
|----------------------------------|----------|-------|-----------------------|-----------------------|
| Extended UE Identity Index Value | M        |       | BIT STRING (SIZE(16)) |                       |

### 9.3.1.286 Hashed UE Identity Index Value

This IE is the 13 Most Significant Bits (MSBs) of the Hashed ID defined in TS 38.304 [24].

| IE/Group Name                  | Presence | Range | IE type and reference      | Semantics description |
|--------------------------------|----------|-------|----------------------------|-----------------------|
| Hashed UE Identity Index Value | M        |       | BIT STRING (SIZE(13, ...)) |                       |

### 9.3.1.287 Broadcast Area Scope

This IE contains the Broadcast Area where the broadcast session is delivered.

| IE/Group Name                    | Presence | Range                  | IE Type and Reference | Semantics Description                                                      |
|----------------------------------|----------|------------------------|-----------------------|----------------------------------------------------------------------------|
| CHOICE <i>BroadcastAreaScope</i> | M        |                        |                       |                                                                            |
| > <i>CompleteSuccess</i>         |          |                        | NULL                  |                                                                            |
| > <i>PartialSuccess</i>          |          |                        |                       |                                                                            |
| >> <b>Broadcast Cell List</b>    |          | 1                      |                       |                                                                            |
| >>> <b>Broadcast Cell Item</b>   |          | 1 .. <maxcellingNB DU> |                       |                                                                            |
| >>>>Cell ID                      | M        |                        | NR CGI 9.3.1.12       | Identifier of the cells that establish the broadcast service successfully. |

| Range bound            | Explanation                                                                                     |
|------------------------|-------------------------------------------------------------------------------------------------|
| <i>maxcellingNB DU</i> | Maximum no. of cells which establish the MRBs successfully in one DU, the maximum value is 512. |



### 9.3.1.288 Network Controlled Repeater Authorized

This IE provides the authorization status of the Network Controlled Repeater.

| IE/Group Name                          | Presence | Range | IE type and reference                           | Semantics description |
|----------------------------------------|----------|-------|-------------------------------------------------|-----------------------|
| Network Controlled Repeater Authorized | M        |       | ENUMERATED<br>(authorized, not authorized, ...) |                       |

### 9.3.1.289 MT-SDT Information

This IE indicates MT-SDT information.

| IE/Group Name    | Presence | Range | IE Type and Reference     | Semantics Description |
|------------------|----------|-------|---------------------------|-----------------------|
| MT-SDT Indicator | M        |       | ENUMERATED<br>(true, ...) |                       |

### 9.3.1.290 Supported UE Type List

This IE indicates the supported UE Type list for MBS session.

| IE/Group Name                          | Presence | Range                            | IE type and reference                               | Semantics description |
|----------------------------------------|----------|----------------------------------|-----------------------------------------------------|-----------------------|
| <b>Supported UE Type List Item IEs</b> |          | <i>1..&lt;maxnoofUETypes&gt;</i> |                                                     |                       |
| >Supported UE type                     | M        |                                  | ENUMERATED<br>(Non-(e)RedCap-UE, (e)RedCap-UE, ...) |                       |

| Range bound    | Explanation                                     |
|----------------|-------------------------------------------------|
| maxnoofUETypes | Maximum no. of associated UE types. Value is 8. |

### 9.3.1.291 LTM Cells To Be Released List

This IE indicates a list of LTM cells to be released.

| IE/Group Name                            | Presence | Range                               | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|------------------------------------------|----------|-------------------------------------|-----------------------|-----------------------|-------------|----------------------|
| <b>LTM Cells To Be Released Item IEs</b> |          | <i>1 .. &lt;maxnoofLTMCells&gt;</i> |                       |                       | EACH        | reject               |
| >LTM Cell ID                             | M        |                                     | NR CGI<br>9.3.1.12    |                       | -           |                      |

| Range bound     | Explanation                                                                             |
|-----------------|-----------------------------------------------------------------------------------------|
| maxnoofLTMCells | Maximum no. of Cells configured for LTM allowed towards one UE, the maximum value is 8. |

### 9.3.1.292 Reference Configuration

This IE contains either the request for lower layer reference configuration or the generated lower layer reference configuration used for LTM preparation.

| IE/Group Name                                   | Presence | Range | IE type and reference  | Semantics description                                                |
|-------------------------------------------------|----------|-------|------------------------|----------------------------------------------------------------------|
| CHOICE <i>Reference Configuration</i>           | M        |       |                        |                                                                      |
| > <i>Request for Lower Layer Configuration</i>  |          |       |                        |                                                                      |
| >> <i>Request for Lower Layer Configuration</i> | M        |       | ENUMERATED (true, ...) |                                                                      |
| > <i>Reference Configuration Information</i>    |          |       |                        |                                                                      |
| >> <i>LTM Reference Configuration</i>           | M        |       | OCTET STRING           | Includes the <i>CellGroupConfig</i> IE, as defined in TS 38.331 [8]. |

### 9.3.1.293 Void

### 9.3.1.294 LTM Configuration ID Mapping List

This IE indicates the list of LTM cells associated with its configuration IDs.

| IE/Group Name                            | Presence | Range                             | IE type and reference | Semantics description                                                      | Criticality | Assigned Criticality |
|------------------------------------------|----------|-----------------------------------|-----------------------|----------------------------------------------------------------------------|-------------|----------------------|
| <b>Configuration ID Mapping Item IEs</b> |          | <i>1..&lt;maxnoofLTMCells&gt;</i> |                       |                                                                            | -           |                      |
| > <i>LTM Cell ID</i>                     | M        |                                   | NR CGI 9.3.1.12       |                                                                            | -           |                      |
| > <i>LTM Configuration ID</i>            | M        |                                   | INTEGER (1..8)        | Corresponds to the <i>LTM-CandidateId</i> IE, as defined in TS 38.331 [8]. | -           |                      |

| Range bound     | Explanation                                                                         |
|-----------------|-------------------------------------------------------------------------------------|
| maxnoofLTMCells | Maximum no. of Cells configured LTM allowed towards one UE, the maximum value is 8. |

### 9.3.1.295 Radio Resource Status NR-U

The *Radio Resource Status NR-U* IE indicates the usage of the PRBs per NR-U channel for all traffic in Downlink and Uplink.

| IE/Group Name      | Presence | Range | IE type and reference | Semantics description                                                           |
|--------------------|----------|-------|-----------------------|---------------------------------------------------------------------------------|
| DL Total PRB Usage | M        |       | INTEGER (0..100)      | Per NR-U Channel DL Total PRB usage in percentage of the cell total PRB number. |
| UL Total PRB Usage | M        |       | INTEGER (0..100)      | Per NR-U Channel UL Total PRB usage in percentage of the cell total PRB number. |

### 9.3.1.296 Path Addition Information

This IE provides information for path addition in case of MP.

| IE/Group Name                           | Presence | Range | IE type and reference | Semantics description |
|-----------------------------------------|----------|-------|-----------------------|-----------------------|
| CHOICE <i>Path Addition Information</i> | M        |       |                       |                       |

|                             |   |  |                              |                                                                                                  |
|-----------------------------|---|--|------------------------------|--------------------------------------------------------------------------------------------------|
| >Indirect Path Addition     |   |  |                              |                                                                                                  |
| >>Target Relay UE ID        | M |  | BIT STRING (SIZE(24))        | Corresponds to information provided in the <i>SL-SourceIdentity</i> IE, defined in TS 38.331 [8] |
| >>Remote UE Local ID        | M |  | 9.3.1.267                    |                                                                                                  |
| >Direct Path Addition       |   |  | NULL                         |                                                                                                  |
| >N3C Indirect Path Addition |   |  |                              |                                                                                                  |
| >>Target Relay UE ID        | M |  | gNB-DU UE F1AP ID<br>9.3.1.5 | Indicates the <i>gNB-DU UE F1AP ID</i> IE of MP Relay UE using N3C.                              |

### 9.3.1.297 Recommended SSBs for Paging List

This IE indicates the recommended SSBs for paging list.

| IE/Group Name                         | Presence | Range                               | IE type and reference | Semantics description                             |
|---------------------------------------|----------|-------------------------------------|-----------------------|---------------------------------------------------|
| Recommended SSBs for Paging List Item |          | 1 .. <<br><i>maxCellingNB DU</i> >  |                       |                                                   |
| >NR CGI                               | M        |                                     | 9.3.1.12              |                                                   |
| >SSBs for Paging List                 |          | 1 .. <<br><i>maxnoofSSBA reas</i> > |                       |                                                   |
| >>SSB Index                           | M        |                                     | INTEGER (0..63)       | Identifier of the recommended SSB beam for paging |

| Range bound     | Explanation                                                      |
|-----------------|------------------------------------------------------------------|
| maxCellingNB DU | Maximum no. cells that can be served by a gNB-DU. Value is 512.  |
| maxnoofSSBAreas | Maximum no. SSB Areas that can be served by a cell. Value is 64. |

### 9.3.1.298 RAN Timing Synchronisation Status Information

This IE indicates the RAN timing synchronisation status information provided from the gNB-DU to the gNB-CU.

| IE/Group Name             | Presence | Range | IE type and reference                                                                                  | Semantics description                                                        |
|---------------------------|----------|-------|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Synchronisation State     | O        |       | ENUMERATED (locked, holdover, freeRun, ...)                                                            |                                                                              |
| Traceable to UTC          | O        |       | ENUMERATED (true, false, ...)                                                                          |                                                                              |
| Traceable to GNSS         | O        |       | ENUMERATED (true, false, ...)                                                                          |                                                                              |
| Clock Frequency Stability | O        |       | BIT STRING (SIZE (16))                                                                                 | Indicates the <i>offsetScaledLogVariance</i> as specified in TS 23.501 [21]. |
| Clock Accuracy            | O        |       | 9.3.1.299                                                                                              |                                                                              |
| Parent Time Source        | O        |       | ENUMERATED (syncE, pTP, gNSS, atomicClock, terrestrialRadio, serialTimeCode, nTP, handSet, other, ...) |                                                                              |

### 9.3.1.299 Clock Accuracy

This IE indicates the clock accuracy as defined in TS 23.501 [21].

| IE/Group Name                | Presence | Range | IE type and reference      | Semantics description                                                                                       |
|------------------------------|----------|-------|----------------------------|-------------------------------------------------------------------------------------------------------------|
| CHOICE <i>Clock Accuracy</i> | M        |       |                            |                                                                                                             |
| > <i>Value</i>               |          |       |                            |                                                                                                             |
| >>Clock Accuracy Value       | M        |       | INTEGER (1..40000000, ...) | Indicates the absolute clock accuracy value expressed in units of 25 ns .                                   |
| > <i>Index</i>               |          |       |                            |                                                                                                             |
| >>Clock Accuracy Index       | M        |       | INTEGER (32..47, ...)      | Indicates the clockAccuracy enumeration value specified in Table 5 of clause 7.6.2.6 of IEEE Std 1588 [48]. |

### 9.3.1.300 Burst Arrival Time Window

This IE indicates the Burst Arrival Time Window of the TSC QoS flow as defined in TS 23.501 [21].

| IE/Group Name               | Presence | Range | IE type and reference    | Semantics description                                                                                                                                          |
|-----------------------------|----------|-------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Earliest Burst Arrival Time | M        |       | INTEGER (0..640000, ...) | Start of the burst arrival time window calculated with reference to the <i>Burst Arrival Time</i> IE, expressed in units of 1 us. Integer values are negative. |
| Latest Burst Arrival Time   | M        |       | INTEGER (0..640000, ...) | End of the burst arrival time window calculated with reference to the <i>Burst Arrival Time</i> IE, expressed in units of 1 us. Integer values are positive.   |

### 9.3.1.301 Periodicity Range

This IE indicates the periodicity range for the TSC QoS flow as defined in TS 23.501 [21].

| IE/Group Name                      | Presence | Range                     | IE type and reference | Semantics description |
|------------------------------------|----------|---------------------------|-----------------------|-----------------------|
| CHOICE <i>Periodicity Range</i>    | M        |                           |                       |                       |
| > <i>Periodicity Bound</i>         |          |                           |                       |                       |
| >> <i>Periodicity Lower Bound</i>  | M        |                           | Periodicity 9.3.1.143 |                       |
| >> <i>Periodicity Upper Bound</i>  | M        |                           | Periodicity 9.3.1.143 |                       |
| > <i>Periodicity List</i>          |          |                           |                       |                       |
| >> <i>Allowed Periodicity List</i> |          | 1..<maxnoofPeriodicities> |                       |                       |
| >>>Allowed Periodicity             | M        |                           | Periodicity 9.3.1.143 |                       |

| Range bound                 | Explanation                                       |
|-----------------------------|---------------------------------------------------|
| <i>maxnoofPeriodicities</i> | Maximum no. of allowed periodicities. Value is 8. |

### 9.3.1.302 TSC Traffic Characteristics Feedback

This IE provides the TSC traffic characteristics feedback of a TSC QoS flow (see TS 23.501 [21]).

| IE/Group Name                     | Presence | Range | IE type and reference              | Semantics description |
|-----------------------------------|----------|-------|------------------------------------|-----------------------|
| TSC Feedback Information Downlink | O        |       | TSC Feedback Information 9.3.1.303 |                       |
| TSC Feedback Information          | O        |       | TSC Feedback                       |                       |

| IE/Group Name | Presence | Range | IE type and reference    | Semantics description |
|---------------|----------|-------|--------------------------|-----------------------|
| Uplink        |          |       | Information<br>9.3.1.303 |                       |

### 9.3.1.303 TSC Feedback Information

This IE provides the TSC feedback information for a TSC QoS flow in the uplink or downlink (see TS 23.501 [21]).

| IE/Group Name             | Presence | Range | IE type and reference          | Semantics description                                 |
|---------------------------|----------|-------|--------------------------------|-------------------------------------------------------|
| Burst Arrival Time Offset | M        |       | INTEGER (-640000..640000, ...) | Burst arrival time offset expressed in units of 1 us. |
| Adjusted Periodicity      | O        |       | Periodicity<br>9.3.1.143       | Not applicable to reactive RAN feedback.              |

### 9.3.1.304 Mobile TRP Location Information

This IE contains location information for a mobile TRP.

| IE/Group Name        | Presence | Range | IE type and reference   | Semantics description                                                                            |
|----------------------|----------|-------|-------------------------|--------------------------------------------------------------------------------------------------|
| Location Information | M        |       | OCTET STRING            | Location of the mobile TRP, includes the <i>locationEstimate</i> IE as defined in TS 37.355 [39] |
| Velocity Information | O        |       | OCTET STRING            | Velocity of the mobile TRP, includes the <i>velocityEstimate</i> IE as defined in TS 37.355 [39] |
| Location Time Stamp  | O        |       | Time Stamp<br>9.3.1.171 | Time stamp, indicates the time when the mobile TRP location information is generated             |

### 9.3.1.305 Global gNB ID

This IE is used to globally identify a gNB (see TS 38.300 [6]).

| IE/Group Name        | Presence | Range | IE type and reference        | Semantics description                                                                                                          |
|----------------------|----------|-------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| PLMN Identity        | M        |       | 9.3.1.14                     |                                                                                                                                |
| CHOICE <i>gNB ID</i> | M        |       |                              |                                                                                                                                |
| > <i>gNB ID</i>      |          |       |                              |                                                                                                                                |
| >> <i>gNB ID</i>     | M        |       | BIT STRING<br>(SIZE(22..32)) | Equal to the leftmost bits of the <i>NR Cell Identity</i> IE contained in the <i>NR CGI</i> IE of each cell served by the gNB. |

### 9.3.1.306 RRC Terminating IAB-Donor Related Info

This IE contains the information related to a mobile IAB-node's RRC-terminating IAB-donor.

| IE/Group Name                    | Presence | Range | IE type and reference      | Semantics description                                                             |
|----------------------------------|----------|-------|----------------------------|-----------------------------------------------------------------------------------|
| RRC Terminating IAB-Donor gNB-ID | M        |       | Global gNB ID<br>9.3.1.305 | The Global gNB ID of a mobile IAB-node's RRC-terminating IAB donor.               |
| Mobile IAB-MT BAP Address        | M        |       | BAP Address<br>9.3.1.111   | The BAP address assigned to the mobile IAB-node by the RRC-terminating IAB-donor. |

### 9.3.1.307 Mobile IAB-MT User Location Information

This IE contains the user location information of mobile IAB-MT which is co-located with the mobile IAB-DU.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description                                                                                                                |
|---------------|----------|-------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| NR CGI        | M        |       | 9.3.1.12              | The NR CGI of the cell, which is the serving cell of the mobile IAB-MT co-located with the mobile IAB-DU that serves the UE.         |
| TAI           | M        |       | 9.3.1.308             | The TAI supported by the cell, which is the serving cell of the mobile IAB-MT co-located with the mobile IAB-DU which serves the UE. |

### 9.3.1.308 TAI

This IE is used to uniquely identify a Tracking Area.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
|---------------|----------|-------|-----------------------|-----------------------|
| PLMN Identity | M        |       | 9.3.1.14              |                       |
| 5GS TAC       | M        |       | 9.3.1.29              |                       |

### 9.3.1.309 Associated Session ID

This IE is used to associate MBS Session IDs providing identical user data.

| IE/Group Name         | Presence | Range | IE type and reference | Semantics description                                                                                                                               |
|-----------------------|----------|-------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Associated Session ID | M        |       | OCTET STRING          | Coded as <i>AssociatedSessionId</i> defined in TS 29.571 [50].<br>The gNB-DU does not interpret the content of the <i>Associated Session ID</i> IE. |

### 9.3.1.310 Multicast CU to DU RRC Information

This IE indicates the multicast specific CU to DU RRC Information.

| IE/Group Name                           | Presence | Range                               | IE type and reference   | Semantics description |
|-----------------------------------------|----------|-------------------------------------|-------------------------|-----------------------|
| <b>MBS Multicast Cell List</b>          |          | <i>0..1</i>                         |                         |                       |
| <b>&gt;MBS Multicast Cell Item</b>      |          | <i>1 .. &lt;maxCellingN BDU&gt;</i> |                         |                       |
| >>NR CGI                                | M        |                                     | NR CGI 9.3.1.12         |                       |
| >>Multicast RRC_INACTIVE Reception Mode | O        |                                     | 9.3.1.318               |                       |
| >>MBS Multicast Configuration Request   | O        |                                     | ENUMERATED (query, ...) |                       |
| <b>MBS Multicast MRB List</b>           |          | <i>0..1</i>                         |                         |                       |

| IE/Group Name                     | Presence | Range                           | IE type and reference | Semantics description                                                         |
|-----------------------------------|----------|---------------------------------|-----------------------|-------------------------------------------------------------------------------|
| <b>&gt;MBS Multicast MRB Item</b> |          | <i>1 .. &lt;maxnoofMRBs&gt;</i> |                       |                                                                               |
| >>MRB ID                          | M        |                                 | 9.3.1.224             |                                                                               |
| >>MRB PDCP Config Broadcast       | M        |                                 | OCTET STRING          | Includes the <i>MRB-PDCP-ConfigBroadcast</i> IE, as defined in TS 38.331 [8]. |

| Range bound    | Explanation                                                                        |
|----------------|------------------------------------------------------------------------------------|
| maxCellingNBDU | Maximum no. cells that can be served by a gNB-DU. Value is 512.                    |
| maxnoofMRBs    | Maximum no. MRBs allowed to be setup for one MBS session, the maximum value is 32. |

### 9.3.1.311 Multicast DU to CU RRC Information

This IE indicates the multicast specific DU to CU RRC Information.

| IE/Group Name                                      | Presence | Range                              | IE type and reference | Semantics description |
|----------------------------------------------------|----------|------------------------------------|-----------------------|-----------------------|
| <b>MBS Multicast Cell List</b>                     |          | <i>0..1</i>                        |                       |                       |
| <b>&gt;MBS Multicast Cell Item</b>                 |          | <i>1 .. &lt;maxCellingNBDU&gt;</i> |                       |                       |
| >>NR CGI                                           | M        |                                    | NR CGI 9.3.1.12       |                       |
| >>MBS Multicast Configuration Response Information | O        |                                    | 9.3.1.312             |                       |
| >>MBS Multicast Configuration Notification         | O        |                                    | 9.3.1.313             |                       |

| Range bound    | Explanation                                                     |
|----------------|-----------------------------------------------------------------|
| maxCellingNBDU | Maximum no. cells that can be served by a gNB-DU. Value is 512. |

### 9.3.1.312 MBS Multicast Configuration Response Information

This IE contains information on the gNB-DU's response to the requested multicast configuration for reception RRC\_INACTIVE.

| IE/Group Name                                                  | Presence | Range | IE type and reference           | Semantics description                                                              |
|----------------------------------------------------------------|----------|-------|---------------------------------|------------------------------------------------------------------------------------|
| <i>CHOICE MBS Multicast Configuration Response Information</i> | O        |       |                                 |                                                                                    |
| <i>&gt;MBS Multicast Configuration available</i>               |          |       |                                 |                                                                                    |
| >>MBS Multicast Configuration                                  | M        |       | OCTET STRING                    | Includes the <i>MBSMulticastConfiguration</i> message as defined in TS 38.331 [8]. |
| <i>&gt;MBS Multicast Configuration not available</i>           |          |       |                                 |                                                                                    |
| >>MBS Multicast Configuration not available                    | M        |       | ENUMERATED (not available, ...) |                                                                                    |

### 9.3.1.313 MBS Multicast Configuration Notification

This IE contains information on the gNB-DU's notification of MBS Multicast Configuration information.

| IE/Group Name                                                      | Presence | Range | IE type and reference | Semantics description                                                              |
|--------------------------------------------------------------------|----------|-------|-----------------------|------------------------------------------------------------------------------------|
| CHOICE <i>MBS Multicast Configuration Notification Information</i> | O        |       |                       |                                                                                    |
| > <i>MBS Multicast Configuration changed</i>                       |          |       |                       |                                                                                    |
| >> <i>MBS Multicast Configuration changed</i>                      | M        |       | OCTET STRING          | Includes the <i>MBSMulticastConfiguration</i> message as defined in TS 38.331 [8]. |
| > <i>MBS Multicast Configuration removed</i>                       |          |       | NULL                  |                                                                                    |

### 9.3.1.314 Multicast CU to DU Common RRC Information

This IE includes multicast specific CU to DU common RRC information.

| IE/Group Name                                                      | Presence | Range                               | IE type and reference                                          | Semantics description |
|--------------------------------------------------------------------|----------|-------------------------------------|----------------------------------------------------------------|-----------------------|
| <b>Multicast Common CU2DU Cell List</b>                            |          | <i>0..1</i>                         |                                                                |                       |
| > <b>Multicast COMMON CU2DU Cell Item</b>                          |          | <i>1 .. &lt;maxCellingN BDU&gt;</i> |                                                                |                       |
| >>NR CGI                                                           | M        |                                     | NR CGI 9.3.1.12                                                |                       |
| >> <b>Multicast Common CU2DU Cell Information</b>                  |          | <i>1</i>                            |                                                                |                       |
| >>>CHOICE <i>MBS Multicast Neighbour Cell List Item</i>            | O        |                                     |                                                                |                       |
| >>>> <i>MBS Multicast Neighbour Cell List Information provided</i> |          |                                     |                                                                |                       |
| >>>>>MBS Multicast Neighbour Cell List Information provided        | M        |                                     | Update MBS Multicast Neighbour Cell List Information 9.3.1.315 |                       |
| >>>>>No MBS Multicast Neighbour Cell List provided                 |          |                                     | NULL                                                           |                       |
| >>>CHOICE <i>ThresholdMBS-List Item</i>                            | O        |                                     |                                                                |                       |
| >>>>ThresholdMBS-List Information provided                         |          |                                     |                                                                |                       |
| >>>>>ThresholdMBS-List Information provided                        | M        |                                     | Update ThresholdMBS-List Information 9.3.1.316                 |                       |
| >>>>>No ThresholdMBS-List provided                                 |          |                                     | NULL                                                           |                       |

| Range bound    | Explanation                                                     |
|----------------|-----------------------------------------------------------------|
| maxCellingNBDU | Maximum no. cells that can be served by a gNB-DU. Value is 512. |

### 9.3.1.315 Update MBS Multicast Neighbour Cell List Information

This IE includes MBS multicast neighbour cell related information provided in the multicast MCCH.



| IE/Group Name                                  | Presence | Range                                               | IE type and reference | Semantics description                                                                                                              |
|------------------------------------------------|----------|-----------------------------------------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------|
| MBS-NeighbourCellList                          | O        |                                                     | OCTET STRING          | Includes <i>mbs-NeighbourCellList-r18</i> as defined in TS 38.331[8]                                                               |
| <b>MTCH-NeighbourCell Session List</b>         |          | <i>0..1</i>                                         |                       |                                                                                                                                    |
| <b>&gt;MTCH-NeighbourCell Session Item</b>     |          | <i>1 .. &lt;maxMBSSessionsinSessionInfoList&gt;</i> |                       |                                                                                                                                    |
| >>MBS Session ID                               | M        |                                                     | 9.3.1.218             |                                                                                                                                    |
| >>CHOICE <i>MTCH-NeighbourCell Information</i> | M        |                                                     |                       |                                                                                                                                    |
| >>> <i>MTCH-NeighbourCell provided</i>         |          |                                                     |                       |                                                                                                                                    |
| >>>>MTCH-NeighbourCell provided                | M        |                                                     | OCTET STRING          | Includes the <i>mtch-NeighbourCell-r18</i> in the <i>MBS-SessionInfoListMulticast</i> IE as specified in TS 38.331 [8].            |
| >>> <i>MTCH-NeighbourCell not provided</i>     |          |                                                     | NULL                  | Indicates that the the <i>thresholdIndex</i> as defined in TS 38.331 [8] is not provided for the respective multicast MBS session. |

| Range bound                     | Explanation                                                                                                                              |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| maxMBSSessionsinSessionInfoList | Maximum no. multicast MBS sessions contained in the <i>MBS-SessionInfoListMulticast</i> IE as specified in TS 38.331 [8]. Value is 1024. |

### 9.3.1.316 Update ThresholdMBS-List Information

This IE includes threshold MBS related list information provided in the multicast MCCH.

| IE/Group Name                              | Presence | Range                                               | IE type and reference                       | Semantics description                                                                                                              |
|--------------------------------------------|----------|-----------------------------------------------------|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| <i>ThresholdMBS List</i>                   | O        |                                                     | OCTET STRING                                | Includes <i>thresholdMBS-List</i> as specified in TS 38.331[8]                                                                     |
| <b>ThresholdIndex Session List</b>         |          | <i>0..1</i>                                         |                                             |                                                                                                                                    |
| <b>&gt;ThresholdIndex Session Item</b>     |          | <i>1 .. &lt;maxMBSSessionsinSessionInfoList&gt;</i> |                                             |                                                                                                                                    |
| >>MBS Session ID                           | M        |                                                     | 9.3.1.218                                   |                                                                                                                                    |
| >>CHOICE <i>ThresholdIndex Information</i> | M        |                                                     |                                             |                                                                                                                                    |
| >>> <i>ThresholdIndex</i>                  |          |                                                     |                                             |                                                                                                                                    |
| >>>>ThresholdIndex                         | M        |                                                     | INTEGER (0.. <i>maxnoofThresholdMBS-1</i> ) | Corresponds to the <i>thresholdIndex</i> as specified in TS 38.331 [8].                                                            |
| >>> <i>ThresholdIndex not provided</i>     |          |                                                     | NULL                                        | Indicates that the the <i>thresholdIndex</i> as defined in TS 38.331 [8] is not provided for the respective multicast MBS session. |

| Range bound                     | Explanation                                                                                                                              |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| maxMBSSessionsinSessionInfoList | Maximum no. multicast MBS sessions contained in the <i>MBS-SessionInfoListMulticast</i> IE as specified in TS 38.331 [8]. Value is 1024. |
| maxnoofThresholdMBS-1           | Maximum no. thresholds configured in a cell minus 1. Value is 7.                                                                         |

### 9.3.1.317 MBS Multicast Session Reception State

This IE indicates the reception state of MBS Multicast Session.

| IE/Group Name                         | Presence | Range | IE type and reference                                                | Semantics description |
|---------------------------------------|----------|-------|----------------------------------------------------------------------|-----------------------|
| MBS Multicast Session Reception State | M        |       | ENUMERATED<br>(start monitoring G-RNTI, stop monitoring G-RNTI, ...) |                       |

### 9.3.1.318 Multicast RRC\_INACTIVE Reception Mode

This IE indicates the activation or deactivation of the multicast RRC\_INACTIVE reception mode for a multicast MBS session in a particular cell.

| IE/Group Name                         | Presence | Range | IE type and reference                       | Semantics description |
|---------------------------------------|----------|-------|---------------------------------------------|-----------------------|
| Multicast RRC_INACTIVE Reception Mode | M        |       | ENUMERATED<br>(activated, deactivated, ...) |                       |

### 9.3.1.319 PDU Set QoS Information

This IE defines the PDU Set QoS Information to be applied to a QoS flow.

| IE/Group Name                           | Presence | Range | IE type and reference                     | Semantics description                                                 |
|-----------------------------------------|----------|-------|-------------------------------------------|-----------------------------------------------------------------------|
| PDU Set Delay Budget                    | O        |       | Extended Packet Delay Budget<br>9.3.1.145 | PDU Set Delay Budget as defined in TS 23.501 [21].                    |
| PDU Set Error Rate                      | O        |       | Packet Error Rate<br>9.3.1.52             | PDU Set Error Rate as defined in TS 23.501 [21].                      |
| PDU Set Integrated Handling Information | O        |       | ENUMERATED(true, false, ...)              | PDU Set Integrated Handling Information as defined in TS 23.501 [21]. |

### 9.3.1.320 N6 Jitter Information

This IE indicates the N6 jitter information associated with the Periodicity in downlink.

| IE/Group Name         | Presence | Range | IE type and reference | Semantics description                                           |
|-----------------------|----------|-------|-----------------------|-----------------------------------------------------------------|
| N6 Jitter Lower Bound | M        |       | INTEGER (-127..127)   | Indicates the lower bound of the N6 jitter. The unit is: 0.5ms. |
| N6 Jitter Upper Bound | M        |       | INTEGER (-127..127)   | Indicates the upper bound of the N6 jitter. The unit is: 0.5ms. |

### 9.3.1.321 ECN Marking or Congestion Information Reporting Request

This IE indicates to the gNB-DU to report information for ECN marking or to report congestion information for a DRB.

| IE/Group Name                                        | Presence | Range | IE type and reference | Semantics description |
|------------------------------------------------------|----------|-------|-----------------------|-----------------------|
| CHOICE ECN Marking or Congestion Information Request | M        |       |                       |                       |

| IE/Group Name                    | Presence | Range | IE type and reference                | Semantics description |
|----------------------------------|----------|-------|--------------------------------------|-----------------------|
| >ECN Marking                     |          |       |                                      |                       |
| >>ECN Marking Request            | M        |       | ENUMERATED (ul, dl, both, stop, ...) |                       |
| >Congestion Information          |          |       |                                      |                       |
| >>Congestion Information Request | M        |       | ENUMERATED (ul, dl, both, stop, ...) |                       |

### 9.3.1.322 ECN Marking or Congestion Information Reporting Status

This IE indicates the status of information reporting for ECN marking or congestion information reporting for a DRB.

| IE/Group Name                                          | Presence | Range | IE type and reference                | Semantics description                                                                                                |
|--------------------------------------------------------|----------|-------|--------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| ECN Marking or Congestion Information Reporting Status | O        |       | ENUMERATED (active, not active, ...) | Indicates whether information reporting for ECN marking or congestion information reporting is active or not active. |

### 9.3.1.323 NR A2X Services Authorized

This IE provides information on the authorization status of the UE to use the NR sidelink for A2X services.

| IE/Group Name | Presence | Range | IE type and reference                        | Semantics description                                    |
|---------------|----------|-------|----------------------------------------------|----------------------------------------------------------|
| Aerial UE     | O        |       | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized as Aerial UE.     |
| Controller UE | O        |       | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized as Controller UE. |

### 9.3.1.324 LTE A2X Services Authorized

This IE provides information on the authorization status of the UE to use the LTE sidelink for A2X services.

| IE/Group Name | Presence | Range | IE type and reference                        | Semantics description                                    |
|---------------|----------|-------|----------------------------------------------|----------------------------------------------------------|
| Aerial UE     | O        |       | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized as Aerial UE.     |
| Controller UE | O        |       | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized as Controller UE. |

### 9.3.1.325 NR Paging Long eDRX Information for RRC INACTIVE

This IE indicates the NR Paging long eDRX parameters for RRC INACTIVE as defined in TS 38.304 [24].

| IE/Group Name                              | Presence | Range | IE type and reference                                                          | Semantics description                                                     |
|--------------------------------------------|----------|-------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| NR Paging Long eDRX Cycle for RRC INACTIVE | M        |       | ENUMERATED (hf2, hf4, hf8, hf16, hf32, hf64, hf128, hf256, hf512, hf1024, ...) | $T_{eDRX, RAN}$ defined in TS 38.304 [24]. Unit: [number of hyperframes]. |
| NR Paging Time Window for RRC INACTIVE     | M        |       | ENUMERATED (s1, s2, s3, s4, s5, s6, s7, s8, s9, s10, s11,                      | Unit: [1.28 second].                                                      |

| IE/Group Name | Presence | Range | IE type and reference                                                                                         | Semantics description |
|---------------|----------|-------|---------------------------------------------------------------------------------------------------------------|-----------------------|
|               |          |       | s12, s13, s14, s15, s16, s17, s18, s19, s20, s21, s22, s23, s24, s25, s26, s27, s28, s29, s30, s31, s32, ...) |                       |

### 9.3.1.326 SSBs within the cell to be Activated List

This IE indicates the SSBs within the cell requested to be activated.

| IE/Group Name                                         | Presence | Range                               | IE type and reference | Semantics description                             |
|-------------------------------------------------------|----------|-------------------------------------|-----------------------|---------------------------------------------------|
| <b>SSBs within the cell to be Activated List Item</b> |          | <i>1 .. &lt;maxnoofSSBAreas&gt;</i> |                       |                                                   |
| >SSB Index                                            | M        |                                     | INTEGER (0..63)       | Identifier of SSB beam requested to be activated. |

| Range bound     | Explanation                                                      |
|-----------------|------------------------------------------------------------------|
| maxnoofSSBAreas | Maximum no. SSB Areas that can be served by a cell. Value is 64. |

### 9.3.1.327 DL LBT Failure Information

This IE contains information on DL LBT Failures at the target gNB-DU.

| IE/Group Name             | Presence | Range | IE type and reference      | Semantics description                                                                          |
|---------------------------|----------|-------|----------------------------|------------------------------------------------------------------------------------------------|
| UE Assistant Identifier   | M        |       | gNB-CU UE AP ID<br>9.3.1.4 |                                                                                                |
| Number of DL LBT Failures | O        |       | INTEGER (1..1000,...)      | This IE indicates the number of DL LBT Failures, if available, occurring at the target gNB-DU. |

### 9.3.1.328 Early UL Sync Configuration

This IE indicates the early UL sync configurations for the UE.

| IE/Group Name                   | Presence | Range                               | IE type and reference | Semantics description                                                   |
|---------------------------------|----------|-------------------------------------|-----------------------|-------------------------------------------------------------------------|
| RACH Configuration              | M        |                                     | OCTET STRING          | Includes the <i>EarlyUL-SyncConfig</i> IE, as defined in TS 38.331 [8]. |
| <b>LTM gNB-DUs List</b>         |          | <i>0..1</i>                         |                       | This IE contains the IDs of the source gNB-DU and candidate gNB-DU(s).  |
| <b>&gt;LTM gNB-DUs Item IEs</b> |          | <i>1..&lt;maxnoofLTMgNBBDUs&gt;</i> |                       |                                                                         |
| >>LTM gNB-DU ID                 | M        |                                     | gNB-DU ID<br>9.3.1.9  |                                                                         |
| >>Preamble Index List           | O        |                                     | 9.3.1.329             |                                                                         |

| Range bound       | Explanation                                                                                      |
|-------------------|--------------------------------------------------------------------------------------------------|
| maxnoofLTMgNBBDUs | Maximum no. of gNB-DUs allowed to be configured with LTM towards one UE, the maximum value is 8. |

### 9.3.1.329 Preamble Index List

This IE indicates the list of preamble indexes to be used for the UE.

| IE/Group Name                  | Presence | Range                             | IE type and reference | Semantics description | Criticality | Assigned Criticality |
|--------------------------------|----------|-----------------------------------|-----------------------|-----------------------|-------------|----------------------|
| <b>Preamble Index Item IEs</b> |          | <i>1..&lt;maxnoofLTMCells&gt;</i> |                       |                       | -           |                      |
| >Preamble Index                | M        |                                   | INTEGER (0..63)       |                       | -           |                      |

| Range bound     | Explanation                                                                         |
|-----------------|-------------------------------------------------------------------------------------|
| maxnoofLTMCells | Maximum no. of Cells configured LTM allowed towards one UE, the maximum value is 8. |

### 9.3.1.330 CSI Resource Configuration

This IE contains the CSI resource configuration used for LTM.

| IE/Group Name                              | Presence | Range | IE type and reference | Semantics description                                                                                                      |
|--------------------------------------------|----------|-------|-----------------------|----------------------------------------------------------------------------------------------------------------------------|
| CSI Resource Configuration To AddMod List  | O        |       | OCTET STRING          | Includes the <i>ltm-CSI-ResourceConfigToAddModList</i> contained in the <i>LTM-Config</i> IE as defined in TS 38.331 [8].  |
| CSI Resource Configuration To Release List | O        |       | OCTET STRING          | Includes the <i>ltm-CSI-ResourceConfigToReleaseList</i> contained in the <i>LTM-Config</i> IE as defined in TS 38.331 [8]. |

### 9.3.1.331 Ranging and Sidelink Positioning Service Information

This IE provides information for the UE's Ranging and Sidelink Positioning service.

| IE/Group Name                               | Presence | Range | IE type and reference                        | Semantics description                                                                                    |
|---------------------------------------------|----------|-------|----------------------------------------------|----------------------------------------------------------------------------------------------------------|
| Sidelink Positioning and Ranging Authorized | M        |       | ENUMERATED (authorized, not authorized, ...) | This IE indicates whether the UE is authorized to use RSPP communication resources and SL-PRS resources. |
| RSPP Transport QoS Parameters               | O        |       | 9.3.1.332                                    | This IE applies only if the UE is authorized for Ranging and Sidelink Positioning service.               |

### 9.3.1.332 RSPP Transport QoS Parameters

This IE provides information on the RSPP Transport QoS Parameters.

| IE/Group Name                           | Presence | Range                                 | IE type and reference | Semantics description                                                 |
|-----------------------------------------|----------|---------------------------------------|-----------------------|-----------------------------------------------------------------------|
| <b>RSPP Transport QoS Flow List</b>     |          | <i>1</i>                              |                       |                                                                       |
| <b>&gt;RSPP Transport QoS Flow Item</b> |          | <i>1..&lt;maxnoofRSPPQoSFlows&gt;</i> |                       |                                                                       |
| >>PQI                                   | M        |                                       | INTEGER (0..255, ...) | PQI is a special 5QI as specified in TS 23.501 [21].                  |
| <b>&gt;&gt;RSPP Transport Bit Rates</b> |          | <i>0..1</i>                           |                       | Only applies for GBR QoS flows.                                       |
| >>>Guaranteed Flow Bit Rate             | M        |                                       | Bit Rate 9.3.1.4      | Guaranteed Bit Rate for the RSPP QoS flow. Details in TS 23.501 [21]. |

|                                         |   |  |                                                                          |                                                                    |
|-----------------------------------------|---|--|--------------------------------------------------------------------------|--------------------------------------------------------------------|
| >>>Maximum Flow Bit Rate                | M |  | Bit Rate<br>9.3.1.4                                                      | Maximum Bit Rate for the RSPP QoS flow. Details in TS 23.501 [21]. |
| >>Range                                 | O |  | ENUMERATED<br>(m50, m80, m180, m200, m350, m400, m500, m700, m1000, ...) | Only applies for groupcast.                                        |
| RSPP Transport Link Aggregate Bit Rates | O |  | Bit Rate<br>9.3.1.4                                                      | Only applies for Non-GBR QoS flows.                                |

| Range bound         | Explanation                                                                                                                            |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| maxnoofRSPPQoSFlows | Maximum no. of RSPP QoS flows allowed towards one UE for NR Ranging and Positioning sidelink communication, the maximum value is 2048. |

### 9.3.1.333 Time Window Information SRS List

This IE contains the time window(s) when UL SRS transmission is requested.

| IE/Group Name                               | Presence                               | Range                                   | IE Type and Reference                                                                                                                   | Semantics Description |
|---------------------------------------------|----------------------------------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| <b>Time Window Information SRS List</b>     |                                        | <i>1</i>                                |                                                                                                                                         |                       |
| <b>&gt;Time Window Information SRS Item</b> |                                        | <i>1..&lt;maxnoofTimeWindowSR S&gt;</i> |                                                                                                                                         |                       |
| <b>&gt;&gt;Time Window Start</b>            |                                        | <i>1</i>                                |                                                                                                                                         |                       |
| >>>System Frame Number                      | M                                      |                                         | INTEGER(0..1023)                                                                                                                        |                       |
| >>>Slot Number                              | M                                      |                                         | INTEGER(0..79)                                                                                                                          |                       |
| >>>Symbol Index                             | M                                      |                                         | INTEGER(0..13)                                                                                                                          |                       |
| >>CHOICE <i>Time Window Duration</i>        | M                                      |                                         |                                                                                                                                         |                       |
| >>> <i>Symbols</i>                          |                                        |                                         |                                                                                                                                         |                       |
| >>>>Duration in Symbols                     | M                                      |                                         | ENUMERATED (1, 2, 4, 8, 12, ...)                                                                                                        |                       |
| >>>> <i>Slots</i>                           |                                        |                                         |                                                                                                                                         |                       |
| >>>>Duration in Slots                       | M                                      |                                         | ENUMERATED (1, 2, 4, 6, 8, 12, 16, ...)                                                                                                 |                       |
| >>Time Window Type                          | M                                      |                                         | ENUMERATED (single, periodic, ...)                                                                                                      |                       |
| >>Time Window Periodicity                   | C-<br>ifTimeWin<br>dowTypeP<br>eriodic |                                         | ENUMERATED (0.125, 0.25, 0.5, 0.625, 1, 1.25, 2, 2.5, 4, 5, 8, 10, 16, 20, 32, 40, 64, 80, 160, 320, 640, 1280, 2560, 5120, 10240, ...) | Unit: Milli-seconds.  |

| Condition                | Explanation                                                                                |
|--------------------------|--------------------------------------------------------------------------------------------|
| ifTimeWindowTypePeriodic | This IE shall be present if the <i>Time Window Type</i> IE is set to the value "periodic". |

| Range bound          | Explanation                                    |
|----------------------|------------------------------------------------|
| maxnoofTimeWindowSRS | Maximum no of Time Window of SRS. Value is 16. |

### 9.3.1.334 Time Window Information Measurement List

This IE contains the time window(s) when UL SRS measurement is requested.

| IE/Group Name                                       | Presence                   | Range                                   | IE Type and Reference                                                                                         | Semantics Description |
|-----------------------------------------------------|----------------------------|-----------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------------------|
| <b>Time Window Information Measurement List</b>     |                            | <i>1</i>                                |                                                                                                               |                       |
| <b>&gt;Time Window Information Measurement Item</b> |                            | <i>1..&lt;maxnoofTimeWindowMeas&gt;</i> |                                                                                                               |                       |
| >>CHOICE <i>Time Window Duration</i>                | M                          |                                         |                                                                                                               |                       |
| >>>Slots                                            |                            |                                         |                                                                                                               |                       |
| >>>>Duration in Slots                               | M                          |                                         | ENUMERATED (1, 2, 4, 6, 8, 12, 16, ...)                                                                       |                       |
| >>Time Window Type                                  | M                          |                                         | ENUMERATED (single, periodic, ...)                                                                            |                       |
| >>Time Window Periodicity                           | C-ifTimeWindowTypePeriodic |                                         | ENUMERATED (160, 320, 640, 1280, 2560, 5120, 10240, 20480, 40960, 61440, 81920, 368640, 737280, 1843200, ...) | Unit: Milli-seconds   |
| >>Time Window Start                                 |                            | <i>1</i>                                |                                                                                                               |                       |
| >>>System Frame Number                              | M                          |                                         | INTEGER(0..1023)                                                                                              |                       |
| >>>Slot Number                                      | M                          |                                         | INTEGER(0..79)                                                                                                |                       |
| >>>Symbol Index                                     | M                          |                                         | INTEGER(0..13)                                                                                                |                       |

| Condition                | Explanation                                                                                |
|--------------------------|--------------------------------------------------------------------------------------------|
| ifTimeWindowTypePeriodic | This IE shall be present if the <i>Time Window Type</i> IE is set to the value "periodic". |

| Range bound           | Explanation                                             |
|-----------------------|---------------------------------------------------------|
| maxnoofTimeWindowMeas | Maximum no of Time Window of Measurements. Value is 16. |

### 9.3.1.335 UL RSCP

This IE contains the UL Reference Signal Carrier Phase (RSCP) measurement.

| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
|---------------|----------|-------|-----------------------|-----------------------|
| UL RSCP       | M        |       | INTEGER (0..3599)     | TS 38.133 [38]        |

### 9.3.1.336 Positioning Validity Area Cell List

This IE is used to indicate the cells belong to the validity area.

| IE/Group Name                                       | Presence | Range                           | IE type and reference | Semantics description |
|-----------------------------------------------------|----------|---------------------------------|-----------------------|-----------------------|
| <b>Positioning Validity Area Cell List</b>          |          | <i>1</i>                        |                       |                       |
| <b>&gt;Positioning Validity Area Cell List Item</b> |          | <i>1 .. &lt;maxnoVACell&gt;</i> |                       |                       |
| >>NR CGI                                            | M        |                                 | 9.3.1.12              |                       |
| >>NR PCI                                            | O        |                                 | INTEGER (0..1007)     |                       |

| Range bound | Explanation                                               |
|-------------|-----------------------------------------------------------|
| maxnoVACell | Maximum number of cells in a Validity Area, Number is 32. |

### 9.3.1.337 Aggregated Positioning SRS Resource Set List

This information element is used to indicate the aggregated Positioning SRS Resource Set List.

| IE/Group Name                                                 | Presence | Range                                                | IE type and reference                                         | Semantics description |
|---------------------------------------------------------------|----------|------------------------------------------------------|---------------------------------------------------------------|-----------------------|
| <b>Aggregated SRS Positioning Resource Set List</b>           |          | <i>1</i>                                             |                                                               |                       |
| <b>&gt;Aggregated SRS Positioning Resource Set Item</b>       |          | <i>1..&lt;maxnoAggregatedPosSRSSCombinations&gt;</i> |                                                               |                       |
| <b>&gt;&gt;Combined Positioning SRS Resource Set List</b>     |          | <i>1</i>                                             |                                                               |                       |
| <b>&gt;&gt;&gt;Combined Positioning SRS Resource Set Item</b> |          | <i>2..&lt;maxnoAggregatedPosSRSSResourceSets&gt;</i> |                                                               |                       |
| >>>>Point A                                                   | M        |                                                      | INTEGER (0..3279165)                                          | NR ARFCN              |
| >>>>NR PCI                                                    | O        |                                                      | INTEGER(0..1007)                                              |                       |
| >>>>Positioning SRS Resource Set ID                           | M        |                                                      | INTEGER(0..15)                                                |                       |
| <b>&gt;&gt;&gt;&gt;SCS Specific Carrier</b>                   |          | <i>1</i>                                             |                                                               |                       |
| >>>>>Offset To Carrier                                        | M        |                                                      | INTEGER (0..2199, ...)                                        |                       |
| >>>>>Subcarrier Spacing                                       | M        |                                                      | ENUMERATED(kHz15, kHz30, kHz60, kHz120, ... , kHz480, kHz960) |                       |
| >>>>>Carrier Bandwidth                                        | M        |                                                      | INTEGER (1..275, ...)                                         |                       |

| Range bound                               | Explanation                                                                            |
|-------------------------------------------|----------------------------------------------------------------------------------------|
| <i>maxnoAggregatedPosSRSSResourceSets</i> | Maximum no of aggregated SRS Positioning Resource Sets among 2~3 Carriers. Value is 3. |
| <i>maxnoAggregatedPosSRSSCombinations</i> | Maximum no of Aggregated SRS Positioning Resource Set Combinations. Value is 32.       |

### 9.3.1.338 Aggregated PRS Resource Set List

This information element is used to indicate the aggregated PRS Resource Set List.

| IE/Group Name                           | Presence | Range                                                | IE type and reference | Semantics description                                                                                                               |
|-----------------------------------------|----------|------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <b>Aggregated PRS Resource Set Item</b> |          | <i>1..&lt;maxnoAggregatedPosPRSCombinations&gt;</i>  |                       |                                                                                                                                     |
| <b>&gt;DL-PRS Resource Set List</b>     |          | <i>1</i>                                             |                       |                                                                                                                                     |
| <b>&gt;&gt;DL-PRS Resource Set Item</b> |          | <i>1.. &lt;maxnoAggregatedPosPRSResourceSets&gt;</i> |                       |                                                                                                                                     |
| >>>DL-PRS Resource Set Index            |          |                                                      | INTEGER(1..8)         | This IE specifies the PRS Resource Set List's that are linked for DL-PRS bandwidth aggregation.<br><br>The Integer Value defines an |



| IE/Group Name | Presence | Range | IE type and reference | Semantics description                                                                                                                                                                                                                                                                   |
|---------------|----------|-------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               |          |       |                       | index to the <i>PRS Resource Set List</i> IE within the <i>PRS Configuration</i> IE (9.3.1.177). I.e., Integer value 1 corresponds to the first entry in <i>PRS Resource Set List</i> IE, Integer value 2 corresponds to the second entry in <i>PRS Resource Set List</i> IE and so on. |

| Range bound                       | Explanation                                                                      |
|-----------------------------------|----------------------------------------------------------------------------------|
| maxnoAggCombinations              | Maximum number of aggregated frequency layer (carrier) combinations. Value is 2. |
| maxnoAggregatedPosPRSResourceSets | Maximum no of PRS resource sets aggregated. Value is 3.                          |

### 9.3.1.339 Validity Area specific SRS Information

This information element is used to indicate the SRS information.

| IE/Group Name                           | Presence | Range | IE type and reference          | Semantics description                                                                                                 | Criticality | Assigned Criticality |
|-----------------------------------------|----------|-------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| CHOICE <i>Transmission Comb</i>         | O        |       |                                |                                                                                                                       | -           |                      |
| > <i>Comb Two</i>                       |          |       |                                |                                                                                                                       |             |                      |
| >>Comb Offset                           | M        |       | INTEGER(0..1)                  |                                                                                                                       | -           |                      |
| >>Cyclic Shift                          | M        |       | INTEGER(0..7)                  |                                                                                                                       | -           |                      |
| > <i>Comb Four</i>                      |          |       |                                |                                                                                                                       |             |                      |
| >>Comb Offset                           | M        |       | INTEGER(0..3)                  |                                                                                                                       | -           |                      |
| >>Cyclic Shift                          | M        |       | INTEGER(0..11)                 |                                                                                                                       | -           |                      |
| > <i>Comb Eight</i>                     |          |       |                                |                                                                                                                       |             |                      |
| >>Comb Offset                           | M        |       | INTEGER(0..7)                  |                                                                                                                       | -           |                      |
| >>Cyclic Shift                          | M        |       | INTEGER(0..5)                  |                                                                                                                       | -           |                      |
| <b>Resource Mapping</b>                 |          | 0..1  |                                |                                                                                                                       |             |                      |
| >Start Position                         | M        |       | INTEGER(0..13)                 |                                                                                                                       | -           |                      |
| >Number of Symbols                      | M        |       | ENUMERATED (n1,n2,n4, n8, n12) |                                                                                                                       | -           |                      |
| Frequency Domain Shift                  | O        |       | INTEGER(0..268)                |                                                                                                                       | -           |                      |
| C-SRS                                   | O        |       | INTEGER(0..63)                 |                                                                                                                       | -           |                      |
| CHOICE <i>Resource Type Positioning</i> | O        |       |                                |                                                                                                                       | -           |                      |
| > <i>periodic</i>                       |          |       |                                |                                                                                                                       |             |                      |
| >>Periodicity                           | M        |       | 9.3.1.342                      |                                                                                                                       | -           |                      |
| >>Offset                                | M        |       | INTEGER(0..81919,...)          |                                                                                                                       | -           |                      |
| >>SRS PosPeriodicConfigHy perSFN Index  | O        |       | ENUMERATED (even0, odd1)       | Indicates even or odd hyper SFN in which the SRS for positioning is transmitted for the periodicity value of 20480ms. | YES         | ignore               |
| > <i>semi-persistent</i>                |          |       |                                |                                                                                                                       |             |                      |
| >>Periodicity                           | M        |       | 9.3.1.342                      |                                                                                                                       | -           |                      |
| >>Offset                                | M        |       | INTEGER(0..81919,...)          |                                                                                                                       | -           |                      |
| >>SRS PosPeriodicConfigHy               | O        |       | ENUMERATED (even0, odd1)       | Indicates even or odd hyper SFN in                                                                                    | YES         | ignore               |

| IE/Group Name | Presence | Range | IE type and reference | Semantics description                                                              | Criticality | Assigned Criticality |
|---------------|----------|-------|-----------------------|------------------------------------------------------------------------------------|-------------|----------------------|
| perSFN Index  |          |       |                       | which the SRS for positioning is transmitted for the periodicity value of 20480ms. |             |                      |
| >aperiodic    |          |       |                       | Not applicable if the <i>Positioning Validity Area Cell List</i> IE is included.   |             |                      |
| >>slot offset | M        |       | INTEGER(0..32)        |                                                                                    | -           |                      |
| Sequence ID   | O        |       | INTEGER(0..65535)     |                                                                                    | -           |                      |

### 9.3.1.340 Requested SRS Preconfiguration Characteristics List

This information element is used to indicate the requested SRS Preconfiguration list.

| IE/Group Name                                  | Presence | Range                      | IE type and reference | Semantics description |
|------------------------------------------------|----------|----------------------------|-----------------------|-----------------------|
| <b>Requested SRS Preconfiguration List</b>     |          | 1                          |                       |                       |
| <b>&gt;Requested SRS Preconfiguration Item</b> |          | 1..<maxnoPreconfiguredSRS> |                       |                       |
| >>Requested SRS Transmission Characteristics   | M        |                            | 9.3.1.175             |                       |

| Range bound           | Explanation                                                           |
|-----------------------|-----------------------------------------------------------------------|
| maxnoPreconfiguredSRS | Maximum number of validity areas that can be configured. Value is 16. |

### 9.3.1.341 SRS Preconfiguration List

This information element is used to indicate the SRS Preconfiguration list.

| IE/Group Name                           | Presence | Range                      | IE type and reference | Semantics description                                                                     |
|-----------------------------------------|----------|----------------------------|-----------------------|-------------------------------------------------------------------------------------------|
| <b>SRS Preconfiguration List</b>        |          | 1                          |                       |                                                                                           |
| <b>&gt; SRS Preconfiguration Item</b>   |          | 1..<maxnoPreconfiguredSRS> |                       |                                                                                           |
| >>SRS-PosRRC-InactiveValidityAreaConfig | M        |                            | OCTET STRING          | Includes the <i>SRS-PosRRC-InactiveValidityAreaConfig</i> IE as defined in TS 38.331 [8]. |
| >>Positioning Validity Area Cell List   | M        |                            | 9.3.1.336             |                                                                                           |

| Range bound           | Explanation                                                           |
|-----------------------|-----------------------------------------------------------------------|
| maxnoPreconfiguredSRS | Maximum number of validity areas that can be configured. Value is 16. |

### 9.3.1.342 SRS Periodicity

This information element indicates the SRS periodicity.

| IE/Group Name   | Presence | Range | IE Type and Reference                                                                                                                                                                                                                      | Semantics Description |
|-----------------|----------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| SRS Periodicity | M        |       | ENUMERATED(slot 1, slot2, slot4, slot5, slot8, slot10, slot16, slot20, slot32, slot40, slot64, slot80, slot160, slot320, slot640, slot1280, slot2560, slot5120, slot10240, slot40960, slot81920,..., slot128, slot256, slot512, slot20480) |                       |

### 9.3.1.343 Tx Hopping Configuration

This information element indicates the SRS Tx frequency hopping configuration.

| IE/Group Name                                  | Presence | Range                                 | IE Type and Reference          | Semantics Description |
|------------------------------------------------|----------|---------------------------------------|--------------------------------|-----------------------|
| Overlap Value                                  | M        |                                       | ENUMERATED(rb0, rb1, rb2, rb4) |                       |
| Number of Hops                                 | M        |                                       | INTEGER(2..6)                  |                       |
| <b>Slot Offset for Remaining Hops List</b>     |          | <b>1</b>                              |                                |                       |
| <b>&gt;Slot Offset for Remaining Hops Item</b> |          | <b>1..&lt;maxnoofHopsMinusOne&gt;</b> |                                |                       |
| >>CHOICE <i>slot offset remaining hops</i>     | M        |                                       |                                |                       |
| >>> <i>aperiodic</i>                           |          |                                       |                                |                       |
| >>>>Slot Offset                                | O        |                                       | INTEGER(1..32)                 |                       |
| >>>>Start Position                             | O        |                                       | INTEGER(0..13)                 | In symbols            |
| >>>> <i>semi-persistent</i>                    |          |                                       |                                |                       |
| >>>>SRS Periodicity                            | M        |                                       | 9.3.1.342                      |                       |
| >>>>Offset                                     | M        |                                       | INTEGER(0..81919, ...)         | In slots              |
| >>>>Start Position                             | O        |                                       | INTEGER(0..13)                 | In symbols            |
| >>>> <i>periodic</i>                           |          |                                       |                                |                       |
| >>>>SRS Periodicity                            | M        |                                       | 9.3.1.342                      |                       |
| >>>>Offset                                     | M        |                                       | INTEGER(0..81919, ...)         | In slots              |
| >>>>Start Position                             | O        |                                       | INTEGER(0..13)                 | In symbols            |

| Range bound         | Explanation                                                                                       |
|---------------------|---------------------------------------------------------------------------------------------------|
| maxnoofHopsMinusOne | Maximum no of hops that can be configured for positioning SRS transmission minus one. Value is 5. |

### 9.3.1.344 Non-Integer DRX Cycle

The *Non-Integer DRX Cycle* IE is used to indicate the desired non-integer DRX cycle.

| IE/Group Name                     | Presence | Range | IE Type and Reference                                                                  | Semantics Description                                                                                                                                                                 |
|-----------------------------------|----------|-------|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Long Non-Integer DRX Cycle Length | M        |       | ENUMERATED (ms1001over240, ms25over6, ms25over3, ms1001over120, ms100over9, ms25over2, | Corresponds to the <i>drx-NonIntegerLongCycle</i> which is the length of the <i>drx-NonIntegerLongCycleStartOffset</i> contained in the <i>DRX-Config</i> IE defined in TS 38.331 [8] |

| IE/Group Name                      | Presence | Range | IE Type and Reference                                                                                                                                                                                                                                                   | Semantics Description                                                                                              |
|------------------------------------|----------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
|                                    |          |       | ms40over3,<br>ms125over9,<br>ms50over3,<br>ms1001over60,<br>ms125over6,<br>ms200over9,<br>ms250over9,<br>ms100over3,<br>ms1001over30,<br>ms75over2,<br>ms125over3,<br>ms1001over24,<br>ms200over3,<br>ms1001over15,<br>ms250over3,<br>ms1001over12,<br>ms400over3, ...) |                                                                                                                    |
| Short Non-Integer DRX Cycle Length | O        |       | ENUMERATED (ms1001over240, ms25over6, ms25over3, ms1001over120, ms100over9, ms25over2, ms40over3, ms125over9, ms50over3, ms1001over60, ms125over6, ms200over9, ms100over3, ms1001over30, ms125over3, ms1001over24, ms200over3, ...)                                     | Corresponds to the <i>drx-NonIntegerShortCycle</i> contained in the <i>DRX-Config</i> IE defined in TS 38.331 [8]. |
| Short DRX Cycle Timer              | O        |       | INTEGER (1..16)                                                                                                                                                                                                                                                         | Corresponds to the <i>drx-ShortCycleTimer</i> contained in the <i>DRX-Config</i> IE defined in TS 38.331 [8].      |

### 9.3.1.345 RAN Sharing Assistance Information

The *RAN Sharing Assistance Information* IE assists the gNB-DU in deciding whether to setup F1-U tunnel resources for an F1 MBS session context.

| IE/Group Name                      | Presence | Range | IE Type and Reference                                      | Semantics Description                                                                                                                                                                                                                        |
|------------------------------------|----------|-------|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RAN Sharing Assistance Information | M        |       | ENUMERATED (MBS session in non-shared cell resources, ...) | "MBS session in non-shared cell resources" indicates that the gNB-CU-CP has already established MBS session resources utilising cell resources for which RAN sharing by means of RAN sharing with multiple cell ID broadcast is not applied. |

### 9.3.1.346 LTM Reset Information

This IE contains the L2 reset configuration for the serving cell and LTM candidate cell(s).

| IE/Group Name                              | Presence | Range                              | IE type and reference | Semantics description                                                                                                                         |
|--------------------------------------------|----------|------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Serving Cell L2 Reset Configuration        | O        |                                    | OCTET STRING          | Includes the <i>ltm-ServingCellNoResetID</i> contained in the <i>LTM-Config</i> IE, as defined in TS38.331 [8], for the current serving cell. |
| <b>LTM L2 Reset Configuration List</b>     |          | <i>0..1</i>                        |                       |                                                                                                                                               |
| <b>&gt;LTM L2 Reset Configuration Item</b> |          | <i>1..&lt;maxnoofLTM Cells&gt;</i> |                       |                                                                                                                                               |
| >>Cell ID                                  | M        |                                    | NR CGI<br>9.3.1.12    |                                                                                                                                               |
| >>LTM L2 Reset Configuration               | M        |                                    | OCTET STRING          | Includes the <i>ltm-NoResetID</i> IE as defined in TS38.331 [8], for the LTM candidate cell identified by the <i>Cell ID</i> IE.              |

| Range bound     | Explanation                                                                             |
|-----------------|-----------------------------------------------------------------------------------------|
| maxnoofLTMCells | Maximum no. of Cells configured for LTM allowed towards one UE, the maximum value is 8. |

### 9.3.1.347 PRS Bandwidth Aggregation Request Information List

This IE contains the aggregated DL-PRS configuration information requested.

| IE/Group Name                                                            | Presence | Range                                               | IE Type and Reference | Semantics Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------------------------------------|----------|-----------------------------------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PRS Bandwidth Aggregation Request Information List</b>                |          | <i>1</i>                                            |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>&gt;PRS Bandwidth Aggregation Request Information Item</b>            |          | <i>1..&lt;maxnoAgg Combinations&gt;</i>             |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>&gt;&gt;DL-PRS Bandwidth Aggregation Request Information List</b>     |          | <i>1</i>                                            |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>&gt;&gt;&gt;DL-PRS Bandwidth Aggregation Request Information Item</b> |          | <i>2..&lt;maxnoAggregatedPosPRSResourceSets&gt;</i> |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| >>>>Requested DL-PRS Resource Set Index                                  | M        |                                                     | INTEGER(1..8)         | <p>This IE specifies which of the indicated <i>Requested DL-PRS Resource Set Item</i>'s are requested for aggregation.</p> <p>The Integer Value defines an index to the <i>Requested DL-PRS Resource Set Item</i> in IE <i>Requested DL PRS Transmission Characteristics</i> (9.3.1.235). Integer value 1 defines the first entry in <i>Requested DL-PRS Resource Set Item</i>, Integer value 2 defines the second entry in <i>Requested DL-PRS Resource Set Item</i> and so on.</p> |

| Range bound          | Explanation                                                                      |
|----------------------|----------------------------------------------------------------------------------|
| maxnoAggCombinations | Maximum number of aggregated frequency layer (carrier) combinations. Value is 2. |

|                                   |                                                          |
|-----------------------------------|----------------------------------------------------------|
| maxnoAggregatedPosPRSResourceSets | Maximum no of PRS resources sets aggregated. Value is 3. |
|-----------------------------------|----------------------------------------------------------|

### 9.3.1.348 Candidate Cell with Beam Information

This IE includes a list of candidate cells and associated SSB indexes information.

| IE/Group Name     | Presence | Range | IE type and reference | Semantics description |
|-------------------|----------|-------|-----------------------|-----------------------|
| Candidate Cell ID | M        |       | NR CGI<br>9.3.1.12    |                       |
| SSB Index         | M        |       | INTEGER (0..63)       |                       |

### 9.3.1.349 Candidate Cell with Beam Information List

This IE includes a list of candidate cells and associated SSB indexes information.

| IE/Group Name              | Presence | Range                                     | IE type and reference | Semantics description |
|----------------------------|----------|-------------------------------------------|-----------------------|-----------------------|
| <b>Candidate Cell List</b> |          | <i>1 .. &lt;maxnoofCandidateCells&gt;</i> |                       |                       |
| >Candidate Cell ID         | M        |                                           | NR CGI<br>9.3.1.12    |                       |
| <b>&gt;SSB Index List</b>  |          | <i>0..&lt;maxnoofSSBIndices&gt;</i>       |                       |                       |
| >>SSB Index                | M        |                                           | INTEGER (0..63)       |                       |

| Range bound           | Explanation                                                                                   |
|-----------------------|-----------------------------------------------------------------------------------------------|
| maxnoofCandidateCells | Maximum no. of Cells configured as candidates allowed towards one UE, the maximum value is 8. |
| maxnoofSSBIndices     | Maximum no. of SSBs that can be served by a NG-RAN node cell. Value is 64.                    |

### 9.3.1.350 Measurement Quantities

| IE/Group Name | Presence | Range | IE type and reference | Semantics description                                                                         | IE/Group Name | Presence |
|---------------|----------|-------|-----------------------|-----------------------------------------------------------------------------------------------|---------------|----------|
| RSRP          | M        |       | INTEGER (0..127)      | Corresponds to information provided in the <i>RSRP-Range</i> IE as defined in TS 38.331 [10]. |               |          |
| RSRQ          | M        |       | INTEGER (0..127)      | Corresponds to information provided in the <i>RSRQ-Range</i> IE as defined in TS 38.331 [10]. |               |          |
| SINR          | O        |       | INTEGER (0..127)      | Corresponds to information provided in the <i>SINR-Range</i> IE as defined in TS 38.331 [10]. |               |          |

### 9.3.1.351 Validity Area specific SRS Information Extended

This information element is used to indicate the extended SRS information.

| IE/Group Name                                | Presence | Range                                      | IE Type and Reference | Semantics Description                                                                                                          |
|----------------------------------------------|----------|--------------------------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <b>Positioning SRS Resource List</b>         |          | <i>0..1</i>                                |                       |                                                                                                                                |
| <b>&gt;Positioning SRS Resource Item</b>     |          | <i>1..&lt;maxnoSRS-PosResources&gt;</i>    |                       |                                                                                                                                |
| >>Positioning SRS Resource                   | M        |                                            | 9.3.1.194             | Corresponds to information provided in <i>SRS-PosResource</i> contained in <i>SRS-Config</i> IE as defined in TS 38.331 [8]    |
| <b>Positioning SRS Resource Set List</b>     |          | <i>0..1</i>                                |                       |                                                                                                                                |
| <b>&gt;Positioning SRS Resource Set Item</b> |          | <i>1..&lt;maxnoSRS-PosResourceSets&gt;</i> |                       |                                                                                                                                |
| >>Positioning SRS Resource Set               | M        |                                            | 9.3.1.196             | Corresponds to information provided in <i>SRS-PosResourceSet</i> contained in <i>SRS-Config</i> IE as defined in TS 38.331 [8] |

| Range bound              | Explanation                                                          |
|--------------------------|----------------------------------------------------------------------|
| maxnoSRS-PosResources    | Maximum no of positioning SRS resources per UL BWP. Value is 64.     |
| maxnoSRS-PosResourceSets | Maximum no of positioning SRS resource sets per UL BWP. Value is 16. |

## 9.3.2 Transport Network Layer Related IEs

### 9.3.2.1 UP Transport Layer Information

The *UP Transport Layer Information* IE identifies an F1 transport bearer associated to a DRB. It contains a Transport Layer Address and a GTP Tunnel Endpoint Identifier. The Transport Layer Address is an IP address to be used for the F1 user plane transport. The GTP Tunnel Endpoint Identifier is to be used for the user plane transport between gNB-CU and gNB-DU.

| IE/Group Name                             | Presence | Range | IE type and reference | Semantics description |
|-------------------------------------------|----------|-------|-----------------------|-----------------------|
| <b>CHOICE Transport Layer Information</b> | M        |       |                       |                       |
| <b>&gt;GTP Tunnel</b>                     |          |       |                       |                       |
| >>Transport Layer Address                 | M        |       | 9.3.2.3               |                       |
| >>GTP-TEID                                | M        |       | 9.3.2.2               |                       |

### 9.3.2.2 GTP-TEID

The *GTP-TEID* IE is the GTP Tunnel Endpoint Identifier to be used for the user plane transport between the gNB-CU and gNB-DU.

| IE/Group Name | Presence | Range | IE type and reference  | Semantics description                      |
|---------------|----------|-------|------------------------|--------------------------------------------|
| GTP-TEID      | M        |       | OCTET STRING (SIZE(4)) | For details and range, see TS 29.281 [18]. |

### 9.3.2.3 Transport Layer Address

This *Transport Layer Address* IE is an IP address.

| IE/Group Name           | Presence | Range | IE type and reference             | Semantics description                                                                                                                                                          |
|-------------------------|----------|-------|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Transport Layer Address | M        |       | BIT STRING<br>(SIZE(1..160, ...)) | The Radio Network Layer is not supposed to interpret the address information. It should pass it to the Transport Layer for interpretation.<br>For details, see TS 38.414 [19]. |

### 9.3.2.4 CP Transport Layer Information

This IE is used to provide the F1 control plane transport layer information associated with a gNB-CU – gNB-DU.

| IE/Group Name                         | Presence | Range | IE type and reference           | Semantics description | Criticality | Assigned Criticality |
|---------------------------------------|----------|-------|---------------------------------|-----------------------|-------------|----------------------|
| CHOICE CP Transport Layer Information |          |       |                                 |                       | -           |                      |
| >Endpoint-IP-address                  |          |       |                                 |                       |             |                      |
| >>Endpoint IP address                 | M        |       | Transport Layer Address 9.3.2.3 |                       | -           |                      |
| >Endpoint-IP-address-and-port         |          |       |                                 |                       |             |                      |
| >>Endpoint IP address                 | M        |       | Transport Layer Address 9.3.2.3 |                       | -           |                      |
| >>Port Number                         | O        |       | BIT STRING<br>(SIZE(16))        |                       | YES         | reject               |

### 9.3.2.5 Transport Layer Address Info

This IE is used for signalling TNL Configuration information for IPSec tunnel over which GTP traffic is transmitted.

| IE/Group Name                                   | Presence | Range               | IE type and reference           | Semantics description                           |
|-------------------------------------------------|----------|---------------------|---------------------------------|-------------------------------------------------|
| Transport UP Layer Address Info to Add List     |          | 0..1                |                                 |                                                 |
| >Transport UP Layer Address Info to Add Item    |          | 1..<maxnoofTLAs>    |                                 |                                                 |
| >>IP-Sec Transport Layer Address                | M        |                     | Transport Layer Address 9.3.2.3 | Transport Layer Address for IP-Sec endpoint.    |
| >>GTP Transport Layer Address To Add List       |          | 0..1                |                                 |                                                 |
| >>>GTP Transport Layer Address To Add Item      |          | 1..<maxnoofGTPTLAs> |                                 |                                                 |
| >>>>GTP Transport Layer Address Info            | M        |                     | Transport Layer Address 9.3.2.3 | GTP Transport Layer Address for GTP end-points. |
| Transport UP Layer Address Info to Remove List  |          | 0..1                |                                 |                                                 |
| >Transport UP Layer Address Info to Remove Item |          | 1..<maxnoofTLAs>    |                                 |                                                 |
| >>IP-Sec Transport Layer Address                | M        |                     | Transport Layer Address 9.3.2.3 | Transport Layer Address for IP-Sec endpoint.    |
| >>GTP Transport Layer Address To Remove         |          | 0..1                |                                 |                                                 |



| IE/Group Name                                                 | Presence | Range                            | IE type and reference              | Semantics description                           |
|---------------------------------------------------------------|----------|----------------------------------|------------------------------------|-------------------------------------------------|
| <b>List</b>                                                   |          |                                  |                                    |                                                 |
| <b>&gt;&gt;&gt;GTP Transport Layer Address To Remove Item</b> |          | <i>1..&lt;maxnoofGTPTLAs&gt;</i> |                                    |                                                 |
| >>>>GTP Transport Layer Address Info                          | M        |                                  | Transport Layer Address<br>9.3.2.3 | GTP Transport Layer Address for GTP end-points. |

| Range bound    | Explanation                                                                                    |
|----------------|------------------------------------------------------------------------------------------------|
| maxnoofTLAs    | Maximum no. of F1 Transport Layer Address in the message. Value is 16.                         |
| maxnoofGTPTLAs | Maximum no. of F1 GTP Transport Layer Address for a GTP end-point in the message. Value is 16. |

### 9.3.2.6 URI

This IE is an URI.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description                                 |
|---------------|----------|-------|-----------------------|-------------------------------------------------------|
| URI           | M        |       | VisibleString         | String representing URI (Uniform Resource Identifier) |

### 9.3.2.7 BC Bearer Context F1-U TNL Info

This IE contains F1-U TNL information for an MBS Session. In case of location dependent MBS sessions, it also contains per Area Session ID F1-U TNL information.

| IE/Group Name                                  | Presence | Range                                      | IE type and reference                     | Semantics description                                       | Criticality | Assigned Criticality |
|------------------------------------------------|----------|--------------------------------------------|-------------------------------------------|-------------------------------------------------------------|-------------|----------------------|
| CHOICE <i>MBS Session Type</i>                 | M        |                                            |                                           |                                                             | -           |                      |
| >location independent                          |          |                                            |                                           |                                                             |             |                      |
| >>MBS F1-U Information                         | M        |                                            | UP Transport Layer Information<br>9.3.2.1 |                                                             | -           |                      |
| >>F1-U Tunnel Not Established                  | O        |                                            | ENUMERATED (true, ...)                    | Indicates F1-U tunnel not established for this MBS Session. | YES         | ignore               |
| >location dependent                            |          |                                            |                                           |                                                             |             |                      |
| >>Location dependent MBS F1-U Information Item |          | <i>1..&lt;maxnoofMBSAreaSessionIDs&gt;</i> |                                           |                                                             | -           |                      |
| >>>MBS Area Session ID                         | M        |                                            | 9.3.1.221                                 |                                                             | -           |                      |
| >>>MBS F1-U Information                        | M        |                                            | UP Transport Layer Information<br>9.3.2.1 |                                                             | -           |                      |
| >>>F1-U Tunnel Not Established                 | O        |                                            | ENUMERATED (true, ...)                    | Indicates F1-U tunnel not established for this MBS Session. | YES         | ignore               |

| Range bound              | Explanation                                        |
|--------------------------|----------------------------------------------------|
| maxnoofMBSAreaSessionIDs | Maximum no. of MBS Area Session IDs. Value is 256. |

### 9.3.2.8 MBS Multicast F1-U Context Descriptor

This IE contains a reference to a Multicast F1-U Context, information about the usage of the MBS Multicast F1-U Context and may contain an MBS Area Session ID.

| IE/Group Name                       | Presence | Range | IE type and reference                                          | Semantics description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------|----------|-------|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Multicast F1-U Context Reference F1 | M        |       | 9.3.2.11                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| MC F1-U Context usage               | M        |       | ENUMERATED (ptm, ptp, ptp retransmission, ptp forwarding, ...) | "ptm" indicates that the Multicast F1-U Context is setup for ptm transmissions; decided by the DU.<br>"ptp" indicates that the Multicast F1-U Context is setup for ptp transmissions; decided by the DU.<br>"ptp retransmission" indicates that the Multicast F1-U Context is setup for ptp retransmissions (based on PDCP Status Report); requested by the CU<br>"ptp forwarding" indicates that the Multicast F1-U Context is setup for transmitting from a defined MBS Progress Information status onwards; requested by the CU. |
| MBS Area Session ID                 | O        |       | 9.3.1.221                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

### 9.3.2.9 Void

Void

### 9.3.2.10 MBS PTP Retransmission Tunnel Required

This IE indicates the request to establishment of a PTP Retransmission F1-U Tunnel for retransmitting user data for a multicast MBS Session.

| IE/Group Name                          | Presence | Range | IE type and reference  | Semantics description |
|----------------------------------------|----------|-------|------------------------|-----------------------|
| MBS PTP Retransmission Tunnel Required | M        |       | ENUMERATED (true, ...) |                       |

### 9.3.2.11 Multicast F1-U Context Reference F1

This IE contains a reference to a Multicast F1-U Context associated with an MBS Session context in a gNB-DU.

| IE/Group Name                           | Presence | Range | IE type and reference  | Semantics description                                                                                                |
|-----------------------------------------|----------|-------|------------------------|----------------------------------------------------------------------------------------------------------------------|
| Multicast F1-U Bearer Context Reference | M        |       | OCTET STRING (SIZE(4)) | This value is allocated to uniquely denote an Multicast F1-U Context within an MBS-associated logical F1-connection. |

### 9.3.2.12 MRB Progress Information

This IE contains the MRB progress Information.

| IE/Group Name                          | Presence | Range | IE type and reference | Semantics description |
|----------------------------------------|----------|-------|-----------------------|-----------------------|
| CHOICE <i>MRB Progress Information</i> | M        |       |                       |                       |
| >12bits                                |          |       |                       |                       |
| >>PDCP SN Length 12                    | M        |       | INTEGER (0..4095)     |                       |
| >18bits                                |          |       |                       |                       |
| >>PDCP SN Length 18                    | M        |       | INTEGER (0..262143)   |                       |

### 9.3.2.13 Multicast F1-U Context Reference CU

This IE contains a reference to a Multicast F1-U Context associated with MBS session resources allocated in the gNB-CU.

| IE/Group Name                              | Presence | Range | IE type and reference  | Semantics description                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------|----------|-------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Multicast F1-U Bearer Context Reference CU | M        |       | OCTET STRING (SIZE(4)) | This value is allocated to uniquely denote a Multicast F1-U Context associated with multicast MBS session resources allocated in the gNB-CU.<br>NOTE: If E1 is deployed, the <i>Multicast F1-U Bearer Context Reference CU</i> IE refers to the <i>Multicast F1-U Context ReferenceE1</i> IE as specified in TS 37.483 [47]. |

## 9.4 Message and Information Element Abstract Syntax (with ASN.1)

### 9.4.1 General

F1AP ASN.1 definition conforms to ITU-T Recommendation X.691 [5], ITU-T Recommendation X.680 [12] and ITU-T Recommendation X.681 [13].

The ASN.1 definition specifies the structure and content of F1AP messages. F1AP messages can contain any IEs specified in the object set definitions for that message without the order or number of occurrence being restricted by ASN.1. However, for this version of the standard, a sending entity shall construct an F1AP message according to the PDU definitions module and with the following additional rules:

- IEs shall be ordered (in an IE container) in the order they appear in object set definitions.
- Object set definitions specify how many times IEs may appear. An IE shall appear exactly once if the presence field in an object has value "mandatory". An IE may appear at most once if the presence field in an object has value "optional" or "conditional". If in a tabular format there is multiplicity specified for an IE (i.e., an IE list) then in the corresponding ASN.1 definition the list definition is separated into two parts. The first part defines an IE container list where the list elements reside. The second part defines list elements. The IE container list appears as an IE of its own. For this version of the standard an IE container list may contain only one kind of list elements.

NOTE: In the above "IE" means an IE in the object set with an explicit ID. If one IE needs to appear more than once in one object set, then the different occurrences will have different IE IDs.

If an F1AP message that is not constructed as defined above is received, this shall be considered as Abstract Syntax Error, and the message shall be handled as defined for Abstract Syntax Error in clause 10.

## 9.4.2 Usage of private message mechanism for non-standard use

The private message mechanism for non-standard use may be used:

- for special operator- (and/or vendor) specific features considered not to be part of the basic functionality, i.e., the functionality required for a complete and high-quality specification in order to guarantee multivendor interoperability;
- by vendors for research purposes, e.g., to implement and evaluate new algorithms/features before such features are proposed for standardisation.

The private message mechanism shall not be used for basic functionality. Such functionality shall be standardised.

## 9.4.3 Elementary Procedure Definitions

```
-- ASN1START
-- *****
--
-- Elementary Procedure definitions
--
-- *****

F1AP-PDU-Descriptions {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
ngran-access (22) modules (3) f1ap (3) version1 (1) f1ap-PDU-Descriptions (0)}

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- *****
--
-- IE parameter types from other modules.
--
-- *****

IMPORTS
    Criticality,
    ProcedureCode

FROM F1AP-CommonDataTypes
    Reset,
    ResetAcknowledge,
    F1SetupRequest,
    F1SetupResponse,
    F1SetupFailure,
    GNBDCUConfigurationUpdate,
    GNBDCUConfigurationUpdateAcknowledge,
    GNBDCUConfigurationUpdateFailure,
    GNBCUConfigurationUpdate,
    GNBCUConfigurationUpdateAcknowledge,
    GNBCUConfigurationUpdateFailure,
    UEContextSetupRequest,
    UEContextSetupResponse,
    UEContextSetupFailure,
    UEContextReleaseCommand,
    UEContextReleaseComplete,
    UEContextModificationRequest,
    UEContextModificationResponse,
    UEContextModificationFailure,
    UEContextModificationRequired,
    UEContextModificationConfirm,
    ErrorIndication,
    UEContextReleaseRequest,
    DLRRCTransfer,
    ULRRCTransfer,
```

GNBDUResourceCoordinationRequest,  
GNBDUResourceCoordinationResponse,  
PrivateMessage,  
UEInactivityNotification,  
InitialULRRCMMessageTransfer,  
SystemInformationDeliveryCommand,  
Paging,  
Notify,  
WriteReplaceWarningRequest,  
WriteReplaceWarningResponse,  
PWSCancelRequest,  
PWSCancelResponse,  
PWSRestartIndication,  
PWSFailureIndication,  
GNBDUStatusIndication,  
RRCDeliveryReport,  
UEContextModificationRefuse,  
F1RemovalRequest,  
F1RemovalResponse,  
F1RemovalFailure,  
NetworkAccessRateReduction,  
TraceStart,  
DeactivateTrace,  
DUCURadioInformationTransfer,  
CUDURadioInformationTransfer,  
BAPMappingConfiguration,  
BAPMappingConfigurationAcknowledge,  
BAPMappingConfigurationFailure,  
GNBDUResourceConfiguration,  
GNBDUResourceConfigurationAcknowledge,  
GNBDUResourceConfigurationFailure,  
IABTNLAddressRequest,  
IABTNLAddressResponse,  
IABTNLAddressFailure,  
IABUPConfigurationUpdateRequest,  
IABUPConfigurationUpdateResponse,  
IABUPConfigurationUpdateFailure,  
ResourceStatusRequest,  
ResourceStatusResponse,  
ResourceStatusFailure,  
ResourceStatusUpdate,  
AccessAndMobilityIndication,  
ReferenceTimeInformationReportingControl,  
ReferenceTimeInformationReport,  
AccessSuccess,  
CellTrafficTrace,  
PositioningMeasurementRequest,  
PositioningMeasurementResponse,  
PositioningMeasurementFailure,  
PositioningAssistanceInformationControl,  
PositioningAssistanceInformationFeedback,  
PositioningMeasurementReport,  
PositioningMeasurementAbort,  
PositioningMeasurementFailureIndication,

PositioningMeasurementUpdate,  
TRPInformationRequest,  
TRPInformationResponse,  
TRPInformationFailure,  
PositioningInformationRequest,  
PositioningInformationResponse,  
PositioningInformationFailure,  
PositioningActivationRequest,  
PositioningActivationResponse,  
PositioningActivationFailure,  
PositioningDeactivation,  
PositioningInformationUpdate,  
E-CIDMeasurementInitiationRequest,  
E-CIDMeasurementInitiationResponse,  
E-CIDMeasurementInitiationFailure,  
E-CIDMeasurementFailureIndication,  
E-CIDMeasurementReport,  
E-CIDMeasurementTerminationCommand,  
BroadcastContextSetupRequest,  
BroadcastContextSetupResponse,  
BroadcastContextSetupFailure,  
BroadcastContextReleaseCommand,  
BroadcastContextReleaseComplete,  
BroadcastContextReleaseRequest,  
BroadcastContextModificationRequest,  
BroadcastContextModificationResponse,  
BroadcastContextModificationFailure,  
MulticastGroupPaging,  
MulticastContextSetupRequest,  
MulticastContextSetupResponse,  
MulticastContextSetupFailure,  
MulticastContextReleaseCommand,  
MulticastContextReleaseComplete,  
MulticastContextReleaseRequest,  
MulticastContextModificationRequest,  
MulticastContextModificationResponse,  
MulticastContextModificationFailure,  
MulticastDistributionSetupRequest,  
MulticastDistributionSetupResponse,  
MulticastDistributionSetupFailure,  
MulticastDistributionReleaseCommand,  
MulticastDistributionReleaseComplete,  
PDCMeasurementInitiationRequest,  
PDCMeasurementInitiationResponse,  
PDCMeasurementInitiationFailure,  
PDCMeasurementReport,  
PDCMeasurementTerminationCommand,  
PDCMeasurementFailureIndication,  
PRSConfigurationRequest,  
PRSConfigurationResponse,  
PRSConfigurationFailure,  
MeasurementPreconfigurationRequired,  
MeasurementPreconfigurationConfirm,  
MeasurementPreconfigurationRefuse,

MeasurementActivation,  
QoEInformationTransfer,  
PosSystemInformationDeliveryCommand,  
DUCUCellSwitchNotification,  
CUDUCellSwitchNotification,  
DUCUTAIInformationTransfer,  
CUDUTAIInformationTransfer,  
QoEInformationTransferControl,  
RachIndication,  
TimingSynchronisationStatusRequest,  
TimingSynchronisationStatusResponse,  
TimingSynchronisationStatusFailure,  
TimingSynchronisationStatusReport,  
MIABF1SetupTriggering,  
MIABF1SetupOutcomeNotification,  
MulticastContextNotificationIndication,  
MulticastContextNotificationConfirm,  
MulticastContextNotificationRefuse,  
MulticastCommonConfigurationRequest,  
MulticastCommonConfigurationResponse,  
MulticastCommonConfigurationRefuse,  
BroadcastTransportResourceRequest,  
DUCUAccessAndMobilityIndication,  
SRSInformationReservationNotification,  
CUDUMobilityInitiationRequest

## FROM F1AP-PDU-Contents

id-Reset,  
id-F1Setup,  
id-gNBDUConfigurationUpdate,  
id-gNBCUConfigurationUpdate,  
id-UEContextSetup,  
id-UEContextRelease,  
id-UEContextModification,  
id-UEContextModificationRequired,  
id-DUCUAccessAndMobilityIndication,  
id-ErrorIndication,  
id-UEContextReleaseRequest,  
id-DLRRCMMessageTransfer,  
id-ULRRCMMessageTransfer,  
id-GNBDUResourceCoordination,  
id-privateMessage,  
id-UEInactivityNotification,  
id-InitialULRRCMMessageTransfer,  
id-SystemInformationDeliveryCommand,  
id-Paging,  
id-Notify,  
id-WriteReplaceWarning,  
id-PWSCancel,  
id-PWSRestartIndication,



id-PWSFailureIndication,  
id-GNBDUStatusIndication,  
id-RRCDeliveryReport,  
id-F1Removal,  
id-NetworkAccessRateReduction,  
id-TraceStart,  
id-DeactivateTrace,  
id-DUCURadioInformationTransfer,  
id-CUDURadioInformationTransfer,  
id-BAPMappingConfiguration,  
id-GNBDUResourceConfiguration,  
id-IABTNLAddressAllocation,  
id-IABUPConfigurationUpdate,  
id-resourceStatusReportingInitiation,  
id-resourceStatusReporting,  
id-accessAndMobilityIndication,  
id-ReferenceTimeInformationReportingControl,  
id-ReferenceTimeInformationReport,  
id-accessSuccess,  
id-cellTrafficTrace,  
id-PositioningMeasurementExchange,  
id-PositioningAssistanceInformationControl,  
id-PositioningAssistanceInformationFeedback,  
id-PositioningMeasurementReport,  
id-PositioningMeasurementAbort,  
id-PositioningMeasurementFailureIndication,  
id-PositioningMeasurementUpdate,  
id-TRPInformationExchange,  
id-PositioningInformationExchange,  
id-PositioningActivation,  
id-PositioningDeactivation,  
id-PositioningInformationUpdate,  
id-E-CIDMeasurementInitiation,  
id-E-CIDMeasurementFailureIndication,  
id-E-CIDMeasurementReport,  
id-E-CIDMeasurementTermination,  
id-BroadcastContextSetup,  
id-BroadcastContextRelease,  
id-BroadcastContextReleaseRequest,  
id-BroadcastContextModification,  
id-MulticastGroupPaging,  
id-MulticastContextSetup,  
id-MulticastContextRelease,  
id-MulticastContextReleaseRequest,  
id-MulticastContextModification,  
id-MulticastDistributionSetup,  
id-MulticastDistributionRelease,  
id-PDCMeasurementInitiation,  
id-PDCMeasurementTerminationCommand,  
id-PDCMeasurementFailureIndication,  
id-PDCMeasurementReport,  
id-pRSConfigurationExchange,  
id-measurementPreconfiguration,  
id-measurementActivation,

```

id-QoEInformationTransfer,
id-PosSystemInformationDeliveryCommand,
id-DUCUCellSwitchNotification,
id-CUDUCellSwitchNotification,
id-DUCUTAIInformationTransfer,
id-CUDUTAIInformationTransfer,
id-QoEInformationTransferControl,
id-RachIndication,
id-TimingSynchronisationStatus,
id-TimingSynchronisationStatusReport,
id-MIABF1SetupTriggering,
id-MIABF1SetupOutcomeNotification,
id-MulticastContextNotification,
id-MulticastCommonConfiguration,
id-BroadcastTransportResourceRequest,
id-SRSInformationReservationNotification,
id-CUDUMobilityInitiationRequest

```

FROM F1AP-Constants

```

ProtocolIE-SingleContainer{},
F1AP-PROTOCOL-IES

```

FROM F1AP-Containers;

```

-- *****
--
-- Interface Elementary Procedure Class
--
-- *****

F1AP-ELEMENTARY-PROCEDURE ::= CLASS {
    &InitiatingMessage          ,
    &SuccessfulOutcome           OPTIONAL,
    &UnsuccessfulOutcome         OPTIONAL,
    &procedureCode               ProcedureCode UNIQUE,
    &criticality                 Criticality   DEFAULT ignore
}
WITH SYNTAX {
    INITIATING MESSAGE          &InitiatingMessage
    [SUCCESSFUL OUTCOME         &SuccessfulOutcome]
    [UNSUCCESSFUL OUTCOME       &UnsuccessfulOutcome]
    PROCEDURE CODE              &procedureCode
    [CRITICALITY                &criticality]
}

-- *****
--
-- Interface PDU Definition

```

```

--
-- *****

F1AP-PDU ::= CHOICE {
    initiatingMessage    InitiatingMessage,
    successfulOutcome    SuccessfulOutcome,
    unsuccessfulOutcome  UnsuccessfulOutcome,
    choice-extension     ProtocolIE-SingleContainer { { F1AP-PDU-ExtIEs } }
}

F1AP-PDU-ExtIEs F1AP-PROTOCOL-IES ::= { -- this extension is not used
    ...
}

InitiatingMessage ::= SEQUENCE {
    procedureCode    F1AP-ELEMENTARY-PROCEDURE.&procedureCode    ({F1AP-ELEMENTARY-PROCEDURES}),
    criticality      F1AP-ELEMENTARY-PROCEDURE.&criticality      ({F1AP-ELEMENTARY-PROCEDURES}{@procedureCode}),
    value            F1AP-ELEMENTARY-PROCEDURE.&InitiatingMessage ({F1AP-ELEMENTARY-PROCEDURES}{@procedureCode})
}

SuccessfulOutcome ::= SEQUENCE {
    procedureCode    F1AP-ELEMENTARY-PROCEDURE.&procedureCode    ({F1AP-ELEMENTARY-PROCEDURES}),
    criticality      F1AP-ELEMENTARY-PROCEDURE.&criticality      ({F1AP-ELEMENTARY-PROCEDURES}{@procedureCode}),
    value            F1AP-ELEMENTARY-PROCEDURE.&SuccessfulOutcome ({F1AP-ELEMENTARY-PROCEDURES}{@procedureCode})
}

UnsuccessfulOutcome ::= SEQUENCE {
    procedureCode    F1AP-ELEMENTARY-PROCEDURE.&procedureCode    ({F1AP-ELEMENTARY-PROCEDURES}),
    criticality      F1AP-ELEMENTARY-PROCEDURE.&criticality      ({F1AP-ELEMENTARY-PROCEDURES}{@procedureCode}),
    value            F1AP-ELEMENTARY-PROCEDURE.&UnsuccessfulOutcome ({F1AP-ELEMENTARY-PROCEDURES}{@procedureCode})
}

-- *****
--
-- Interface Elementary Procedure List
--
-- *****

F1AP-ELEMENTARY-PROCEDURES F1AP-ELEMENTARY-PROCEDURE ::= {
    F1AP-ELEMENTARY-PROCEDURES-CLASS-1      |
    F1AP-ELEMENTARY-PROCEDURES-CLASS-2,
    ...
}

F1AP-ELEMENTARY-PROCEDURES-CLASS-1 F1AP-ELEMENTARY-PROCEDURE ::= {
    reset                                |
    f1Setup                             |
    gNBDCUConfigurationUpdate           |
    gNBCUConfigurationUpdate            |
    uEContextSetup                      |
    uEContextRelease                    |
    uEContextModification                |
    uEContextModificationRequired       |

```

```

    writeReplaceWarning      |
    pWSCancel                |
    gNBDRResourceCoordination |
    f1Removal                |
    bAPMappingConfiguration  |
    gNBDRResourceConfiguration |
    iABTNLAddressAllocation  |
    iABUPConfigurationUpdate |
    resourceStatusReportingInitiation |
    positioningMeasurementExchange |
    trpInformationExchange   |
    positioningInformationExchange |
    positioningActivation    |
    e-CIDMeasurementInitiation |
    broadcastContextSetup    |
    broadcastContextRelease   |
    broadcastContextModification |
    multicastContextSetup     |
    multicastContextRelease   |
    multicastContextModification |
    multicastDistributionSetup |
    multicastDistributionRelease |
    pDCMeasurementInitiation  |
    pRSConfigurationExchange  |
    measurementPreconfiguration |
    timingSynchronisationStatus |
    multicastContextNotification |
    multicastCommonConfiguration |
    ...
}

F1AP-ELEMENTARY-PROCEDURES-CLASS-2 F1AP-ELEMENTARY-PROCEDURE ::= {
    errorIndication
    uEContextReleaseRequest
    dLRRCCMessageTransfer
    uLRRCCMessageTransfer
    uEInactivityNotification
    privateMessage
    initialULRRCCMessageTransfer
    systemInformationDelivery
    paging
    notify
    pWSRestartIndication
    pWSFailureIndication
    gNBDRStatusIndication
    rRCDeliveryReport
    networkAccessRateReduction
    traceStart
    deactivateTrace
    dUCURadioInformationTransfer
    cUDURadioInformationTransfer
    resourceStatusReporting
    accessAndMobilityIndication
    referenceTimeInformationReportingControl

```

```

referenceTimeInformationReport      |
accessSuccess                      |
cellTrafficTrace                   |
positioningAssistanceInformationControl |
positioningAssistanceInformationFeedback |
positioningMeasurementReport        |
positioningMeasurementAbort         |
positioningMeasurementFailureIndication |
positioningMeasurementUpdate        |
positioningDeactivation             |
e-CIDMeasurementFailureIndication   |
e-CIDMeasurementReport              |
e-CIDMeasurementTermination         |
positioningInformationUpdate        |
multicastGroupPaging               |
broadcastContextReleaseRequest      |
multicastContextReleaseRequest      |
pDCMeasurementReport                |
pDCMeasurementTerminationCommand    |
pDCMeasurementFailureIndication     |
measurementActivation               |
qoEInformationTransfer              |
posSystemInformationDelivery        |
dUCUCellSwitchNotification          |
cUDUCellSwitchNotification          |
dUCUTAIInformationTransfer          |
cUDUTAIInformationTransfer          |
qoEInformationTransferControl       |
rachIndication                     |
timingSynchronisationStatusReport   |
mIABF1SetupTriggering               |
mIABF1SetupOutcomeNotification      |
broadcastTransportResourceRequest    |
dUCUAccessAndMobilityIndication     |
sRSInformationReservationNotification |
cUDUMobilityInitiation,
...
}
-- *****
--
-- Interface Elementary Procedures
--
-- *****

reset F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      Reset
    SUCCESSFUL OUTCOME      ResetAcknowledge
    PROCEDURE CODE          id-Reset
    CRITICALITY              reject
}

f1Setup F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      F1SetupRequest
    SUCCESSFUL OUTCOME      F1SetupResponse

```

```
    UNSUCCESSFUL OUTCOME    F1SetupFailure
    PROCEDURE CODE          id-F1Setup
    CRITICALITY              reject
}

gNBDCUConfigurationUpdate F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      GNBDCUConfigurationUpdate
    SUCCESSFUL OUTCOME      GNBDCUConfigurationUpdateAcknowledge
    UNSUCCESSFUL OUTCOME    GNBDCUConfigurationUpdateFailure
    PROCEDURE CODE          id-gNBDCUConfigurationUpdate
    CRITICALITY              reject
}

gNBCUCUConfigurationUpdate F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      GNBCUCUConfigurationUpdate
    SUCCESSFUL OUTCOME      GNBCUCUConfigurationUpdateAcknowledge
    UNSUCCESSFUL OUTCOME    GNBCUCUConfigurationUpdateFailure
    PROCEDURE CODE          id-gNBCUCUConfigurationUpdate
    CRITICALITY              reject
}

UEContextSetup F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      UEContextSetupRequest
    SUCCESSFUL OUTCOME      UEContextSetupResponse
    UNSUCCESSFUL OUTCOME    UEContextSetupFailure
    PROCEDURE CODE          id-UEContextSetup
    CRITICALITY              reject
}

UEContextRelease F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      UEContextReleaseCommand
    SUCCESSFUL OUTCOME      UEContextReleaseComplete
    PROCEDURE CODE          id-UEContextRelease
    CRITICALITY              reject
}

UEContextModification F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      UEContextModificationRequest
    SUCCESSFUL OUTCOME      UEContextModificationResponse
    UNSUCCESSFUL OUTCOME    UEContextModificationFailure
    PROCEDURE CODE          id-UEContextModification
    CRITICALITY              reject
}

UEContextModificationRequired F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      UEContextModificationRequired
    SUCCESSFUL OUTCOME      UEContextModificationConfirm
    UNSUCCESSFUL OUTCOME    UEContextModificationRefuse
    PROCEDURE CODE          id-UEContextModificationRequired
    CRITICALITY              reject
}

writeReplaceWarning F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      WriteReplaceWarningRequest
```

```
    SUCCESSFUL OUTCOME      WriteReplaceWarningResponse
    PROCEDURE CODE          id-WriteReplaceWarning
    CRITICALITY              reject
}

pWSCancel F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      PWSCancelRequest
    SUCCESSFUL OUTCOME      PWSCancelResponse
    PROCEDURE CODE          id-PWSCancel
    CRITICALITY              reject
}

errorIndication F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      ErrorIndication
    PROCEDURE CODE          id-ErrorIndication
    CRITICALITY              ignore
}

UEContextReleaseRequest F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      UEContextReleaseRequest
    PROCEDURE CODE          id-UEContextReleaseRequest
    CRITICALITY              ignore
}

initialULRRCTestMessageTransfer F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      InitialULRRCTestMessageTransfer
    PROCEDURE CODE          id-InitialULRRCTestMessageTransfer
    CRITICALITY              ignore
}

DLRRCTestMessageTransfer F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      DLRRCTestMessageTransfer
    PROCEDURE CODE          id-DLRRCTestMessageTransfer
    CRITICALITY              ignore
}

ULRRCTestMessageTransfer F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      ULRRCTestMessageTransfer
    PROCEDURE CODE          id-ULRRCTestMessageTransfer
    CRITICALITY              ignore
}

UEInactivityNotification F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      UEInactivityNotification
    PROCEDURE CODE          id-UEInactivityNotification
    CRITICALITY              ignore
}

GNBDUResourceCoordination F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      GNBDUResourceCoordinationRequest
    SUCCESSFUL OUTCOME      GNBDUResourceCoordinationResponse
    PROCEDURE CODE          id-GNBDUResourceCoordination
}
```

```
    CRITICALITY          reject
  }

privateMessage F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE    PrivateMessage
    PROCEDURE CODE        id-privateMessage
    CRITICALITY           ignore
}

systemInformationDelivery F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE    SystemInformationDeliveryCommand
    PROCEDURE CODE        id-SystemInformationDeliveryCommand
    CRITICALITY           ignore
}

paging F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE    Paging
    PROCEDURE CODE        id-Paging
    CRITICALITY           ignore
}

notify F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE    Notify
    PROCEDURE CODE        id-Notify
    CRITICALITY           ignore
}

networkAccessRateReduction F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE    NetworkAccessRateReduction
    PROCEDURE CODE        id-NetworkAccessRateReduction
    CRITICALITY           ignore
}

pwsRestartIndication F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE    PWSRestartIndication
    PROCEDURE CODE        id-PWSRestartIndication
    CRITICALITY           ignore
}

pwsFailureIndication F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE    PWSFailureIndication
    PROCEDURE CODE        id-PWSFailureIndication
    CRITICALITY           ignore
}

gnbDUSStatusIndication F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE    GNBStatusIndication
    PROCEDURE CODE        id-GNBStatusIndication
    CRITICALITY           ignore
}
```



```
rRCDeliveryReport F1AP-ELEMENTARY-PROCEDURE ::= {  
    INITIATING MESSAGE      RRCDeliveryReport  
    PROCEDURE CODE          id-RRCDeliveryReport  
    CRITICALITY              ignore  
}  
  
f1Removal F1AP-ELEMENTARY-PROCEDURE ::= {  
    INITIATING MESSAGE      F1RemovalRequest  
    SUCCESSFUL OUTCOME      F1RemovalResponse  
    UNSUCCESSFUL OUTCOME    F1RemovalFailure  
    PROCEDURE CODE          id-F1Removal  
    CRITICALITY              reject  
}  
  
traceStart F1AP-ELEMENTARY-PROCEDURE ::= {  
    INITIATING MESSAGE      TraceStart  
    PROCEDURE CODE          id-TraceStart  
    CRITICALITY              ignore  
}  
  
deactivateTrace F1AP-ELEMENTARY-PROCEDURE ::= {  
    INITIATING MESSAGE      DeactivateTrace  
    PROCEDURE CODE          id-DeactivateTrace  
    CRITICALITY              ignore  
}  
  
dUCURadioInformationTransfer F1AP-ELEMENTARY-PROCEDURE ::= {  
    INITIATING MESSAGE      DUCURadioInformationTransfer  
    PROCEDURE CODE          id-DUCURadioInformationTransfer  
    CRITICALITY              ignore  
}  
  
cUDURadioInformationTransfer F1AP-ELEMENTARY-PROCEDURE ::= {  
    INITIATING MESSAGE      CUDURadioInformationTransfer  
    PROCEDURE CODE          id-CUDURadioInformationTransfer  
    CRITICALITY              ignore  
}  
  
bAPMappingConfiguration F1AP-ELEMENTARY-PROCEDURE ::= {  
    INITIATING MESSAGE      BAPMappingConfiguration  
    SUCCESSFUL OUTCOME      BAPMappingConfigurationAcknowledge  
    UNSUCCESSFUL OUTCOME    BAPMappingConfigurationFailure  
    PROCEDURE CODE          id-BAPMappingConfiguration  
    CRITICALITY              reject  
}  
  
gNBDRResourceConfiguration F1AP-ELEMENTARY-PROCEDURE ::= {  
    INITIATING MESSAGE      GNBDRResourceConfiguration  
    SUCCESSFUL OUTCOME      GNBDRResourceConfigurationAcknowledge  
    UNSUCCESSFUL OUTCOME    GNBDRResourceConfigurationFailure  
    PROCEDURE CODE          id-GNBDRResourceConfiguration  
    CRITICALITY              reject  
}
```

```
iABTNLAddressAllocation F1AP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE      IABTNLAddressRequest
  SUCCESSFUL OUTCOME      IABTNLAddressResponse
  UNSUCCESSFUL OUTCOME    IABTNLAddressFailure
  PROCEDURE CODE          id-IABTNLAddressAllocation
  CRITICALITY             reject
}

iABUPConfigurationUpdate F1AP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE      IABUPConfigurationUpdateRequest
  SUCCESSFUL OUTCOME      IABUPConfigurationUpdateResponse
  UNSUCCESSFUL OUTCOME    IABUPConfigurationUpdateFailure
  PROCEDURE CODE          id-IABUPConfigurationUpdate
  CRITICALITY             reject
}

resourceStatusReportingInitiation F1AP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE      ResourceStatusRequest
  SUCCESSFUL OUTCOME      ResourceStatusResponse
  UNSUCCESSFUL OUTCOME    ResourceStatusFailure
  PROCEDURE CODE          id-resourceStatusReportingInitiation
  CRITICALITY             reject
}

resourceStatusReporting F1AP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE      ResourceStatusUpdate
  PROCEDURE CODE          id-resourceStatusReporting
  CRITICALITY             ignore
}

accessAndMobilityIndication F1AP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE      AccessAndMobilityIndication
  PROCEDURE CODE          id-accessAndMobilityIndication
  CRITICALITY             ignore
}

referenceTimeInformationReportingControl F1AP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE      ReferenceTimeInformationReportingControl
  PROCEDURE CODE          id-ReferenceTimeInformationReportingControl
  CRITICALITY             ignore
}

referenceTimeInformationReport F1AP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE      ReferenceTimeInformationReport
  PROCEDURE CODE          id-ReferenceTimeInformationReport
  CRITICALITY             ignore
}

accessSuccess F1AP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE      AccessSuccess
  PROCEDURE CODE          id-accessSuccess
  CRITICALITY             ignore
}
```

```
cellTrafficTrace F1AP-ELEMENTARY-PROCEDURE ::= {  
    INITIATING MESSAGE      CellTrafficTrace  
    PROCEDURE CODE          id-cellTrafficTrace  
    CRITICALITY              ignore  
}  
  
positioningAssistanceInformationControl F1AP-ELEMENTARY-PROCEDURE ::= {  
    INITIATING MESSAGE      PositioningAssistanceInformationControl  
    PROCEDURE CODE          id-PositioningAssistanceInformationControl  
    CRITICALITY              ignore  
}  
  
positioningAssistanceInformationFeedback F1AP-ELEMENTARY-PROCEDURE ::= {  
    INITIATING MESSAGE      PositioningAssistanceInformationFeedback  
    PROCEDURE CODE          id-PositioningAssistanceInformationFeedback  
    CRITICALITY              ignore  
}  
  
positioningMeasurementExchange F1AP-ELEMENTARY-PROCEDURE ::= {  
    INITIATING MESSAGE      PositioningMeasurementRequest  
    SUCCESSFUL OUTCOME      PositioningMeasurementResponse  
    UNSUCCESSFUL OUTCOME    PositioningMeasurementFailure  
    PROCEDURE CODE          id-PositioningMeasurementExchange  
    CRITICALITY              reject  
}  
  
positioningMeasurementReport F1AP-ELEMENTARY-PROCEDURE ::= {  
    INITIATING MESSAGE      PositioningMeasurementReport  
    PROCEDURE CODE          id-PositioningMeasurementReport  
    CRITICALITY              ignore  
}  
  
positioningMeasurementAbort F1AP-ELEMENTARY-PROCEDURE ::= {  
    INITIATING MESSAGE      PositioningMeasurementAbort  
    PROCEDURE CODE          id-PositioningMeasurementAbort  
    CRITICALITY              ignore  
}  
  
positioningMeasurementFailureIndication F1AP-ELEMENTARY-PROCEDURE ::= {  
    INITIATING MESSAGE      PositioningMeasurementFailureIndication  
    PROCEDURE CODE          id-PositioningMeasurementFailureIndication  
    CRITICALITY              ignore  
}  
  
positioningMeasurementUpdate F1AP-ELEMENTARY-PROCEDURE ::= {  
    INITIATING MESSAGE      PositioningMeasurementUpdate  
    PROCEDURE CODE          id-PositioningMeasurementUpdate  
    CRITICALITY              ignore  
}  
  
trpInformationExchange F1AP-ELEMENTARY-PROCEDURE ::= {  
    INITIATING MESSAGE      TRPInformationRequest  
    SUCCESSFUL OUTCOME      TRPInformationResponse  
}
```

```
    UNSUCCESSFUL OUTCOME    TRPInformationFailure
    PROCEDURE CODE          id-TRPInformationExchange
    CRITICALITY              reject
}

positioningInformationExchange F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      PositioningInformationRequest
    SUCCESSFUL OUTCOME       PositioningInformationResponse
    UNSUCCESSFUL OUTCOME     PositioningInformationFailure
    PROCEDURE CODE          id-PositioningInformationExchange
    CRITICALITY              reject
}

positioningActivation F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      PositioningActivationRequest
    SUCCESSFUL OUTCOME       PositioningActivationResponse
    UNSUCCESSFUL OUTCOME     PositioningActivationFailure
    PROCEDURE CODE          id-PositioningActivation
    CRITICALITY              reject
}

positioningDeactivation F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      PositioningDeactivation
    PROCEDURE CODE          id-PositioningDeactivation
    CRITICALITY              ignore
}

e-CIDMeasurementInitiation F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      E-CIDMeasurementInitiationRequest
    SUCCESSFUL OUTCOME       E-CIDMeasurementInitiationResponse
    UNSUCCESSFUL OUTCOME     E-CIDMeasurementInitiationFailure
    PROCEDURE CODE          id-E-CIDMeasurementInitiation
    CRITICALITY              reject
}

e-CIDMeasurementFailureIndication F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      E-CIDMeasurementFailureIndication
    PROCEDURE CODE          id-E-CIDMeasurementFailureIndication
    CRITICALITY              ignore
}

e-CIDMeasurementReport F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      E-CIDMeasurementReport
    PROCEDURE CODE          id-E-CIDMeasurementReport
    CRITICALITY              ignore
}

e-CIDMeasurementTermination F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      E-CIDMeasurementTerminationCommand
    PROCEDURE CODE          id-E-CIDMeasurementTermination
    CRITICALITY              ignore
}

positioningInformationUpdate F1AP-ELEMENTARY-PROCEDURE ::= {
```

```
INITIATING MESSAGE      PositioningInformationUpdate
PROCEDURE CODE          id-PositioningInformationUpdate
CRITICALITY             ignore
}

broadcastContextSetup F1AP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE      BroadcastContextSetupRequest
  SUCCESSFUL OUTCOME      BroadcastContextSetupResponse
  UNSUCCESSFUL OUTCOME    BroadcastContextSetupFailure
  PROCEDURE CODE          id-BroadcastContextSetup
  CRITICALITY             reject
}

broadcastContextRelease F1AP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE      BroadcastContextReleaseCommand
  SUCCESSFUL OUTCOME      BroadcastContextReleaseComplete
  PROCEDURE CODE          id-BroadcastContextRelease
  CRITICALITY             reject
}

broadcastContextReleaseRequest F1AP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE      BroadcastContextReleaseRequest
  PROCEDURE CODE          id-BroadcastContextReleaseRequest
  CRITICALITY             reject
}

broadcastContextModification F1AP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE      BroadcastContextModificationRequest
  SUCCESSFUL OUTCOME      BroadcastContextModificationResponse
  UNSUCCESSFUL OUTCOME    BroadcastContextModificationFailure
  PROCEDURE CODE          id-BroadcastContextModification
  CRITICALITY             reject
}

multicastGroupPaging F1AP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE      MulticastGroupPaging
  PROCEDURE CODE          id-MulticastGroupPaging
  CRITICALITY             ignore
}

multicastContextSetup F1AP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE      MulticastContextSetupRequest
  SUCCESSFUL OUTCOME      MulticastContextSetupResponse
  UNSUCCESSFUL OUTCOME    MulticastContextSetupFailure
  PROCEDURE CODE          id-MulticastContextSetup
  CRITICALITY             reject
}

multicastContextRelease F1AP-ELEMENTARY-PROCEDURE ::= {
  INITIATING MESSAGE      MulticastContextReleaseCommand
  SUCCESSFUL OUTCOME      MulticastContextReleaseComplete
  PROCEDURE CODE          id-MulticastContextRelease
  CRITICALITY             reject
}
```

```
}

multicastContextReleaseRequest F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      MulticastContextReleaseRequest
    PROCEDURE CODE          id-MulticastContextReleaseRequest
    CRITICALITY              reject
}

multicastContextModification F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      MulticastContextModificationRequest
    SUCCESSFUL OUTCOME      MulticastContextModificationResponse
    UNSUCCESSFUL OUTCOME    MulticastContextModificationFailure
    PROCEDURE CODE          id-MulticastContextModification
    CRITICALITY              reject
}

multicastDistributionSetup F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      MulticastDistributionSetupRequest
    SUCCESSFUL OUTCOME      MulticastDistributionSetupResponse
    UNSUCCESSFUL OUTCOME    MulticastDistributionSetupFailure
    PROCEDURE CODE          id-MulticastDistributionSetup
    CRITICALITY              reject
}

multicastDistributionRelease F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      MulticastDistributionReleaseCommand
    SUCCESSFUL OUTCOME      MulticastDistributionReleaseComplete
    PROCEDURE CODE          id-MulticastDistributionRelease
    CRITICALITY              reject
}

pDCMeasurementInitiation F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      PDCMeasurementInitiationRequest
    SUCCESSFUL OUTCOME      PDCMeasurementInitiationResponse
    UNSUCCESSFUL OUTCOME    PDCMeasurementInitiationFailure
    PROCEDURE CODE          id-PDCMeasurementInitiation
    CRITICALITY              reject
}

pDCMeasurementReport F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      PDCMeasurementReport
    PROCEDURE CODE          id-PDCMeasurementReport
    CRITICALITY              ignore
}

pDCMeasurementTerminationCommand F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      PDCMeasurementTerminationCommand
    PROCEDURE CODE          id-PDCMeasurementTerminationCommand
    CRITICALITY              ignore
}

pDCMeasurementFailureIndication F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      PDCMeasurementFailureIndication
```

```

    PROCEDURE CODE      id-PDCMeasurementFailureIndication
    CRITICALITY         ignore
}

PRSConfigurationExchange F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  PRSConfigurationRequest
    SUCCESSFUL OUTCOME   PRSConfigurationResponse
    UNSUCCESSFUL OUTCOME PRSConfigurationFailure
    PROCEDURE CODE      id-prsConfigurationExchange
    CRITICALITY         reject
}

measurementPreconfiguration F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  MeasurementPreconfigurationRequired
    SUCCESSFUL OUTCOME   MeasurementPreconfigurationConfirm
    UNSUCCESSFUL OUTCOME MeasurementPreconfigurationRefuse
    PROCEDURE CODE      id-measurementPreconfiguration
    CRITICALITY         reject
}

measurementActivation      F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  MeasurementActivation
    PROCEDURE CODE      id-measurementActivation
    CRITICALITY         ignore
}

qoEInformationTransfer F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  QoEInformationTransfer
    PROCEDURE CODE      id-QoEInformationTransfer
    CRITICALITY         ignore
}

posSystemInformationDelivery F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  PosSystemInformationDeliveryCommand
    PROCEDURE CODE      id-PosSystemInformationDeliveryCommand
    CRITICALITY         ignore
}

dUCUCellSwitchNotification F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  DUCUCellSwitchNotification
    PROCEDURE CODE      id-DUCUCellSwitchNotification
    CRITICALITY         ignore
}

cUDUCellSwitchNotification F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  CUDUCellSwitchNotification
    PROCEDURE CODE      id-CUDUCellSwitchNotification
    CRITICALITY         ignore
}

dUCUTAIInformationTransfer F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE  DUCUTAIInformationTransfer

```

```
    PROCEDURE CODE      id-DUCUTAIInformationTransfer
    CRITICALITY          ignore
}

cUDUTAIInformationTransfer F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE   CUDUTAIInformationTransfer
    PROCEDURE CODE       id-CUDUTAIInformationTransfer
    CRITICALITY          ignore
}

qoEInformationTransferControl F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE   QoEInformationTransferControl
    PROCEDURE CODE       id-QoEInformationTransferControl
    CRITICALITY          ignore
}

rachIndication F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE   RachIndication
    PROCEDURE CODE       id-RachIndication
    CRITICALITY          ignore
}

timingSynchronisationStatus F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE   TimingSynchronisationStatusRequest
    SUCCESSFUL OUTCOME    TimingSynchronisationStatusResponse
    UNSUCCESSFUL OUTCOME TimingSynchronisationStatusFailure
    PROCEDURE CODE       id-TimingSynchronisationStatus
    CRITICALITY          reject
}

timingSynchronisationStatusReport F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE   TimingSynchronisationStatusReport
    PROCEDURE CODE       id-TimingSynchronisationStatusReport
    CRITICALITY          ignore
}

mIABF1SetupTriggering F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE   mIABF1SetupTriggering
    PROCEDURE CODE       id-mIABF1SetupTriggering
    CRITICALITY          reject
}

mIABF1SetupOutcomeNotification F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE   mIABF1SetupOutcomeNotification
    PROCEDURE CODE       id-mIABF1SetupOutcomeNotification
    CRITICALITY          reject
}

multicastContextNotification F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE   MulticastContextNotificationIndication
    SUCCESSFUL OUTCOME    MulticastContextNotificationConfirm
    UNSUCCESSFUL OUTCOME MulticastContextNotificationRefuse
    PROCEDURE CODE       id-MulticastContextNotification
    CRITICALITY          reject
}
```



```

}

multicastCommonConfiguration F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      MulticastCommonConfigurationRequest
    SUCCESSFUL OUTCOME      MulticastCommonConfigurationResponse
    UNSUCCESSFUL OUTCOME    MulticastCommonConfigurationRefuse
    PROCEDURE CODE          id-MulticastCommonConfiguration
    CRITICALITY              reject
}

broadcastTransportResourceRequest F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      BroadcastTransportResourceRequest
    PROCEDURE CODE          id-BroadcastTransportResourceRequest
    CRITICALITY              reject
}

dUCUAccessAndMobilityIndication F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      DUCUAccessAndMobilityIndication
    PROCEDURE CODE          id-DUCUAccessAndMobilityIndication
    CRITICALITY              ignore
}

sRSInformationReservationNotification F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      SRSInformationReservationNotification
    PROCEDURE CODE          id-SRSInformationReservationNotification
    CRITICALITY              reject
}

cUDUMobilityInitiation F1AP-ELEMENTARY-PROCEDURE ::= {
    INITIATING MESSAGE      CUDUMobilityInitiationRequest
    PROCEDURE CODE          id-CUDUMobilityInitiationRequest
    CRITICALITY              ignore
}

END
-- ASN1STOP

```

## 9.4.4 PDU Definitions

```

-- ASN1START
-- *****
--
-- PDU definitions for F1AP.
--
-- *****

F1AP-PDU-Contents {
    itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
    ngran-access (22) modules (3) f1ap (3) version1 (1) f1ap-PDU-Contents (1) }

DEFINITIONS AUTOMATIC TAGS ::=

```

BEGIN

```
-- *****  
--  
-- IE parameter types from other modules.  
--  
-- *****
```

IMPORTS

```
AssociatedSessionID,  
BroadcastMRBs-FailedToBeModified-Item,  
BroadcastMRBs-FailedToBeSetup-Item,  
BroadcastMRBs-FailedToBeSetupMod-Item,  
BroadcastMRBs-Modified-Item,  
BroadcastMRBs-Setup-Item,  
BroadcastMRBs-SetupMod-Item,  
BroadcastMRBs-ToBeModified-Item,  
BroadcastMRBs-ToBeReleased-Item,  
BroadcastMRBs-ToBeSetup-Item,  
BroadcastMRBs-ToBeSetupMod-Item,  
Candidate-SpCell-Item,  
Cause,  
Cells-Allowed-to-be-Deactivated-List-Item,  
Cells-Failed-to-be-Activated-List-Item,  
Cells-Status-Item,  
Cells-to-be-Activated-List-Item,  
Cells-to-be-Deactivated-List-Item,  
CellULConfigured,  
CriticalityDiagnostics,  
C-RNTI,  
CutoDURRCInformation,  
DRB-Activity-Item,  
DRBs-FailedToBeModified-Item,  
DRBs-FailedToBeSetup-Item,  
DRBs-FailedToBeSetupMod-Item,  
DRB-Notify-Item,  
DRBs-ModifiedConf-Item,  
DRBs-Modified-Item,  
DRBs-Required-ToBeModified-Item,  
DRBs-Required-ToBeReleased-Item,  
DRBs-Setup-Item,  
DRBs-SetupMod-Item,  
DRBs-ToBeModified-Item,  
DRBs-ToBeReleased-Item,  
DRBs-ToBeSetup-Item,  
DRBs-ToBeSetupMod-Item,  
DRXCycle,  
DRXConfigurationIndicator,  
DUtoCURRCInformation,  
ExecuteDuplication,  
FullConfiguration,  
GNB-CU-MBS-F1AP-ID,  
GNB-CU-UE-F1AP-ID,  
GNB-DU-MBS-F1AP-ID,
```

GNB-DU-UE-F1AP-ID,  
GNB-DU-ID,  
GNB-DU-Served-Cells-Item,  
GNB-CU-Name,  
GNB-DU-Name,  
InactivityMonitoringRequest,  
InactivityMonitoringResponse,  
LowerLayerPresenceStatusChange,  
MBS-CUtoDURRCInformation,  
MBSMulticastF1UContextDescriptor,  
MBS-Session-ID,  
MBS-ServiceArea,  
MulticastF1UContextReferenceCU,  
MulticastF1UContext-ToBeSetup-Item,  
MulticastF1UContext-Setup-Item,  
MulticastF1UContext-FailedToBeSetup-Item,  
MulticastMBSSessionList,  
MulticastMRBs-ToBeSetup-Item,  
MulticastMRBs-Setup-Item,  
MulticastMRBs-FailedToBeSetup-Item,  
MulticastMRBs-ToBeSetupMod-Item,  
MulticastMRBs-ToBeModified-Item,  
MulticastMRBs-ToBeReleased-Item,  
MulticastMRBs-SetupMod-Item,  
MulticastMRBs-FailedToBeSetupMod-Item,  
MulticastMRBs-Modified-Item,  
MulticastMRBs-FailedToBeModified-Item,  
BroadcastAreaScope,  
NetworkControlledRepeaterAuthorized,  
NR CGI,  
UEContextNotRetrievable,  
Potential-SpCell-Item,  
RANSharingAssistanceInformation,  
RAT-FrequencyPriorityInformation,  
RequestedSRSTransmissionCharacteristics,  
ResourceCoordinationTransferContainer,  
RRCContainer,  
RRCContainer-RRCSetupComplete,  
RRCReconfigurationCompleteIndicator,  
SCell-ToBeRemoved-Item,  
SCell-ToBeSetup-Item,  
SCell-ToBeSetupMod-Item,  
SCell-FailedtoSetup-Item,  
SCell-FailedtoSetupMod-Item,  
SDT-Volume-Threshold,  
ServCellIndex,  
Served-Cells-To-Add-Item,  
Served-Cells-To-Delete-Item,  
Served-Cells-To-Modify-Item,  
ServingCellMO,  
SNSSAI,  
SRBID,  
SRBs-FailedToBeSetup-Item,  
SRBs-FailedToBeSetupMod-Item,

SRBs-Required-ToBeReleased-Item,  
SRBs-ToBeReleased-Item,  
SRBs-ToBeSetup-Item,  
SRBs-ToBeSetupMod-Item,  
SRBs-Modified-Item,  
SRBs-Setup-Item,  
SRBs-SetupMod-Item,  
SupportedUETypeList,  
TimeToWait,  
TransactionID,  
TransmissionActionIndicator,  
UE-associatedLogicalF1-ConnectionItem,  
UEIdentity-List-For-Paging-Item,  
DUtoCURRCCContainer,  
PagingCell-Item,  
SIttype-List,  
UEIdentityIndexValue,  
GNB-CU-TNL-Association-Setup-Item,  
GNB-CU-TNL-Association-Failed-To-Setup-Item,  
GNB-CU-TNL-Association-To-Add-Item,  
GNB-CU-TNL-Association-To-Remove-Item,  
GNB-CU-TNL-Association-To-Update-Item,  
MaskedIMEISV,  
PagingDRX,  
PagingPriority,  
PagingIdentity,  
Cells-to-be-Barred-Item,  
PWSSystemInformation,  
Broadcast-To-Be-Cancelled-Item,  
Cells-Broadcast-Cancelled-Item,  
NR-CGI-List-For-Restart-Item,  
PWS-Failed-NR-CGI-Item,  
RepetitionPeriod,  
NumberOfBroadcastRequest,  
Cells-To-Be-Broadcast-Item,  
Cells-Broadcast-Completed-Item,  
Cancel-all-Warning-Messages-Indicator,  
EUTRA-NR-CellResourceCoordinationReq-Container,  
EUTRA-NR-CellResourceCoordinationReqAck-Container,  
RequestType,  
PLMN-Identity,  
RLCFailureIndication,  
UplinkTxDirectCurrentListInformation,  
SULAccessIndication,  
Protected-EUTRA-Resources-Item,  
GNB-DUConfigurationQuery,  
BitRate,  
RRC-Version,  
GNBDUOverloadInformation,  
RRCDeliveryStatusRequest,  
NeedforGap,  
RRCDeliveryStatus,  
ResourceCoordinationTransferInformation,  
Dedicated-SIDelivery-NeededUE-Item,

Associated-SCell-Item,  
IgnoreResourceCoordinationContainer,  
PagingOrigin,  
UAC-Assistance-Info,  
RANUEID,  
GNB-DU-TNL-Association-To-Remove-Item,  
NotificationInformation,  
TraceActivation,  
TraceID,  
Neighbour-Cell-Information-Item,  
AdditionalRRMPriorityIndex,  
DUCURadioInformationType,  
CUDURadioInformationType,  
Transport-Layer-Address-Info,  
BHChannels-ToBeSetup-Item,  
BHChannels-Setup-Item,  
BHChannels-FailedToBeSetup-Item,  
BHChannels-ToBeModified-Item,  
BHChannels-ToBeReleased-Item,  
BHChannels-ToBeSetupMod-Item,  
BHChannels-FailedToBeModified-Item,  
BHChannels-FailedToBeSetupMod-Item,  
BHChannels-Modified-Item,  
BHChannels-SetupMod-Item,  
BHChannels-Required-ToBeReleased-Item,  
BAPAddress,  
BH-Routing-Information-Added-List-Item,  
BH-Routing-Information-Removed-List-Item,  
Child-Nodes-List,  
Activated-Cells-to-be-Updated-List,  
UL-BH-Non-UP-Traffic-Mapping,  
IABIPv6RequestType,  
IAB-TNL-Addresses-To-Remove-Item,  
IABTNLAddress,  
IAB-Allocated-TNL-Address-Item,  
IABv4AddressesRequested,  
TrafficMappingInfo,  
UL-UP-TNL-Information-to-Update-List-Item,  
UL-UP-TNL-Address-to-Update-List-Item,  
DL-UP-TNL-Address-to-Update-List-Item,  
NRV2XServicesAuthorized,  
LTEV2XServicesAuthorized,  
NRUESidelinkAggregateMaximumBitrate,  
LTEUESidelinkAggregateMaximumBitrate,  
SLDRBs-SetupMod-Item,  
SLDRBs-ModifiedConf-Item,  
SLDRBs-FailedToBeModified-Item,  
SLDRBs-FailedToBeSetup-Item,  
SLDRBs-FailedToBeSetupMod-Item,  
SLDRBs-Modified-Item,  
SLDRBs-Required-ToBeModified-Item,  
SLDRBs-Required-ToBeReleased-Item,  
SLDRBs-Setup-Item,  
SLDRBs-ToBeModified-Item,

SLDRBs-ToBeReleased-Item,  
SLDRBs-ToBeSetup-Item,  
SLDRBs-ToBeSetupMod-Item,  
GNBCUMeasurementID,  
GNBDUMeasurementID,  
RegistrationRequest,  
ReportCharacteristics,  
CellToReportList,  
HardwareLoadIndicator,  
CellMeasurementResultList,  
ReportingPeriodicity,  
TNLCapacityIndicator,  
RAReportList,  
RLFReportInformationList,  
ReportingRequestType,  
TimeReferenceInformation,  
ConditionalInterDUMobilityInformation,  
ConditionalIntraDUMobilityInformation,  
TargetCellList,  
MDTPLMNList,  
PrivacyIndicator,  
TransportLayerAddress,  
URI-address,  
NID,  
PosAssistance-Information,  
PosBroadcast,  
PositioningBroadcastCells,  
RoutingID,  
PosAssistanceInformationFailureList,  
PosMeasurementQuantities,  
PosMeasurementResultList,  
PosReportCharacteristics,  
TRPInformationTypeItem,  
TRPInformationItem,  
LMF-MeasurementID,  
RAN-MeasurementID,  
SDT-Termination-Request,  
SRSResourceSetID,  
SpatialRelationInfo,  
SRSResourceTrigger,  
SRSConfiguration,  
TRPList,  
E-CID-MeasurementQuantities,  
MeasurementPeriodicity,  
E-CID-MeasurementResult,  
Cell-Portion-ID,  
LMF-UE-MeasurementID,  
RAN-UE-MeasurementID,  
RelativeTime1900,  
SystemFrameNumber,  
SlotNumber,  
AbortTransmission,  
TRP-MeasurementRequestList,  
MeasurementBeamInfoRequest,

E-CID-ReportCharacteristics,  
Extended-GNB-CU-Name,  
Extended-GNB-DU-Name,  
F1CTransferPath,  
SCGIndicator,  
SpatialRelationPerSRSResource,  
MeasurementPeriodicityExtended,  
SuccessfulHOReportInformationList,  
Coverage-Modification-Notification,  
CCO-Assistance-Information,  
CellsForSON-List,  
IABCongestionIndication,  
IABConditionalRRCMessageDeliveryIndication,  
F1CTransferPathNRDC,  
BufferSizeThresh,  
IAB-TNL-Addresses-Exception,  
BAP-Header-Rewriting-Added-List-Item,  
Re-routingEnableIndicator,  
Neighbour-Node-Cells-List,  
Serving-Cells-List,  
RBSetConfiguration,  
PDCMeasurementPeriodicity,  
PDCMeasurementQuantities,  
PDCMeasurementResult,  
PDCReportType,  
RAN-UE-PDC-MeasID,  
SCGActivationRequest,  
SCGActivationStatus,  
TRP-MeasurementUpdateList,  
PRSTRPList,  
PRSTransmissionTRPLList,  
ResponseTime,  
TRP-PRS-Info-List,  
PRS-Measurement-Info-List,  
PRSConfigRequestType,  
MeasurementCharacteristicsRequestIndicator,  
MeasurementTimeOccasion,  
UEReportingInformation,  
PosContextRevIndication,  
NRRedCapUEIndication,  
NRPagingeDRXInformation,  
NRPagingeDRXInformationforRRCINACTIVE,  
QoEInformation,  
CG-SDTQueryIndication,  
CG-SDTKeptIndicator,  
CG-SDTSessionInfo,  
SDTInformation,  
FiveG-ProSeAuthorized,  
UuRLCChannelToBeSetupList,  
UuRLCChannelToBeModifiedList,  
UuRLCChannelToBeReleasedList,  
UuRLCChannelSetupList,  
UuRLCChannelFailedToBeSetupList,  
UuRLCChannelModifiedList,

UuRLCChannelFailedToBeModifiedList,  
UuRLCChannelRequiredToBeModifiedList,  
UuRLCChannelRequiredToBeReleasedList,  
PC5RLCChannelToBeSetupList,  
PC5RLCChannelToBeModifiedList,  
PC5RLCChannelToBeReleasedList,  
PC5RLCChannelSetupList,  
PC5RLCChannelFailedToBeSetupList,  
PC5RLCChannelFailedToBeModifiedList,  
PC5RLCChannelRequiredToBeModifiedList,  
PC5RLCChannelRequiredToBeReleasedList,  
PC5RLCChannelModifiedList,  
RemoteUELocalID,  
PathSwitchConfiguration,  
SidelinkRelayConfiguration,  
PagingCause,  
PEIPSAssistanceInfo,  
UEPagingCapability,  
GNBDUUESliceMaximumBitRateList,  
MDTPollutedMeasurementIndicator,  
UE-MulticastMRBs-ConfirmedToBeModified-Item,  
UE-MulticastMRBs-RequiredToBeModified-Item,  
UE-MulticastMRBs-RequiredToBeReleased-Item,  
UE-MulticastMRBs-Setup-Item,  
UE-MulticastMRBs-Setupnew-Item,  
UE-MulticastMRBs-ToBeReleased-Item,  
UE-MulticastMRBs-ToBeSetup-Item,  
UE-MulticastMRBs-ToBeSetup-atModify-Item,  
PosMeasurementAmount,  
BAP-Header-Rewriting-Removed-List-Item,  
SLDRXCycleList,  
MDTPLMNModificationList,  
ActivationRequestType,  
PosMeasGapPreConfigList,  
PosMeasurementPeriodicityNR-AoA,  
SRSPoSRRRCInactiveConfig,  
SDTBearerConfigurationQueryIndication,  
SDTBearerConfigurationInfo,  
ServingCellMO-List-Item,  
ServingCellMO-encoded-in-CGC-List,  
PosSItypeList,  
DAPS-HO-Status,  
UuRLCChannelID,  
UplinkTxDirectCurrentTwoCarrierListInfo,  
SRSPoSRRRCInactiveQueryIndication,  
MC-PagingCell-Item,  
ULTxDirectCurrentMoreCarrierInformation,  
CPACMCGInformation,  
ExtendedUEIdentityIndexValue,  
HashedUEIdentityIndexValue,  
DedicatedSIDeliveryIndication,  
Configured-BWP-List,  
MT-SDT-Information,  
LTMInformation-Setup,



LTMConfigurationIDMappingList,  
LTMInformation-Modify,  
LTMCells-ToBeReleased-List,  
LTMCFRResourceConfig-List,  
LTMConfiguration,  
EarlySyncInformation-Request,  
EarlySyncInformation,  
EarlySyncCandidateCellInformation-List,  
EarlySyncServingCellInformation,  
LTMCellSwitchInformation,  
DUtoCUTAIInformation-List,  
CUtoDUTAIInformation-List,  
DeactivationIndication,  
RARReportIndicationList,  
SuccessfulPSCellChangeReportInformationList,  
PathAdditionInformation,  
RANTSSRequestType,  
RANTimingSynchronisationStatusInfo,  
GlobalGNB-ID,  
Activated-Cells-Mapping-List-Item,  
RRC-Terminating-IAB-Donor-Related-Info,  
NCGI-to-be-Updated-List-Item,  
Mobile-IAB-MTUserLocationInformation,  
TAI,  
IndicationMCInactiveReception,  
MulticastCU2DURRCInfo,  
MulticastDU2CURRCInfo,  
MBSMulticastSessionReceptionState,  
MulticastCU2DUCCommonRRRCInfo,  
NRA2XServicesAuthorized,  
LTEA2XServicesAuthorized,  
NRERedCapUEIndication,  
NRPaginglongeDRXInformationforRRCINACTIVE,  
Cells-With-SSBs-Activated-List,  
Recommended-SSBs-for-Paging-List,  
S-CPAC-Configuration,  
DLLBTFailureInformationRequest,  
DLLBTFailureInformationList,  
SLPositioning-Ranging-Service-Info,  
TimeWindowInformation-SRS-List,  
TimeWindowInformation-Measurement-List,  
SRSPoSRRRCInactiveValidityAreaConfig,  
SRSReservationType,  
RequestedSRSPreconfigurationCharacteristics-List,  
SRSPreconfiguration-List,  
Broadcast-MRBs-Transport-Request-Item,  
TAInformation-List,  
NonIntegerDRXCycle,  
AggregatedPosSRSResourceSetList,  
F1U-PathFailure,  
LTMResetInformation,  
MobilityInitiation,  
PLMNIndexNR

FROM F1AP-IEs

PrivateIE-Container{},  
ProtocolExtensionContainer{},  
ProtocolIE-Container{},  
ProtocolIE-ContainerPair{},  
ProtocolIE-SingleContainer{},  
F1AP-PRIVATE-IES,  
F1AP-PROTOCOL-EXTENSION,  
F1AP-PROTOCOL-IES,  
F1AP-PROTOCOL-IES-PAIR

FROM F1AP-Containers

id-AssociatedSessionID,  
id-BroadcastMRBs-FailedToBeModified-List,  
id-BroadcastMRBs-FailedToBeModified-Item,  
id-BroadcastMRBs-FailedToBeSetup-List,  
id-BroadcastMRBs-FailedToBeSetup-Item,  
id-BroadcastMRBs-FailedToBeSetupMod-List,  
id-BroadcastMRBs-FailedToBeSetupMod-Item,  
id-BroadcastMRBs-Modified-List,  
id-BroadcastMRBs-Modified-Item,  
id-BroadcastMRBs-Setup-List,  
id-BroadcastMRBs-Setup-Item,  
id-BroadcastMRBs-SetupMod-List,  
id-BroadcastMRBs-SetupMod-Item,  
id-BroadcastMRBs-ToBeModified-List,  
id-BroadcastMRBs-ToBeModified-Item,  
id-BroadcastMRBs-ToBeReleased-List,  
id-BroadcastMRBs-ToBeReleased-Item,  
id-BroadcastMRBs-ToBeSetup-List,  
id-BroadcastMRBs-ToBeSetup-Item,  
id-BroadcastMRBs-ToBeSetupMod-List,  
id-BroadcastMRBs-ToBeSetupMod-Item,  
id-Candidate-SpCell-Item,  
id-Candidate-SpCell-List,  
id-Cause,  
id-Cancel-all-Warning-Messages-Indicator,  
id-Cells-Failed-to-be-Activated-List,  
id-Cells-Failed-to-be-Activated-List-Item,  
id-Cells-Status-Item,  
id-Cells-Status-List,  
id-Cells-to-be-Activated-List,  
id-Cells-to-be-Activated-List-Item,  
id-Cells-to-be-Deactivated-List,  
id-Cells-to-be-Deactivated-List-Item,  
id-Cells-Allowed-to-be-Deactivated-List,  
id-Cells-Allowed-to-be-Deactivated-List-Item,  
id-Cells-With-SSBs-Activated-List,  
id-Recommended-SSBs-for-Paging-List,  
id-ConfirmedUEID,  
id-CriticalityDiagnostics,

id-C-RNTI,  
id-CUtoDURRCInformation,  
id-DRB-Activity-Item,  
id-DRB-Activity-List,  
id-DRBs-FailedToBeModified-Item,  
id-DRBs-FailedToBeModified-List,  
id-DRBs-FailedToBeSetup-Item,  
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id-DRBs-FailedToBeSetupMod-Item,  
id-DRBs-FailedToBeSetupMod-List,  
id-DRBs-ModifiedConf-Item,  
id-DRBs-ModifiedConf-List,  
id-DRBs-Modified-Item,  
id-DRBs-Modified-List,  
id-DRB-Notify-Item,  
id-DRB-Notify-List,  
id-DRBs-Required-ToBeModified-Item,  
id-DRBs-Required-ToBeModified-List,  
id-DRBs-Required-ToBeReleased-Item,  
id-DRBs-Required-ToBeReleased-List,  
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id-DRBs-ToBeSetup-List,  
id-DRBs-ToBeSetupMod-Item,  
id-DRBs-ToBeSetupMod-List,  
id-DRXCycle,  
id-DUtoCURRCInformation,  
id-ExecuteDuplication,  
id-FullConfiguration,  
id-gNB-CU-MBS-F1AP-ID,  
id-gNB-CU-UE-F1AP-ID,  
id-gNB-DU-MBS-F1AP-ID,  
id-gNB-DU-UE-F1AP-ID,  
id-gNB-DU-ID,  
id-gNB-DU-Served-Cells-Item,  
id-gNB-DU-Served-Cells-List,  
id-gNB-CU-Name,  
id-gNB-DU-Name,  
id-Extended-GNB-CU-Name,  
id-Extended-GNB-DU-Name,  
id-InactivityMonitoringRequest,  
id-InactivityMonitoringResponse,  
id-MBS-CUtoDURRCInformation,  
id-MBS-Session-ID,  
id-MBS-ServiceArea,  
id-MBSMulticastF1UContextDescriptor,  
id-MC-PagingCell-Item,

id-MC-PagingCell-List,  
id-MulticastF1UContextReferenceCU,  
id-MulticastMBSSessionSetupList,  
id-MulticastMBSSessionRemoveList,  
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id-MulticastMRBs-FailedToBeModified-Item,  
id-MulticastMRBs-FailedToBeSetup-List,  
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id-MulticastMRBs-ToBeReleased-List,  
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id-MulticastMRBs-ToBeSetup-Item,  
id-MulticastMRBs-ToBeSetupMod-List,  
id-MulticastMRBs-ToBeSetupMod-Item,  
id-MulticastF1UContext-ToBeSetup-List,  
id-MulticastF1UContext-ToBeSetup-Item,  
id-MulticastF1UContext-Setup-List,  
id-MulticastF1UContext-Setup-Item,  
id-MulticastF1UContext-FailedToBeSetup-List,  
id-MulticastF1UContext-FailedToBeSetup-Item,  
id-BroadcastAreaScope,  
id-new-gNB-CU-UE-F1AP-ID,  
id-new-gNB-DU-UE-F1AP-ID,  
id-oldgNB-DU-UE-F1AP-ID,  
id-PLMNAssistanceInfoForNetShar,  
id-Potential-SpCell-Item,  
id-Potential-SpCell-List,  
id-RAT-FrequencyPriorityInformation,  
id-RedirectedRRCmessage,  
id-ResetType,  
id-RequestedSRSTransmissionCharacteristics,  
id-ResourceCoordinationTransferContainer,  
id-RRCContainer,  
id-RRCContainer-RRCSetsComplete,  
id-RRCSetsCompleteIndicator,  
id-SCell-FailedtoSetup-List,  
id-SCell-FailedtoSetup-Item,  
id-SCell-FailedtoSetupMod-List,  
id-SCell-FailedtoSetupMod-Item,  
id-SCell-ToBeRemoved-Item,  
id-SCell-ToBeRemoved-List,  
id-SCell-ToBeSetup-Item,  
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id-SCell-ToBeSetupMod-Item,

id-SCell-ToBeSetupMod-List,  
id-SDT-Termination-Request,  
id-SDT-Volume-Threshold,  
id-SelectedPLMNID,  
id-Served-Cells-To-Add-Item,  
id-Served-Cells-To-Add-List,  
id-Served-Cells-To-Delete-Item,  
id-Served-Cells-To-Delete-List,  
id-Served-Cells-To-Modify-Item,  
id-Served-Cells-To-Modify-List,  
id-ServCellIndex,  
id-ServingCellMO,  
id-SNSSAI,  
id-SpCell-ID,  
id-SpCellULConfigured,  
id-SRBID,  
id-SRBs-FailedToBeSetup-Item,  
id-SRBs-FailedToBeSetup-List,  
id-SRBs-FailedToBeSetupMod-Item,  
id-SRBs-FailedToBeSetupMod-List,  
id-SRBs-Required-ToBeReleased-Item,  
id-SRBs-Required-ToBeReleased-List,  
id-SRBs-ToBeReleased-Item,  
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id-SRBs-SetupMod-Item,  
id-SRBs-SetupMod-List,  
id-SupportedUETypeList,  
id-TimeToWait,  
id-TransactionID,  
id-TransmissionActionIndicator,  
id-UEContextNotRetrievable,  
id-UE-associatedLogicalF1-ConnectionItem,  
id-UE-associatedLogicalF1-ConnectionListResAck,  
id-UEIdentity-List-For-Paging-List,  
id-UEIdentity-List-For-Paging-Item,  
id-UE-MulticastMRBs-ConfirmedToBeModified-List,  
id-UE-MulticastMRBs-ConfirmedToBeModified-Item,  
id-UE-MulticastMRBs-RequiredToBeModified-List,  
id-UE-MulticastMRBs-RequiredToBeModified-Item,  
id-UE-MulticastMRBs-RequiredToBeReleased-List,  
id-UE-MulticastMRBs-RequiredToBeReleased-Item,  
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id-UE-MulticastMRBs-Setupnew-Item,  
id-UE-MulticastMRBs-ToBeReleased-List,

id-UE-MulticastMRBs-ToBeReleased-Item,  
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id-UE-MulticastMRBs-ToBeSetup-atModify-Item,  
id-UE-MulticastMRBs-ToBeSetup-List,  
id-UE-MulticastMRBs-ToBeSetup-Item,  
id-DUtoCURRCCContainer,  
id-NRCGI,  
id-PagingCell-Item,  
id-PagingCell-List,  
id-PagingDRX,  
id-PagingPriority,  
id-SItype-List,  
id-UEIdentityIndexValue,  
id-GNB-CU-TNL-Association-Setup-List,  
id-GNB-CU-TNL-Association-Setup-Item,  
id-GNB-CU-TNL-Association-Failed-To-Setup-List,  
id-GNB-CU-TNL-Association-Failed-To-Setup-Item,  
id-GNB-CU-TNL-Association-To-Add-Item,  
id-GNB-CU-TNL-Association-To-Add-List,  
id-GNB-CU-TNL-Association-To-Remove-Item,  
id-GNB-CU-TNL-Association-To-Remove-List,  
id-GNB-CU-TNL-Association-To-Update-Item,  
id-GNB-CU-TNL-Association-To-Update-List,  
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id-PagingIdentity,  
id-Cells-to-be-Barred-List,  
id-Cells-to-be-Barred-Item,  
id-PWSSystemInformation,  
id-RepetitionPeriod,  
id-NumberOfBroadcastRequest,  
id-Cells-To-Be-Broadcast-List,  
id-Cells-To-Be-Broadcast-Item,  
id-Cells-Broadcast-Completed-List,  
id-Cells-Broadcast-Completed-Item,  
id-Broadcast-To-Be-Cancelled-List,  
id-Broadcast-To-Be-Cancelled-Item,  
id-Cells-Broadcast-Cancelled-List,  
id-Cells-Broadcast-Cancelled-Item,  
id-NR-CGI-List-For-Restart-List,  
id-NR-CGI-List-For-Restart-Item,  
id-PWS-Failed-NR-CGI-List,  
id-PWS-Failed-NR-CGI-Item,  
id-EUTRA-NR-CellResourceCoordinationReq-Container,  
id-EUTRA-NR-CellResourceCoordinationReqAck-Container,  
id-Protected-EUTRA-Resources-List,  
id-RequestType,  
id-ServingPLMN,  
id-DRXConfigurationIndicator,  
id-RLCFailureIndication,  
id-UplinkTxDirectCurrentListInformation,  
id-SULAccessIndication,  
id-Protected-EUTRA-Resources-Item,  
id-GNB-DUConfigurationQuery,  
id-GNB-DU-UE-AMBR-UL,

id-GNB-CU-RRC-Version,  
id-GNB-DU-RRC-Version,  
id-GNB-DU-OverloadInformation,  
id-NeedforGap,  
id-RRCDeliveryStatusRequest,  
id-RRCDeliveryStatus,  
id-Dedicated-SIDelivery-NeededUE-List,  
id-Dedicated-SIDelivery-NeededUE-Item,  
id-ResourceCoordinationTransferInformation,  
id-Associated-SCell-List,  
id-Associated-SCell-Item,  
id-IgnoreResourceCoordinationContainer,  
id-UAC-Assistance-Info,  
id-RANUEID,  
id-PagingOrigin,  
id-GNB-DU-TNL-Association-To-Remove-Item,  
id-GNB-DU-TNL-Association-To-Remove-List,  
id-NotificationInformation,  
id-TraceActivation,  
id-TraceID,  
id-Neighbour-Cell-Information-List,  
id-Neighbour-Cell-Information-Item,  
id-AdditionalRRMPriorityIndex,  
id-DUCURadioInformationType,  
id-CUDURadioInformationType,  
id-LowerLayerPresenceStatusChange,  
id-Transport-Layer-Address-Info,  
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id-BHChannels-Required-ToBeReleased-Item,  
id-BHChannels-Required-ToBeReleased-List,  
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id-ConfiguredBAPAddress,  
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id-BH-Routing-Information-Added-List-Item,  
id-BH-Routing-Information-Removed-List,

id-BH-Routing-Information-Removed-List-Item,  
id-UL-BH-Non-UP-Traffic-Mapping,  
id-Child-Nodes-List,  
id-Activated-Cells-to-be-Updated-List,  
id-IABIPv6RequestType,  
id-IAB-TNL-Addresses-To-Remove-List,  
id-IAB-TNL-Addresses-To-Remove-Item,  
id-IAB-Allocated-TNL-Address-List,  
id-IAB-Allocated-TNL-Address-Item,  
id-IABv4AddressesRequested,  
id-TrafficMappingInformation,  
id-UL-UP-TNL-Information-to-Update-List,  
id-UL-UP-TNL-Information-to-Update-List-Item,  
id-UL-UP-TNL-Address-to-Update-List,  
id-UL-UP-TNL-Address-to-Update-List-Item,  
id-DL-UP-TNL-Address-to-Update-List,  
id-DL-UP-TNL-Address-to-Update-List-Item,  
id-NRV2XServicesAuthorized,  
id-LTEV2XServicesAuthorized,  
id-NRUESidelinkAggregateMaximumBitrate,  
id-LTEUESidelinkAggregateMaximumBitrate,  
id-PC5LinkAMBR,  
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id-SLDRBs-ModifiedConf-Item,  
id-gNBCUMeasurementID,  
id-gNBDUMeasurementID,  
id-RegistrationRequest,  
id-ReportCharacteristics,  
id-CellToReportList,  
id-CellMeasurementResultList,



id-HardwareLoadIndicator,  
id-ReportingPeriodicity,  
id-TNLCapacityIndicator,  
id-RAReportList,  
id-RLFReportInformationList,  
id-ReportingRequestType,  
id-TimeReferenceInformation,  
id-ConditionalInterDUMobilityInformation,  
id-ConditionalIntraDUMobilityInformation,  
id-targetCellsToCancel,  
id-requestedTargetCellGlobalID,  
id-TraceCollectionEntityIPAddress,  
id-ManagementBasedMDTPLMNList,  
id-PrivacyIndicator,  
id-TraceCollectionEntityURI,  
id-ServingNID,  
id-PosAssistance-Information,  
id-PosBroadcast,  
id-PositioningBroadcastCells,  
id-RoutingID,  
id-PosAssistanceInformationFailureList,  
id-PosMeasurementQuantities,  
id-PosMeasurementResultList,  
id-PosMeasurementPeriodicity,  
id-PosReportCharacteristics,  
id-TRPInformationTypeListTRPReq,  
id-TRPInformationTypeItem,  
id-TRPInformationListTRPResp,  
id-TRPInformationItem,  
id-LMF-MeasurementID,  
id-RAN-MeasurementID,  
id-SRSType,  
id-ActivationTime,  
id-AbortTransmission,  
id-SRSConfiguration,  
id-TRPList,  
id-E-CID-MeasurementQuantities,  
id-E-CID-MeasurementPeriodicity,  
id-E-CID-MeasurementResult,  
id-Cell-Portion-ID,  
id-LMF-UE-MeasurementID,  
id-RAN-UE-MeasurementID,  
id-SFNInitialisationTime,  
id-SystemFrameNumber,  
id-SlotNumber,  
id-TRP-MeasurementRequestList,  
id-MeasurementBeamInfoRequest,  
id-E-CID-ReportCharacteristics,  
id-F1CTransferPath,  
id-SCGIndicator,  
id-SRSSpatialRelationPerSRSResource,  
id-PosMeasurementPeriodicityExtended,  
id-SuccessfulHOReportInformationList,  
id-Coverage-Modification-Notification,

id-CCO-Assistance-Information,  
id-CellsForSON-List,  
id-IABCongestionIndication,  
id-IABConditionalRRCMessageDeliveryIndication,  
id-F1CTransferPathNRDC,  
id-BufferSizeThresh,  
id-IAB-TNL-Addresses-Exception,  
id-BAP-Header-Rewriting-Added-List,  
id-BAP-Header-Rewriting-Added-List-Item,  
id-Re-routingEnableIndicator,  
id-Neighbour-Node-Cells-List,  
id-Serving-Cells-List,  
id-MDTPollutedMeasurementIndicator,  
id-PDCMeasurementPeriodicity,  
id-PDCMeasurementQuantities,  
id-PDCMeasurementResult,  
id-PDCReportType,  
id-RAN-UE-PDC-MeasID,  
id-SCGActivationRequest,  
id-SCGActivationStatus,  
id-TRP-MeasurementUpdateList,  
id-PRSTRPList,  
id-PRSTransmissionTRPList,  
id-ResponseTime,  
id-TRP-PRS-Info-List,  
id-PRS-Measurement-Info-List,  
id-PRSConfigRequestType,  
id-MeasurementCharacteristicsRequestIndicator,  
id-MeasurementTimeOccasion,  
id-UEReportingInformation,  
id-PosContextRevIndication,  
id-NRRedCapUEIndication,  
id-RANUEPagingDRX,  
id-CNUEPagingDRX,  
id-NRPagingDRXInformation,  
id-NRPagingDRXInformationforRRCINACTIVE,  
id-QoEInformation,  
id-CG-SDTQueryIndication,  
id-CG-SDTKeptIndicator,  
id-CG-SDTSessionInfoOld,  
id-SDTInformation,  
id-FiveG-ProSeAuthorized,  
id-FiveG-ProSePC5LinkAMBR,  
id-FiveG-ProSeUEPC5AggregateMaximumBitrate,  
id-UuRLCChannelToBeSetupList,  
id-UuRLCChannelToBeModifiedList,  
id-UuRLCChannelToBeReleasedList,  
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id-UuRLCChannelRequiredToBeModifiedList,  
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id-PC5RLCChannelToBeSetupList,

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id-PC5RLCChannelToBeReleasedList,  
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id-PC5RLCChannelModifiedList,  
id-PC5RLCChannelFailedToBeModifiedList,  
id-PC5RLCChannelRequiredToBeModifiedList,  
id-PC5RLCChannelRequiredToBeReleasedList,  
id-SideLinkRelayConfiguration,  
id-UpdatedRemoteUELocalID,  
id-PathSwitchConfiguration,  
id-PagingCause,  
id-PEIPSAssistanceInfo,  
id-UEPagingCapability,  
id-GNBDUUESliceMaximumBitRateList,  
id-PosMeasurementAmount,  
id-BAP-Header-Rewriting-Removed-List,  
id-BAP-Header-Rewriting-Removed-List-Item,  
id-SLDRXCycleList,  
id-ManagementBasedMDTPLMNModificationList,  
id-ActivationRequestType,  
id-PosMeasGapPreConfigList,  
id-PosMeasurementPeriodicityNR-AoA,  
id-SRSPoSRRRCInactiveConfig,  
id-SDTBearerConfigurationQueryIndication,  
id-SDTBearerConfigurationInfo,  
id-ServingCellMO-List,  
id-ServingCellMO-List-Item,  
id-ServingCellMO-encoded-in-CGC-List,  
id-PosSITypeList,  
id-DAPS-HO-Status,  
id-SRBMappingInfo,  
id-UplinkTxDirectCurrentTwoCarrierListInfo,  
id-SRSPoSRRRCInactiveQueryIndication,  
id-ULTxDirectCurrentMoreCarrierInformation,  
id-CPACMCGInformation,  
id-ExtendedUEIdentityIndexValue,  
id-HashedUEIdentityIndexValue,  
id-DedicatedSIDeliveryIndication,  
id-Configured-BWP-List,  
id-NetworkControlledRepeaterAuthorized,  
id-MT-SDT-Information,  
id-LTMInformation-Setup,  
id-LTMConfigurationIDMappingList,  
id-LTMInformation-Modify,  
id-LTMCells-ToBeReleased-List,  
id-LTMConfiguration,  
id-LTMCFRAResourceConfig-List,  
id-EarlySyncInformation-Request,  
id-EarlySyncInformation,  
id-EarlySyncCandidateCellInformation-List,  
id-EarlySyncServingCellInformation,  
id-LTMCellSwitchInformation,  
id-DUtoCUTAINformation-List,

id-CUtoDUTAIInformation-List,  
id-DeactivationIndication,  
id-RAReportIndicationList,  
id-SuccessfulPSCellChangeReportInformationList,  
id-PathAdditionInformation,  
id-RANTSSRequestType,  
id-RANTimingSynchronisationStatusInfo,  
id-Target-gNB-ID,  
id-Target-gNB-IP-address,  
id-Target-SeGW-IP-address,  
id-Activated-Cells-Mapping-List,  
id-Activated-Cells-Mapping-List-Item,  
id-F1SetupOutcome,  
id-RRC-Terminating-IAB-Donor-Related-Info,  
id-RRC-Terminating-IAB-Donor-gNB-ID,  
id-NCGI-to-be-Updated-List,  
id-NCGI-to-be-Updated-List-Item,  
id-Mobile-IAB-MTUserLocationInformation,  
id-IndicationMCInactiveReception,  
id-MulticastCU2DURRCInfo,  
id-MulticastDU2CURRCInfo,  
id-MBSMulticastSessionReceptionState,  
id-MulticastCU2DUCommonRRCInfo,  
id-NRA2XServicesAuthorized,  
id-LTEA2XServicesAuthorized,  
id-NRUESidelinkAggregateMaximumBitrateForA2X,  
id-LTEUESidelinkAggregateMaximumBitrateForA2X,  
id-NReRedCapUEIndication,  
id-NRPaginglongeDRXInformationforRRCINACTIVE,  
id-Target-F1-Terminating-Donor-gNB-ID,  
id-Broadcast-MRBs-Transport-Request-List,  
id-Broadcast-MRBs-Transport-Request-Item,  
id-S-CPAC-Configuration,  
id-DLLBTFailureInformationRequest,  
id-DLLBTFailureInformationList,  
id-SLPositioning-Ranging-Service-Info,  
id-TimeWindowInformation-SRS-List,  
id-TimeWindowInformation-Measurement-List,  
id-SRSPosRRCInactiveValidityAreaConfig,  
id-SRSReservationType,  
id-RequestedSRSPreconfigurationCharacteristics-List,  
id-SRSPreconfiguration-List,  
id-SRSInformation,  
id-TAInformation-List,  
id-NonIntegerDRXCycle,  
id-AggregatedPosSRSResourceSetList,  
id-RANSharingAssistanceInformation,  
id-F1U-PathFailure,  
id-LTMResetInformation,  
id-PreconfiguredSRSInformation,  
id-MobilityInitiation,  
id-PLMNIndexNRAssistanceInfoForNetShar,  
maxCellingNBDU,  
maxnoofCandidateSpCells,

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maxnoofDRBs,
maxnoofIndividualF1ConnectionsToReset,
maxnoofPotentialSpCells,
maxnoofSCells,
maxnoofSRBs,
maxnoofPagingCells,
maxnoofTNLAAssociations,
maxCelllineNB,
maxnoofUEIDs,
maxnoofBHRLCChannels,
maxnoofRoutingEntries,
maxnoofTLAsIAB,
maxnoofULUPTNLInformationforIAB,
maxnoofUPTNLAddresses,
maxnoofSLDRBs,
maxnoofTRPInfoTypes,
maxnoofTRPs,
maxnoofMRBs,
maxnoofUEIDforPaging,
maxnoofMRBsforUE,
maxnoofServingCellMOs

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FROM F1AP-Constants;

```

-- *****
--
-- RESET ELEMENTARY PROCEDURE
-- *****
--
-- *****
--
-- Reset
--
-- *****

```

```

Reset ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    { {ResetIES} },
    ...
}

```

```

ResetIES F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-Cause                  CRITICALITY ignore TYPE Cause                  PRESENCE mandatory }|
    { ID id-ResetType              CRITICALITY reject TYPE ResetType              PRESENCE mandatory },
    ...
}

```

```

ResetType ::= CHOICE {
    f1-Interface              ResetAll,

```

```

    partOfF1-Interface
    choice-extension
  }
  UE-associatedLogicalF1-ConnectionListRes,
  ProtocolIE-SingleContainer { { ResetType-ExtIEs } }

ResetType-ExtIEs F1AP-PROTOCOL-IES ::= {
  ...
}

ResetAll ::= ENUMERATED {
  reset-all,
  ...
}

UE-associatedLogicalF1-ConnectionListRes ::= SEQUENCE (SIZE(1.. maxnoofIndividualF1ConnectionsToReset)) OF ProtocolIE-SingleContainer { { UE-
associatedLogicalF1-ConnectionItemRes } }

UE-associatedLogicalF1-ConnectionItemRes F1AP-PROTOCOL-IES ::= {
  { ID id-UE-associatedLogicalF1-ConnectionItem CRITICALITY reject TYPE UE-associatedLogicalF1-ConnectionItem PRESENCE mandatory},
  ...
}

-- *****
--
-- Reset Acknowledge
--
-- *****

ResetAcknowledge ::= SEQUENCE {
  protocolIEs ProtocolIE-Container { {ResetAcknowledgeIEs} },
  ...
}

ResetAcknowledgeIEs F1AP-PROTOCOL-IES ::= {
  { ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE
mandatory }|
  { ID id-UE-associatedLogicalF1-ConnectionListResAck CRITICALITY ignore TYPE UE-associatedLogicalF1-ConnectionListResAck PRESENCE
optional }|
  { ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },
  ...
}

UE-associatedLogicalF1-ConnectionListResAck ::= SEQUENCE (SIZE(1.. maxnoofIndividualF1ConnectionsToReset)) OF ProtocolIE-SingleContainer { { UE-
associatedLogicalF1-ConnectionItemResAck } }

UE-associatedLogicalF1-ConnectionItemResAck F1AP-PROTOCOL-IES ::= {
  { ID id-UE-associatedLogicalF1-ConnectionItem CRITICALITY ignore TYPE UE-associatedLogicalF1-ConnectionItem PRESENCE mandatory },
  ...
}

-- *****
--
-- ERROR INDICATION ELEMENTARY PROCEDURE

```

```

--
-- *****
-- *****
--
-- Error Indication
--
-- *****

ErrorIndication ::= SEQUENCE {
    protocolIES          ProtocolIE-Container      {{ErrorIndicationIEs}},
    ...
}

ErrorIndicationIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject  TYPE TransactionID          PRESENCE mandatory }|
    { ID id-gNB-CU-UE-F1AP-ID      CRITICALITY ignore  TYPE GNB-CU-UE-F1AP-ID          PRESENCE optional }|
    { ID id-gNB-DU-UE-F1AP-ID      CRITICALITY ignore  TYPE GNB-DU-UE-F1AP-ID          PRESENCE optional }|
    { ID id-Cause                  CRITICALITY ignore  TYPE Cause                    PRESENCE optional }|
    { ID id-CriticalityDiagnostics  CRITICALITY ignore  TYPE CriticalityDiagnostics    PRESENCE optional },
    ...
}

-- *****
--
-- F1 SETUP ELEMENTARY PROCEDURE
--
-- *****
-- *****
--
-- F1 Setup Request
--
-- *****

F1SetupRequest ::= SEQUENCE {
    protocolIES          ProtocolIE-Container      { {F1SetupRequestIEs} },
    ...
}

F1SetupRequestIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject  TYPE TransactionID          PRESENCE mandatory }|
    { ID id-gNB-DU-ID              CRITICALITY reject  TYPE GNB-DU-ID              PRESENCE mandatory }|
    { ID id-gNB-DU-Name            CRITICALITY ignore  TYPE GNB-DU-Name            PRESENCE optional }|
    { ID id-gNB-DU-Served-Cells-List CRITICALITY reject  TYPE GNB-DU-Served-Cells-List PRESENCE optional }|
    { ID id-GNB-DU-RRC-Version      CRITICALITY reject  TYPE RRC-Version            PRESENCE mandatory }|
    { ID id-Transport-Layer-Address-Info CRITICALITY ignore  TYPE Transport-Layer-Address-Info PRESENCE optional }|
    { ID id-BAPAddress              CRITICALITY ignore  TYPE BAPAddress              PRESENCE optional }|
    { ID id-Extended-GNB-DU-Name    CRITICALITY ignore  TYPE Extended-GNB-DU-Name    PRESENCE optional }|
    { ID id-RRC-Terminating-IAB-Donor-gNB-ID CRITICALITY reject  TYPE GlobalGNB-ID          PRESENCE optional }|
    { ID id-Mobile-IAB-MTUserLocationInformation CRITICALITY ignore  TYPE Mobile-IAB-MTUserLocationInformation PRESENCE optional },
    ...
}

```

```

GNB-DU-Served-Cells-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { GNB-DU-Served-Cells-ItemIES } }

GNB-DU-Served-Cells-ItemIES F1AP-PROTOCOL-IES ::= {
  { ID id-GNB-DU-Served-Cells-Item          CRITICALITY reject  TYPE          GNB-DU-Served-Cells-Item PRESENCE mandatory },
  ...
}

-- *****
--
-- F1 Setup Response
--
-- *****

F1SetupResponse ::= SEQUENCE {
  protocolIES          ProtocolIE-Container          { {F1SetupResponseIES} },
  ...
}

F1SetupResponseIES F1AP-PROTOCOL-IES ::= {
  { ID id-TransactionID          CRITICALITY reject  TYPE TransactionID          PRESENCE mandatory }|
  { ID id-gNB-CU-Name            CRITICALITY ignore  TYPE GNB-CU-Name            PRESENCE optional }|
  { ID id-Cells-to-be-Activated-List  CRITICALITY reject  TYPE Cells-to-be-Activated-List  PRESENCE optional }|
  { ID id-GNB-CU-RRC-Version        CRITICALITY reject  TYPE RRC-Version            PRESENCE mandatory }|
  { ID id-Transport-Layer-Address-Info  CRITICALITY ignore  TYPE Transport-Layer-Address-Info  PRESENCE optional }|
  { ID id-UL-BH-Non-UP-Traffic-Mapping  CRITICALITY reject  TYPE UL-BH-Non-UP-Traffic-Mapping  PRESENCE optional }|
  { ID id-BAPAddress              CRITICALITY ignore  TYPE BAPAddress              PRESENCE optional }|
  { ID id-Extended-GNB-CU-Name        CRITICALITY ignore  TYPE Extended-GNB-CU-Name        PRESENCE optional }|
  { ID id-NCGI-to-be-Updated-List      CRITICALITY reject  TYPE NCGI-to-be-Updated-List      PRESENCE optional },
  ...
}

Cells-to-be-Activated-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Cells-to-be-Activated-List-ItemIES } }

Cells-to-be-Activated-List-ItemIES F1AP-PROTOCOL-IES ::= {
  { ID id-Cells-to-be-Activated-List-Item          CRITICALITY reject  TYPE Cells-to-be-Activated-List-Item          PRESENCE mandatory},
  ...
}

NCGI-to-be-Updated-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { NCGI-to-be-Updated-List-ItemIES } }

NCGI-to-be-Updated-List-ItemIES F1AP-PROTOCOL-IES ::= {
  { ID id-NCGI-to-be-Updated-List-Item          CRITICALITY reject  TYPE NCGI-to-be-Updated-List-Item          PRESENCE mandatory},
  ...
}

-- *****
--
-- F1 Setup Failure

```



```

--
-- *****
F1SetupFailure ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    { {F1SetupFailureIEs} },
    ...
}

F1SetupFailureIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-Cause                  CRITICALITY ignore TYPE Cause                  PRESENCE mandatory }|
    { ID id-TimeToWait             CRITICALITY ignore TYPE TimeToWait             PRESENCE optional }|
    { ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },
    ...
}

-- *****
--
-- GNB-DU CONFIGURATION UPDATE ELEMENTARY PROCEDURE
--
-- *****
--
-- GNB-DU CONFIGURATION UPDATE
--
-- *****

GNBDUConfigurationUpdate ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    { {GNBDUConfigurationUpdateIEs} },
    ...
}

GNBDUConfigurationUpdateIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-Served-Cells-To-Add-List CRITICALITY reject TYPE Served-Cells-To-Add-List PRESENCE optional }|
    { ID id-Served-Cells-To-Modify-List CRITICALITY reject TYPE Served-Cells-To-Modify-List PRESENCE optional }|
    { ID id-Served-Cells-To-Delete-List CRITICALITY reject TYPE Served-Cells-To-Delete-List PRESENCE optional }|
    { ID id-Cells-Status-List       CRITICALITY reject TYPE Cells-Status-List       PRESENCE optional }|
    { ID id-Dedicated-SIDelivery-NeededUE-List CRITICALITY ignore TYPE Dedicated-SIDelivery-NeededUE-List PRESENCE optional }|
    { ID id-gNB-DU-ID               CRITICALITY reject TYPE GNB-DU-ID               PRESENCE optional }|
    { ID id-gNB-DU-TNL-Association-To-Remove-List CRITICALITY reject TYPE GNB-DU-TNL-Association-To-Remove-List PRESENCE optional }|
    { ID id-Transport-Layer-Address-Info CRITICALITY ignore TYPE Transport-Layer-Address-Info PRESENCE optional }|
    { ID id-Coverage-Modification-Notification CRITICALITY ignore TYPE Coverage-Modification-Notification PRESENCE optional }|
    { ID id-gNB-DU-Name              CRITICALITY ignore TYPE GNB-DU-Name              PRESENCE optional }|
    { ID id-Extended-gNB-DU-Name     CRITICALITY ignore TYPE Extended-gNB-DU-Name     PRESENCE optional }|
    { ID id-RRC-Terminating-IAB-Donor-Related-Info CRITICALITY reject TYPE RRC-Terminating-IAB-Donor-Related-Info PRESENCE optional }|
    { ID id-Mobile-IAB-MTUserLocationInformation CRITICALITY ignore TYPE Mobile-IAB-MTUserLocationInformation PRESENCE optional },
    ...
}

Served-Cells-To-Add-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Served-Cells-To-Add-ItemIEs } }
Served-Cells-To-Modify-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Served-Cells-To-Modify-ItemIEs } }

```

```

Served-Cells-To-Delete-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Served-Cells-To-Delete-ItemIES } }
Cells-Status-List      ::= SEQUENCE (SIZE(0.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Cells-Status-ItemIES } }

Dedicated-SIDelivery-NeededUE-List ::= SEQUENCE (SIZE(1.. maxnoofUEIDs)) OF ProtocolIE-SingleContainer { { Dedicated-SIDelivery-NeededUE-ItemIES } }

GNB-DU-TNL-Association-To-Remove-List  ::= SEQUENCE (SIZE(1.. maxnoofTNLAssociations)) OF ProtocolIE-SingleContainer { { GNB-DU-TNL-Association-
To-Remove-ItemIES } }

Served-Cells-To-Add-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-Served-Cells-To-Add-Item          CRITICALITY reject TYPE      Served-Cells-To-Add-Item          PRESENCE mandatory },
    ...
}

Served-Cells-To-Modify-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-Served-Cells-To-Modify-Item          CRITICALITY reject TYPE      Served-Cells-To-Modify-Item          PRESENCE mandatory
    },
    ...
}

Served-Cells-To-Delete-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-Served-Cells-To-Delete-Item          CRITICALITY reject TYPE      Served-Cells-To-Delete-Item          PRESENCE mandatory },
    ...
}

Cells-Status-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-Cells-Status-Item          CRITICALITY reject TYPE      Cells-Status-Item          PRESENCE mandatory },
    ...
}

Dedicated-SIDelivery-NeededUE-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-Dedicated-SIDelivery-NeededUE-Item          CRITICALITY ignore TYPE      Dedicated-SIDelivery-NeededUE-Item          PRESENCE mandatory },
    ...
}

GNB-DU-TNL-Association-To-Remove-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-GNB-DU-TNL-Association-To-Remove-Item          CRITICALITY reject TYPE      GNB-DU-TNL-Association-To-Remove-Item          PRESENCE
mandatory },
    ...
}

-- *****
--
-- GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE
--
-- *****

GNBDUConfigurationUpdateAcknowledge ::= SEQUENCE {
    protocolIES          ProtocolIE-Container          { {GNBDUConfigurationUpdateAcknowledgeIES} },
    ...
}

```

```

GNBDUConfigurationUpdateAcknowledgeIEs F1AP-PROTOCOL-IES ::= {
  { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
  { ID id-Cells-to-be-Activated-List CRITICALITY reject TYPE Cells-to-be-Activated-List PRESENCE optional }|
  { ID id-CriticalityDiagnostics    CRITICALITY ignore TYPE CriticalityDiagnostics    PRESENCE optional }|
  { ID id-Cells-to-be-Deactivated-List CRITICALITY reject TYPE Cells-to-be-Deactivated-List PRESENCE optional }|
  { ID id-Transport-Layer-Address-Info CRITICALITY ignore TYPE Transport-Layer-Address-Info PRESENCE optional }|
  { ID id-UL-BH-Non-UP-Traffic-Mapping CRITICALITY reject TYPE UL-BH-Non-UP-Traffic-Mapping PRESENCE optional }|
  { ID id-BAPAddress              CRITICALITY ignore TYPE BAPAddress              PRESENCE optional }|
  { ID id-CellsForSON-List         CRITICALITY ignore TYPE CellsForSON-List         PRESENCE optional },
  ...
}

-- *****
--
-- GNB-DU CONFIGURATION UPDATE FAILURE
--
-- *****

GNBDUConfigurationUpdateFailure ::= SEQUENCE {
  protocolIEs          ProtocolIE-Container    { {GNBDUConfigurationUpdateFailureIEs} },
  ...
}

GNBDUConfigurationUpdateFailureIEs F1AP-PROTOCOL-IES ::= {
  { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
  { ID id-Cause                  CRITICALITY ignore TYPE Cause                  PRESENCE mandatory }|
  { ID id-TimeToWait             CRITICALITY ignore TYPE TimeToWait             PRESENCE optional }|
  { ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },
  ...
}

-- *****
--
-- GNB-CU CONFIGURATION UPDATE ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- GNB-CU CONFIGURATION UPDATE
--
-- *****

GNBCUConfigurationUpdate ::= SEQUENCE {
  protocolIEs          ProtocolIE-Container    { { GNBCUConfigurationUpdateIEs} },
  ...
}

GNBCUConfigurationUpdateIEs F1AP-PROTOCOL-IES ::= {
  { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
  { ID id-Cells-to-be-Activated-List CRITICALITY reject TYPE Cells-to-be-Activated-List PRESENCE optional }|
  { ID id-Cells-to-be-Deactivated-List CRITICALITY reject TYPE Cells-to-be-Deactivated-List PRESENCE optional }|
  { ID id-GNB-CU-TNL-Association-To-Add-List CRITICALITY ignore TYPE GNB-CU-TNL-Association-To-Add-List PRESENCE optional }|
  { ID id-GNB-CU-TNL-Association-To-Remove-List CRITICALITY ignore TYPE GNB-CU-TNL-Association-To-Remove-List PRESENCE optional }|

```

```

{ ID id-GNB-CU-TNL-Association-To-Update-List CRITICALITY ignore TYPE GNB-CU-TNL-Association-To-Update-List PRESENCE optional }|
{ ID id-Cells-to-be-Barred-List CRITICALITY ignore TYPE Cells-to-be-Barred-List PRESENCE optional }|
{ ID id-Protected-EUTRA-Resources-List CRITICALITY reject TYPE Protected-EUTRA-Resources-List PRESENCE optional }|
{ ID id-Neighbour-Cell-Information-List CRITICALITY ignore TYPE Neighbour-Cell-Information-List PRESENCE optional }|
{ ID id-Transport-Layer-Address-Info CRITICALITY ignore TYPE Transport-Layer-Address-Info PRESENCE optional }|
{ ID id-UL-BH-Non-UP-Traffic-Mapping CRITICALITY reject TYPE UL-BH-Non-UP-Traffic-Mapping PRESENCE optional }|
{ ID id-BAPAddress CRITICALITY ignore TYPE BAPAddress PRESENCE optional }|
{ ID id-CCO-Assistance-Information CRITICALITY ignore TYPE CCO-Assistance-Information PRESENCE optional }|
{ ID id-CellsForSON-List CRITICALITY ignore TYPE CellsForSON-List PRESENCE optional }|
{ ID id-gNB-CU-Name CRITICALITY ignore TYPE GNB-CU-Name PRESENCE optional }|
{ ID id-Extended-GNB-CU-Name CRITICALITY ignore TYPE Extended-GNB-CU-Name PRESENCE optional }|
{ ID id-Cells-Allowed-to-be-Deactivated-List CRITICALITY ignore TYPE Cells-Allowed-to-be-Deactivated-List PRESENCE optional },
...
}

Cells-to-be-Deactivated-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Cells-to-be-Deactivated-List-ItemIEs } }
GNB-CU-TNL-Association-To-Add-List ::= SEQUENCE (SIZE(1.. maxnoofTNLAssociations)) OF ProtocolIE-SingleContainer { { GNB-CU-TNL-Association-
To-Add-ItemIEs } }
GNB-CU-TNL-Association-To-Remove-List ::= SEQUENCE (SIZE(1.. maxnoofTNLAssociations)) OF ProtocolIE-SingleContainer { { GNB-CU-TNL-Association-
To-Remove-ItemIEs } }
GNB-CU-TNL-Association-To-Update-List ::= SEQUENCE (SIZE(1.. maxnoofTNLAssociations)) OF ProtocolIE-SingleContainer { { GNB-CU-TNL-Association-
To-Update-ItemIEs } }
Cells-to-be-Barred-List ::= SEQUENCE(SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Cells-to-be-Barred-ItemIEs } }

Cells-Allowed-to-be-Deactivated-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Cells-Allowed-to-be-Deactivated-
List-ItemIEs } }

Cells-Allowed-to-be-Deactivated-List-ItemIEs F1AP-PROTOCOL-IES ::= {
  { ID id-Cells-Allowed-to-be-Deactivated-List-Item CRITICALITY ignore TYPE Cells-Allowed-to-be-Deactivated-List-Item PRESENCE mandatory
},
  ...
}

Cells-to-be-Deactivated-List-ItemIEs F1AP-PROTOCOL-IES ::= {
  { ID id-Cells-to-be-Deactivated-List-Item CRITICALITY reject TYPE Cells-to-be-Deactivated-List-Item PRESENCE mandatory },
  ...
}

GNB-CU-TNL-Association-To-Add-ItemIEs F1AP-PROTOCOL-IES ::= {
  { ID id-GNB-CU-TNL-Association-To-Add-Item CRITICALITY ignore TYPE GNB-CU-TNL-Association-To-Add-Item PRESENCE mandatory },
  ...
}

GNB-CU-TNL-Association-To-Remove-ItemIEs F1AP-PROTOCOL-IES ::= {
  { ID id-GNB-CU-TNL-Association-To-Remove-Item CRITICALITY ignore TYPE GNB-CU-TNL-Association-To-Remove-Item PRESENCE
mandatory },
  ...
}

GNB-CU-TNL-Association-To-Update-ItemIEs F1AP-PROTOCOL-IES ::= {

```

```

        { ID id-GNB-CU-TNL-Association-To-Update-Item      CRITICALITY ignore  TYPE      GNB-CU-TNL-Association-To-Update-Item      PRESENCE
mandatory },
        ...
    }

Cells-to-be-Barred-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-Cells-to-be-Barred-Item      CRITICALITY ignore  TYPE      Cells-to-be-Barred-Item      PRESENCE mandatory },
    ...
}

Protected-EUTRA-Resources-List ::= SEQUENCE (SIZE(1.. maxCellineNB)) OF ProtocolIE-SingleContainer { { Protected-EUTRA-Resources-ItemIES } }
Protected-EUTRA-Resources-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-Protected-EUTRA-Resources-Item      CRITICALITY reject  TYPE Protected-EUTRA-Resources-Item      PRESENCE
mandatory},
    ...
}

Neighbour-Cell-Information-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Neighbour-Cell-Information-ItemIES } }
Neighbour-Cell-Information-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-Neighbour-Cell-Information-Item      CRITICALITY ignore  TYPE Neighbour-Cell-Information-Item      PRESENCE
mandatory},
    ...
}

-- *****
--
-- GNB-CU CONFIGURATION UPDATE ACKNOWLEDGE
--
-- *****

GNBCUConfigurationUpdateAcknowledge ::= SEQUENCE {
    protocolIES      ProtocolIE-Container      { { GNBCUConfigurationUpdateAcknowledgeIES } },
    ...
}

GNBCUConfigurationUpdateAcknowledgeIES F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID      CRITICALITY reject  TYPE TransactionID      PRESENCE mandatory }|
    { ID id-Cells-Failed-to-be-Activated-List      CRITICALITY reject  TYPE Cells-Failed-to-be-Activated-List      PRESENCE optional}|
    { ID id-CriticalityDiagnostics      CRITICALITY ignore  TYPE CriticalityDiagnostics      PRESENCE optional
    }|
    { ID id-GNB-CU-TNL-Association-Setup-List      CRITICALITY ignore  TYPE GNB-CU-TNL-Association-Setup-List      PRESENCE optional }|
    { ID id-GNB-CU-TNL-Association-Failed-To-Setup-List      CRITICALITY ignore  TYPE GNB-CU-TNL-Association-Failed-To-Setup-List      PRESENCE optional }|
    { ID id-Dedicated-SIDelivery-NeededUE-List      CRITICALITY ignore  TYPE Dedicated-SIDelivery-NeededUE-List      PRESENCE optional
    }|
    { ID id-Transport-Layer-Address-Info      CRITICALITY ignore  TYPE Transport-Layer-Address-Info      PRESENCE optional }|
    { ID id-Cells-With-SSBs-Activated-List      CRITICALITY ignore  TYPE Cells-With-SSBs-Activated-List      PRESENCE optional },
    ...
}

Cells-Failed-to-be-Activated-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Cells-Failed-to-be-Activated-List-
ItemIES } }
GNB-CU-TNL-Association-Setup-List ::= SEQUENCE (SIZE(1.. maxnoofTNLAAssociations)) OF ProtocolIE-SingleContainer { { GNB-CU-TNL-Association-Setup-
ItemIES } }

```

```
GNB-CU-TNL-Association-Failed-To-Setup-List ::= SEQUENCE (SIZE(1.. maxnoofTNLAassociations)) OF ProtocolIE-SingleContainer { { GNB-CU-TNL-
Association-Failed-To-Setup-ItemIES } }
```

```
Cells-Failed-to-be-Activated-List-ItemIES F1AP-PROTOCOL-IES ::= {
  { ID id-Cells-Failed-to-be-Activated-List-Item      CRITICALITY reject  TYPE Cells-Failed-to-be-Activated-List-Item      PRESENCE mandatory  },
  ...
}
```

```
GNB-CU-TNL-Association-Setup-ItemIES F1AP-PROTOCOL-IES ::= {
  { ID id-GNB-CU-TNL-Association-Setup-Item          CRITICALITY ignore  TYPE          GNB-CU-TNL-Association-Setup-Item          PRESENCE mandatory  },
  ...
}
```

```
GNB-CU-TNL-Association-Failed-To-Setup-ItemIES F1AP-PROTOCOL-IES ::= {
  { ID id-GNB-CU-TNL-Association-Failed-To-Setup-Item      CRITICALITY ignore  TYPE          GNB-CU-TNL-Association-Failed-To-Setup-Item      PRESENCE
mandatory  },
  ...
}
```

```
-- *****
--
-- GNB-CU CONFIGURATION UPDATE FAILURE
--
-- *****
```

```
GNBCUConfigurationUpdateFailure ::= SEQUENCE {
  protocolIES          ProtocolIE-Container      { { GNBCUConfigurationUpdateFailureIES} },
  ...
}
```

```
GNBCUConfigurationUpdateFailureIES F1AP-PROTOCOL-IES ::= {
  { ID id-TransactionID      CRITICALITY reject  TYPE TransactionID      PRESENCE mandatory  }|
  { ID id-Cause              CRITICALITY ignore  TYPE Cause              PRESENCE mandatory  }|
  { ID id-TimeToWait         CRITICALITY ignore  TYPE TimeToWait         PRESENCE optional  }|
  { ID id-CriticalityDiagnostics CRITICALITY ignore  TYPE CriticalityDiagnostics PRESENCE optional  },
  ...
}
```

```
-- *****
--
-- GNB-DU RESOURCE COORDINATION REQUEST
--
-- *****
```

```
GNBDUResourceCoordinationRequest ::= SEQUENCE {
  protocolIES          ProtocolIE-Container      {{GNBDUResourceCoordinationRequest-IEs}},
  ...
}
```

```
GNBDUResourceCoordinationRequest-IEs F1AP-PROTOCOL-IES ::= {
```

```

    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-RequestType            CRITICALITY reject TYPE RequestType            PRESENCE mandatory }|
    { ID id-EUTRA-NR-CellResourceCoordinationReq-Container CRITICALITY reject TYPE EUTRA-NR-CellResourceCoordinationReq-Container PRESENCE
mandatory}}|
    { ID id-IgnoreResourceCoordinationContainer          CRITICALITY reject TYPE IgnoreResourceCoordinationContainer          PRESENCE optional },
    ...
}

-- *****
--
-- GNB-DU RESOURCE COORDINATION RESPONSE
--
-- *****

GNBDUResourceCoordinationResponse ::= SEQUENCE {
    protocolIES      ProtocolIE-Container      {{GNBDUResourceCoordinationResponse-IES}},
    ...
}

GNBDUResourceCoordinationResponse-IES F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-EUTRA-NR-CellResourceCoordinationReqAck-Container CRITICALITY reject TYPE EUTRA-NR-CellResourceCoordinationReqAck-Container
PRESENCE mandatory}},
    ...
}

-- *****
--
-- UE Context Setup ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- UE CONTEXT SETUP REQUEST
--
-- *****

UEContextSetupRequest ::= SEQUENCE {
    protocolIES      ProtocolIE-Container      { { UEContextSetupRequestIES} },
    ...
}

UEContextSetupRequestIES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY ignore TYPE GNB-DU-UE-F1AP-ID          PRESENCE optional }|
    { ID id-SpCell-ID                  CRITICALITY reject TYPE NRCGI                    PRESENCE mandatory }|
    { ID id-ServCellIndex              CRITICALITY reject TYPE ServCellIndex          PRESENCE mandatory }|
    { ID id-SpCellULConfigured          CRITICALITY ignore TYPE CellULConfigured          PRESENCE optional }|
    { ID id-CUtoDURRCInformation        CRITICALITY reject TYPE CUtoDURRCInformation        PRESENCE mandatory }|
    { ID id-Candidate-SpCell-List       CRITICALITY ignore TYPE Candidate-SpCell-List       PRESENCE optional }|
    { ID id-DRXCycle                   CRITICALITY ignore TYPE DRXCycle                   PRESENCE optional }|
    { ID id-ResourceCoordinationTransferContainer CRITICALITY ignore TYPE ResourceCoordinationTransferContainer PRESENCE optional }|

```

|                                                                                  |                    |                                              |                        |
|----------------------------------------------------------------------------------|--------------------|----------------------------------------------|------------------------|
| { ID id-SCell-ToBeSetup-List                                                     | CRITICALITY ignore | TYPE SCell-ToBeSetup-List                    | PRESENCE optional }    |
| { ID id-SRBs-ToBeSetup-List                                                      | CRITICALITY reject | TYPE SRBs-ToBeSetup-List                     | PRESENCE optional }    |
| { ID id-DRBs-ToBeSetup-List                                                      | CRITICALITY reject | TYPE DRBs-ToBeSetup-List                     | PRESENCE optional }    |
| { ID id-InactivityMonitoringRequest                                              | CRITICALITY reject | TYPE InactivityMonitoringRequest             | PRESENCE optional }    |
| { ID id-RAT-FrequencyPriorityInformation                                         | CRITICALITY reject | TYPE RAT-FrequencyPriorityInformation        | PRESENCE optional }    |
| { ID id-RRCContainer                                                             | CRITICALITY ignore | TYPE RRCContainer                            | PRESENCE optional }    |
| { ID id-MaskedIMEISV                                                             | CRITICALITY ignore | TYPE MaskedIMEISV                            | PRESENCE optional }    |
| { ID id-ServingPLMN                                                              | CRITICALITY ignore | TYPE PLMN-Identity                           | PRESENCE optional }    |
| { ID id-GNB-DU-UE-AMBR-UL                                                        | CRITICALITY ignore | TYPE BitRate                                 | PRESENCE conditional } |
| -- The above IE shall be present only if the DRB to Be Setup List IE is present. |                    |                                              |                        |
| { ID id-RRCDeliveryStatusRequest                                                 | CRITICALITY ignore | TYPE RRCDeliveryStatusRequest                | PRESENCE optional }    |
| { ID id-ResourceCoordinationTransferInformation                                  | CRITICALITY ignore | TYPE ResourceCoordinationTransferInformation | PRESENCE optional }    |
| { ID id-ServingCellMO                                                            | CRITICALITY ignore | TYPE ServingCellMO                           | PRESENCE optional }    |
| { ID id-new-gNB-CU-UE-F1AP-ID                                                    | CRITICALITY reject | TYPE GNB-DU-UE-F1AP-ID                       | PRESENCE optional }    |
| { ID id-RANUEID                                                                  | CRITICALITY ignore | TYPE RANUEID                                 | PRESENCE optional }    |
| { ID id-TraceActivation                                                          | CRITICALITY ignore | TYPE TraceActivation                         | PRESENCE optional }    |
| { ID id-AdditionalRRMPriorityIndex                                               | CRITICALITY ignore | TYPE AdditionalRRMPriorityIndex              | PRESENCE optional }    |
| { ID id-BHChannels-ToBeSetup-List                                                | CRITICALITY reject | TYPE BHChannels-ToBeSetup-List               | PRESENCE optional }    |
| { ID id-ConfiguredBAPAddress                                                     | CRITICALITY reject | TYPE BAPAddress                              | PRESENCE optional }    |
| { ID id-NRV2XServicesAuthorized                                                  | CRITICALITY ignore | TYPE NRV2XServicesAuthorized                 | PRESENCE optional }    |
| { ID id-LTEV2XServicesAuthorized                                                 | CRITICALITY ignore | TYPE LTEV2XServicesAuthorized                | PRESENCE optional }    |
| { ID id-NRUESidelinkAggregateMaximumBitrate                                      | CRITICALITY ignore | TYPE NRUESidelinkAggregateMaximumBitrate     | PRESENCE optional }    |
| { ID id-LTEUESidelinkAggregateMaximumBitrate                                     | CRITICALITY ignore | TYPE LTEUESidelinkAggregateMaximumBitrate    | PRESENCE optional }    |
| { ID id-PC5LinkAMBR                                                              | CRITICALITY ignore | TYPE BitRate                                 | PRESENCE optional }    |
| { ID id-SLDRBs-ToBeSetup-List                                                    | CRITICALITY reject | TYPE SLDRBs-ToBeSetup-List                   | PRESENCE optional }    |
| { ID id-ConditionalInterDUMobilityInformation                                    | CRITICALITY reject | TYPE ConditionalInterDUMobilityInformation   | PRESENCE optional }    |
| { ID id-ManagementBasedMDTPLMNList                                               | CRITICALITY ignore | TYPE MDTPLMNList                             | PRESENCE optional }    |
| { ID id-ServingNID                                                               | CRITICALITY reject | TYPE NID                                     | PRESENCE optional }    |
| { ID id-F1CTransferPath                                                          | CRITICALITY reject | TYPE F1CTransferPath                         | PRESENCE optional }    |
| { ID id-F1CTransferPathNRDC                                                      | CRITICALITY reject | TYPE F1CTransferPathNRDC                     | PRESENCE optional }    |
| { ID id-MDTPollutedMeasurementIndicator                                          | CRITICALITY ignore | TYPE MDTPollutedMeasurementIndicator         | PRESENCE optional }    |
| { ID id-SCGActivationRequest                                                     | CRITICALITY ignore | TYPE SCGActivationRequest                    | PRESENCE optional }    |
| { ID id-CG-SDTSessionInfoOld                                                     | CRITICALITY ignore | TYPE CG-SDTSessionInfo                       | PRESENCE optional }    |
| { ID id-FiveG-ProSeAuthorized                                                    | CRITICALITY ignore | TYPE FiveG-ProSeAuthorized                   | PRESENCE optional }    |
| { ID id-FiveG-ProSeUEPC5AggregateMaximumBitrate                                  | CRITICALITY ignore | TYPE NRUESidelinkAggregateMaximumBitrate     | PRESENCE optional }    |
| { ID id-FiveG-ProSePC5LinkAMBR                                                   | CRITICALITY ignore | TYPE BitRate                                 | PRESENCE optional }    |
| { ID id-UuRLCChannelToBeSetupList                                                | CRITICALITY reject | TYPE UuRLCChannelToBeSetupList               | PRESENCE optional }    |
| { ID id-PC5RLCChannelToBeSetupList                                               | CRITICALITY reject | TYPE PC5RLCChannelToBeSetupList              | PRESENCE optional }    |
| { ID id-PathSwitchConfiguration                                                  | CRITICALITY ignore | TYPE PathSwitchConfiguration                 | PRESENCE optional }    |
| { ID id-GNBDUUESliceMaximumBitRateList                                           | CRITICALITY ignore | TYPE GNBDUUESliceMaximumBitRateList          | PRESENCE optional }    |
| { ID id-MulticastMBSSESessionSetupList                                           | CRITICALITY reject | TYPE MulticastMBSSESessionList               | PRESENCE optional }    |
| { ID id-UE-MulticastMRBs-ToBeSetup-List                                          | CRITICALITY reject | TYPE UE-MulticastMRBs-ToBeSetup-List         | PRESENCE optional }    |
| { ID id-ServingCellMO-List                                                       | CRITICALITY ignore | TYPE ServingCellMO-List                      | PRESENCE optional }    |
| { ID id-NetworkControlledRepeaterAuthorized                                      | CRITICALITY ignore | TYPE NetworkControlledRepeaterAuthorized     | PRESENCE optional }    |
| { ID id-SDT-Volume-Threshold                                                     | CRITICALITY ignore | TYPE SDT-Volume-Threshold                    | PRESENCE optional }    |
| { ID id-LTMInformation-Setup                                                     | CRITICALITY reject | TYPE LTMInformation-Setup                    | PRESENCE optional }    |
| { ID id-LTMConfigurationIDMappingList                                            | CRITICALITY reject | TYPE LTMConfigurationIDMappingList           | PRESENCE optional }    |
| { ID id-EarlySyncInformation-Request                                             | CRITICALITY ignore | TYPE EarlySyncInformation-Request            | PRESENCE optional }    |
| { ID id-PathAdditionInformation                                                  | CRITICALITY reject | TYPE PathAdditionInformation                 | PRESENCE optional }    |
| { ID id-NRA2XServicesAuthorized                                                  | CRITICALITY ignore | TYPE NRA2XServicesAuthorized                 | PRESENCE optional }    |
| { ID id-LTEA2XServicesAuthorized                                                 | CRITICALITY ignore | TYPE LTEA2XServicesAuthorized                | PRESENCE optional }    |
| { ID id-NRUESidelinkAggregateMaximumBitrateForA2X                                | CRITICALITY ignore | TYPE NRUESidelinkAggregateMaximumBitrate     | PRESENCE optional }    |
| { ID id-LTEUESidelinkAggregateMaximumBitrateForA2X                               | CRITICALITY ignore | TYPE LTEUESidelinkAggregateMaximumBitrate    | PRESENCE optional }    |
| { ID id-DLLBTFailureInformationRequest                                           | CRITICALITY ignore | TYPE DLLBTFailureInformationRequest          | PRESENCE optional }    |



```

    { ID id-SLPositioning-Ranging-Service-Info      CRITICALITY ignore TYPE SLPositioning-Ranging-Service-Info      PRESENCE optional }|
    { ID id-NonIntegerDRXCycle                     CRITICALITY ignore TYPE NonIntegerDRXCycle                     PRESENCE optional },
    ...
}

Candidate-SpCell-List ::= SEQUENCE (SIZE(1..maxnoofCandidateSpCells)) OF ProtocolIE-SingleContainer { { Candidate-SpCell-ItemIEs } }
SCell-ToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofSCells)) OF ProtocolIE-SingleContainer { { SCell-ToBeSetup-ItemIEs } }
SRBs-ToBeSetup-List  ::= SEQUENCE (SIZE(1..maxnoofSRBs)) OF ProtocolIE-SingleContainer { { SRBs-ToBeSetup-ItemIEs } }
DRBs-ToBeSetup-List  ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRBs-ToBeSetup-ItemIEs } }
BHChannels-ToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofBHRLCChannels)) OF ProtocolIE-SingleContainer { { BHChannels-ToBeSetup-ItemIEs } }
SLDRBs-ToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofSLDRBs)) OF ProtocolIE-SingleContainer { { SLDRBs-ToBeSetup-ItemIEs } }
UE-MulticastMRBs-ToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofMRBsforUE)) OF ProtocolIE-SingleContainer { { UE-MulticastMRBs-ToBeSetup-ItemIEs } }
ServingCellMO-List  ::= SEQUENCE (SIZE(1..maxnoofServingCellMOs)) OF ProtocolIE-SingleContainer { { ServingCellMO-List-ItemIEs } }

Candidate-SpCell-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-Candidate-SpCell-Item      CRITICALITY ignore TYPE Candidate-SpCell-Item      PRESENCE mandatory },
    ...
}

SCell-ToBeSetup-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-SCell-ToBeSetup-Item      CRITICALITY ignore TYPE SCell-ToBeSetup-Item      PRESENCE mandatory },
    ...
}

SRBs-ToBeSetup-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-SRBs-ToBeSetup-Item      CRITICALITY reject TYPE SRBs-ToBeSetup-Item      PRESENCE mandatory},
    ...
}

DRBs-ToBeSetup-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-DRBs-ToBeSetup-Item      CRITICALITY reject TYPE DRBs-ToBeSetup-Item      PRESENCE mandatory},
    ...
}

BHChannels-ToBeSetup-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-BHChannels-ToBeSetup-Item      CRITICALITY reject TYPE BHChannels-ToBeSetup-Item      PRESENCE mandatory},
    ...
}

SLDRBs-ToBeSetup-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-SLDRBs-ToBeSetup-Item      CRITICALITY reject TYPE SLDRBs-ToBeSetup-Item      PRESENCE mandatory},
    ...
}

UE-MulticastMRBs-ToBeSetup-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-UE-MulticastMRBs-ToBeSetup-Item      CRITICALITY reject TYPE UE-MulticastMRBs-ToBeSetup-Item      PRESENCE mandatory},
    ...
}

ServingCellMO-List-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-ServingCellMO-List-Item      CRITICALITY reject TYPE ServingCellMO-List-Item      PRESENCE mandatory},
    ...
}

```

```
-- *****
--
-- UE CONTEXT SETUP RESPONSE
--
-- *****
```

```
UEContextSetupResponse ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    { { UEContextSetupResponseIEs} },
    ...
}
```

```
UEContextSetupResponseIEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-DUtoCURRCInformation        CRITICALITY reject TYPE DUtoCURRCInformation        PRESENCE mandatory }|
    { ID id-C-RNTI                     CRITICALITY ignore TYPE C-RNTI                     PRESENCE optional }|
    { ID id-ResourceCoordinationTransferContainer CRITICALITY ignore TYPE ResourceCoordinationTransferContainer PRESENCE optional }|
    { ID id-FullConfiguration           CRITICALITY reject TYPE FullConfiguration           PRESENCE optional }|
    { ID id-DRBs-Setup-List             CRITICALITY ignore TYPE DRBs-Setup-List             PRESENCE optional }|
    { ID id-SRBs-FailedToBeSetup-List   CRITICALITY ignore TYPE SRBs-FailedToBeSetup-List   PRESENCE optional }|
    { ID id-DRBs-FailedToBeSetup-List   CRITICALITY ignore TYPE DRBs-FailedToBeSetup-List   PRESENCE optional }|
    { ID id-SCell-FailedtoSetup-List     CRITICALITY reject TYPE SCell-FailedtoSetup-List     PRESENCE optional }|
    { ID id-InactivityMonitoringResponse CRITICALITY reject TYPE InactivityMonitoringResponse PRESENCE optional }|
    { ID id-CriticalityDiagnostics       CRITICALITY ignore TYPE CriticalityDiagnostics       PRESENCE optional }|
    { ID id-SRBs-Setup-List             CRITICALITY ignore TYPE SRBs-Setup-List             PRESENCE optional }|
    { ID id-BHChannels-Setup-List        CRITICALITY ignore TYPE BHChannels-Setup-List        PRESENCE optional }|
    { ID id-BHChannels-FailedToBeSetup-List CRITICALITY ignore TYPE BHChannels-FailedToBeSetup-List PRESENCE optional }|
    { ID id-SLDRBs-Setup-List           CRITICALITY ignore TYPE SLDRBs-Setup-List           PRESENCE optional }|
    { ID id-SLDRBs-FailedToBeSetup-List CRITICALITY ignore TYPE SLDRBs-FailedToBeSetup-List CRITICALITY ignore TYPE SLDRBs-FailedToBeSetup-List PRESENCE optional }|
    { ID id-requestedTargetCellGlobalID CRITICALITY reject TYPE NRCGI                     PRESENCE optional }|
    { ID id-SCGActivationStatus          CRITICALITY ignore TYPE SCGActivationStatus          PRESENCE optional }|
    { ID id-UuRLCChannelSetupList        CRITICALITY ignore TYPE UuRLCChannelSetupList        PRESENCE optional }|
    { ID id-UuRLCChannelFailedToBeSetupList CRITICALITY ignore TYPE UuRLCChannelFailedToBeSetupList PRESENCE optional }|
    { ID id-PC5RLCChannelSetupList       CRITICALITY ignore TYPE PC5RLCChannelSetupList       PRESENCE optional }|
    { ID id-PC5RLCChannelFailedToBeSetupList CRITICALITY ignore TYPE PC5RLCChannelFailedToBeSetupList PRESENCE optional }|
    { ID id-ServingCellMO-encoded-in-CGC-List CRITICALITY ignore TYPE ServingCellMO-encoded-in-CGC-List PRESENCE optional }|
    { ID id-UE-MulticastMRBs-Setupnew-List CRITICALITY reject TYPE UE-MulticastMRBs-Setupnew-List PRESENCE optional }|
    { ID id-DedicatedSIDeliveryIndication CRITICALITY ignore TYPE DedicatedSIDeliveryIndication PRESENCE optional }|
    { ID id-Configured-BWP-List         CRITICALITY ignore TYPE Configured-BWP-List         PRESENCE optional }|
    { ID id-EarlySyncInformation         CRITICALITY ignore TYPE EarlySyncInformation         PRESENCE optional }|
    { ID id-LTMConfiguration            CRITICALITY ignore TYPE LTMConfiguration            PRESENCE optional }|
    { ID id-S-CPAC-Configuration        CRITICALITY ignore TYPE S-CPAC-Configuration        PRESENCE optional },
    ...
}
```

```
DRBs-Setup-List ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRBs-Setup-ItemIEs} }
```

```
SRBs-FailedToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofSRBs)) OF ProtocolIE-SingleContainer { { SRBs-FailedToBeSetup-ItemIEs} }
DRBs-FailedToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRBs-FailedToBeSetup-ItemIEs} }
SCell-FailedtoSetup-List ::= SEQUENCE (SIZE(1..maxnoofSCells)) OF ProtocolIE-SingleContainer { { SCell-FailedtoSetup-ItemIEs} }
SRBs-Setup-List ::= SEQUENCE (SIZE(1..maxnoofSRBs)) OF ProtocolIE-SingleContainer { { SRBs-Setup-ItemIEs} }
BHChannels-Setup-List ::= SEQUENCE (SIZE(1..maxnoofBHRLCChannels)) OF ProtocolIE-SingleContainer { { BHChannels-Setup-ItemIEs} }
```

```

BHChannels-FailedToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofBHRLCChannels)) OF ProtocolIE-SingleContainer { { BHChannels-FailedToBeSetup-ItemIEs}
}

DRBs-Setup-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-DRBs-Setup-Item          CRITICALITY ignore  TYPE DRBs-Setup-Item          PRESENCE mandatory},
    ...
}

SRBs-Setup-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-SRBs-Setup-Item          CRITICALITY ignore  TYPE SRBs-Setup-Item          PRESENCE mandatory},
    ...
}

SRBs-FailedToBeSetup-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-SRBs-FailedToBeSetup-Item  CRITICALITY ignore  TYPE SRBs-FailedToBeSetup-Item  PRESENCE mandatory},
    ...
}

DRBs-FailedToBeSetup-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-DRBs-FailedToBeSetup-Item  CRITICALITY ignore  TYPE DRBs-FailedToBeSetup-Item  PRESENCE mandatory},
    ...
}

SCell-FailedtoSetup-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-SCell-FailedtoSetup-Item    CRITICALITY ignore  TYPE SCell-FailedtoSetup-Item    PRESENCE mandatory},
    ...
}

BHChannels-Setup-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-BHChannels-Setup-Item      CRITICALITY ignore  TYPE BHChannels-Setup-Item      PRESENCE mandatory},
    ...
}

BHChannels-FailedToBeSetup-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-BHChannels-FailedToBeSetup-Item  CRITICALITY ignore  TYPE BHChannels-FailedToBeSetup-Item  PRESENCE mandatory},
    ...
}

SLDRBs-Setup-List ::= SEQUENCE (SIZE(1..maxnoofSLDRBs)) OF ProtocolIE-SingleContainer { { SLDRBs-Setup-ItemIEs} }

SLDRBs-FailedToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofSLDRBs)) OF ProtocolIE-SingleContainer { { SLDRBs-FailedToBeSetup-ItemIEs} }

SLDRBs-Setup-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-SLDRBs-Setup-Item          CRITICALITY ignore  TYPE SLDRBs-Setup-Item          PRESENCE mandatory},
    ...
}

SLDRBs-FailedToBeSetup-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-SLDRBs-FailedToBeSetup-Item  CRITICALITY ignore  TYPE SLDRBs-FailedToBeSetup-Item  PRESENCE mandatory},
    ...
}

UE-MulticastMRBs-Setupnew-List ::= SEQUENCE (SIZE(1..maxnoofMRBsforUE)) OF ProtocolIE-SingleContainer { { UE-MulticastMRBs-Setupnew-ItemIEs } }

```

```

UE-MulticastMRBs-Setupnew-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-UE-MulticastMRBs-Setupnew-Item          CRITICALITY reject  TYPE UE-MulticastMRBs-Setupnew-Item    PRESENCE mandatory},
    ...
}

-- *****
--
-- UE CONTEXT SETUP FAILURE
--
-- *****

UEContextSetupFailure ::= SEQUENCE {
    protocolIES          ProtocolIE-Container          { { UEContextSetupFailureIES} },
    ...
}

UEContextSetupFailureIES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject  TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY ignore  TYPE GNB-DU-UE-F1AP-ID          PRESENCE optional }|
    { ID id-Cause                      CRITICALITY ignore  TYPE Cause                    PRESENCE mandatory }|
    { ID id-CriticalityDiagnostics      CRITICALITY ignore  TYPE CriticalityDiagnostics    PRESENCE optional }|
    { ID id-Potential-SpCell-List      CRITICALITY ignore  TYPE Potential-SpCell-List     PRESENCE optional }|
    { ID id-requestedTargetCellGlobalID CRITICALITY reject  TYPE NRCGI                    PRESENCE optional },
    ...
}

Potential-SpCell-List ::= SEQUENCE (SIZE(0..maxnoofPotentialSpCells)) OF ProtocolIE-SingleContainer { { Potential-SpCell-ItemIES} }

Potential-SpCell-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-Potential-SpCell-Item          CRITICALITY ignore  TYPE Potential-SpCell-Item          PRESENCE mandatory },
    ...
}

-- *****
--
-- UE Context Release Request ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- UE Context Release Request
--
-- *****

UEContextReleaseRequest ::= SEQUENCE {
    protocolIES          ProtocolIE-Container          {{ UEContextReleaseRequestIES}},
    ...
}

UEContextReleaseRequestIES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject  TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|

```

```

    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-Cause                       CRITICALITY ignore TYPE Cause                       PRESENCE mandatory }|
    { ID id-targetCellsToCancel         CRITICALITY reject TYPE TargetCellList         PRESENCE optional }|
    { ID id-LTMCells-ToBeReleased-List  CRITICALITY reject TYPE LTMCells-ToBeReleased-List PRESENCE optional },
    ...
}

-- *****
--
-- UE Context Release (gNB-CU initiated) ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- UE CONTEXT RELEASE COMMAND
--
-- *****

UEContextReleaseCommand ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    { { UEContextReleaseCommandIES} },
    ...
}

UEContextReleaseCommandIES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-Cause                       CRITICALITY ignore TYPE Cause                       PRESENCE mandatory }|
    { ID id-RRCContainer                CRITICALITY ignore TYPE RRCContainer                PRESENCE optional }|
    { ID id-SRBID                      CRITICALITY ignore TYPE SRBID                      PRESENCE conditional }|
    -- The above IE shall be present if the RRC container IE is present.
    { ID id-oldgNB-DU-UE-F1AP-ID        CRITICALITY ignore TYPE GNB-DU-UE-F1AP-ID          PRESENCE optional }|
    { ID id-ExecuteDuplication          CRITICALITY ignore TYPE ExecuteDuplication          PRESENCE optional }|
    { ID id-RRCDeliveryStatusRequest    CRITICALITY ignore TYPE RRCDeliveryStatusRequest    PRESENCE optional }|
    { ID id-targetCellsToCancel         CRITICALITY reject TYPE TargetCellList         PRESENCE optional }|
    { ID id-PosContextRevIndication      CRITICALITY ignore TYPE PosContextRevIndication      PRESENCE optional }|
    { ID id-CG-SDTKeptIndicator         CRITICALITY ignore TYPE CG-SDTKeptIndicator         PRESENCE optional }|
    { ID id-LTMCells-ToBeReleased-List  CRITICALITY reject TYPE LTMCells-ToBeReleased-List  PRESENCE optional }|
    { ID id-DLLBTFailureInformationRequest CRITICALITY ignore TYPE DLLBTFailureInformationRequest PRESENCE optional},
    ...
}

-- *****
--
-- UE CONTEXT RELEASE COMPLETE
--
-- *****

UEContextReleaseComplete ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    { { UEContextReleaseCompleteIES} },
    ...
}

```

```

UEContextReleaseCompleteIES F1AP-PROTOCOL-IES ::= {
  { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
  { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
  { ID id-CriticalityDiagnostics      CRITICALITY ignore TYPE CriticalityDiagnostics    PRESENCE optional }|
  { ID id-Recommended-SSBs-for-Paging-List CRITICALITY ignore TYPE Recommended-SSBs-for-Paging-List PRESENCE optional },
  ...
}

-- *****
--
-- UE Context Modification ELEMENTARY PROCEDURE
--
-- *****
--
-- *****
--
-- UE CONTEXT MODIFICATION REQUEST
--
-- *****

UEContextModificationRequest ::= SEQUENCE {
  protocolIES          ProtocolIE-Container    { { UEContextModificationRequestIES} },
  ...
}

UEContextModificationRequestIES F1AP-PROTOCOL-IES ::= {
  { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
  { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
  { ID id-SpCell-ID                  CRITICALITY ignore TYPE NRCGI                      PRESENCE optional }|
  { ID id-ServCellIndex              CRITICALITY reject TYPE ServCellIndex              PRESENCE optional }|
  { ID id-SpCellULConfigured          CRITICALITY ignore TYPE CellULConfigured          PRESENCE optional }|
  { ID id-DRXCycle                    CRITICALITY ignore TYPE DRXCycle                    PRESENCE optional }|
  { ID id-CUtoDURRCInformation        CRITICALITY reject TYPE CUtoDURRCInformation        PRESENCE optional }|
  { ID id-TransmissionActionIndicator CRITICALITY ignore TYPE TransmissionActionIndicator PRESENCE optional }|
  { ID id-ResourceCoordinationTransferContainer CRITICALITY ignore TYPE ResourceCoordinationTransferContainer PRESENCE optional }|
  { ID id-RRCReconfigurationCompleteIndicator CRITICALITY ignore TYPE RRCReconfigurationCompleteIndicator PRESENCE optional }|
  { ID id-RRCContainer                CRITICALITY reject TYPE RRCContainer                PRESENCE optional }|
  { ID id-SCell-ToBeSetupMod-List     CRITICALITY ignore TYPE SCell-ToBeSetupMod-List     PRESENCE optional }|
  { ID id-SCell-ToBeRemoved-List      CRITICALITY ignore TYPE SCell-ToBeRemoved-List      PRESENCE optional }|
  { ID id-SRBs-ToBeSetupMod-List      CRITICALITY reject TYPE SRBs-ToBeSetupMod-List      PRESENCE optional }|
  { ID id-DRBs-ToBeSetupMod-List      CRITICALITY reject TYPE DRBs-ToBeSetupMod-List      PRESENCE optional }|
  { ID id-DRBs-ToBeModified-List      CRITICALITY reject TYPE DRBs-ToBeModified-List      PRESENCE optional }|
  { ID id-SRBs-ToBeReleased-List      CRITICALITY reject TYPE SRBs-ToBeReleased-List      PRESENCE optional }|
  { ID id-DRBs-ToBeReleased-List      CRITICALITY reject TYPE DRBs-ToBeReleased-List      PRESENCE optional }|
  { ID id-InactivityMonitoringRequest CRITICALITY reject TYPE InactivityMonitoringRequest PRESENCE optional }|
  { ID id-RAT-FrequencyPriorityInformation CRITICALITY reject TYPE RAT-FrequencyPriorityInformation PRESENCE optional }|
  { ID id-DRXConfigurationIndicator   CRITICALITY ignore TYPE DRXConfigurationIndicator   PRESENCE optional }|
  { ID id-RLCFailureIndication        CRITICALITY ignore TYPE RLCFailureIndication        PRESENCE optional }|
  { ID id-UplinkTxDirectCurrentListInformation CRITICALITY ignore TYPE UplinkTxDirectCurrentListInformation PRESENCE optional }|
  { ID id-GNB-DUConfigurationQuery     CRITICALITY reject TYPE GNB-DUConfigurationQuery     PRESENCE optional }|
  { ID id-GNB-DU-UE-AMBR-UL           CRITICALITY ignore TYPE BitRate                     PRESENCE optional }|
  { ID id-ExecuteDuplication          CRITICALITY ignore TYPE ExecuteDuplication          PRESENCE optional }|
  { ID id-RRCDeliveryStatusRequest    CRITICALITY ignore TYPE RRCDeliveryStatusRequest    PRESENCE optional }|

```

|                                                    |                    |                                                 |                     |
|----------------------------------------------------|--------------------|-------------------------------------------------|---------------------|
| { ID id-ResourceCoordinationTransferInformation    | CRITICALITY ignore | TYPE ResourceCoordinationTransferInformation    | PRESENCE optional } |
| { ID id-ServingCellMO                              | CRITICALITY ignore | TYPE ServingCellMO                              | PRESENCE optional } |
| { ID id-NeedforGap                                 | CRITICALITY ignore | TYPE NeedforGap                                 | PRESENCE optional } |
| { ID id-FullConfiguration                          | CRITICALITY reject | TYPE FullConfiguration                          | PRESENCE optional } |
| { ID id-AdditionalRRMPriorityIndex                 | CRITICALITY ignore | TYPE AdditionalRRMPriorityIndex                 | PRESENCE optional } |
| { ID id-LowerLayerPresenceStatusChange             | CRITICALITY ignore | TYPE LowerLayerPresenceStatusChange             | PRESENCE optional } |
| { ID id-BHChannels-ToBeSetupMod-List               | CRITICALITY reject | TYPE BHChannels-ToBeSetupMod-List               | PRESENCE optional } |
| { ID id-BHChannels-ToBeModified-List               | CRITICALITY reject | TYPE BHChannels-ToBeModified-List               | PRESENCE optional } |
| { ID id-BHChannels-ToBeReleased-List               | CRITICALITY reject | TYPE BHChannels-ToBeReleased-List               | PRESENCE optional } |
| { ID id-NRV2XServicesAuthorized                    | CRITICALITY ignore | TYPE NRV2XServicesAuthorized                    | PRESENCE optional } |
| { ID id-LTEV2XServicesAuthorized                   | CRITICALITY ignore | TYPE LTEV2XServicesAuthorized                   | PRESENCE optional } |
| { ID id-NRUESidelinkAggregateMaximumBitrate        | CRITICALITY ignore | TYPE NRUESidelinkAggregateMaximumBitrate        | PRESENCE optional } |
| { ID id-LTEUESidelinkAggregateMaximumBitrate       | CRITICALITY ignore | TYPE LTEUESidelinkAggregateMaximumBitrate       | PRESENCE optional } |
| { ID id-PC5LinkAMBR                                | CRITICALITY ignore | TYPE BitRate                                    | PRESENCE optional } |
| { ID id-SLDRBs-ToBeSetupMod-List                   | CRITICALITY reject | TYPE SLDRBs-ToBeSetupMod-List                   | PRESENCE optional } |
| { ID id-SLDRBs-ToBeModified-List                   | CRITICALITY reject | TYPE SLDRBs-ToBeModified-List                   | PRESENCE optional } |
| { ID id-SLDRBs-ToBeReleased-List                   | CRITICALITY reject | TYPE SLDRBs-ToBeReleased-List                   | PRESENCE optional } |
| { ID id-ConditionalIntraDUMobilityInformation      | CRITICALITY reject | TYPE ConditionalIntraDUMobilityInformation      | PRESENCE optional } |
| { ID id-F1CTransferPath                            | CRITICALITY reject | TYPE F1CTransferPath                            | PRESENCE optional } |
| { ID id-SCGIndicator                               | CRITICALITY ignore | TYPE SCGIndicator                               | PRESENCE optional } |
| { ID id-UplinkTxDirectCurrentTwoCarrierListInfo    | CRITICALITY ignore | TYPE UplinkTxDirectCurrentTwoCarrierListInfo    | PRESENCE optional } |
| { ID id-IABConditionalRRCMessageDeliveryIndication | CRITICALITY reject | TYPE IABConditionalRRCMessageDeliveryIndication | PRESENCE optional } |
| { ID id-F1CTransferPathNRDC                        | CRITICALITY reject | TYPE F1CTransferPathNRDC                        | PRESENCE optional } |
| { ID id-MDTPollutedMeasurementIndicator            | CRITICALITY ignore | TYPE MDTPollutedMeasurementIndicator            | PRESENCE optional } |
| { ID id-SCGActivationRequest                       | CRITICALITY ignore | TYPE SCGActivationRequest                       | PRESENCE optional } |
| { ID id-CG-SDTQueryIndication                      | CRITICALITY ignore | TYPE CG-SDTQueryIndication                      | PRESENCE optional } |
| { ID id-FiveG-ProSeAuthorized                      | CRITICALITY ignore | TYPE FiveG-ProSeAuthorized                      | PRESENCE optional } |
| { ID id-FiveG-ProSeUEPC5AggregateMaximumBitrate    | CRITICALITY ignore | TYPE NRUESidelinkAggregateMaximumBitrate        | PRESENCE optional } |
| { ID id-FiveG-ProSePC5LinkAMBR                     | CRITICALITY ignore | TYPE BitRate                                    | PRESENCE optional } |
| { ID id-UpdatedRemoteUELocalID                     | CRITICALITY ignore | TYPE RemoteUELocalID                            | PRESENCE optional } |
| { ID id-UuRLCChannelToBeSetupList                  | CRITICALITY reject | TYPE UuRLCChannelToBeSetupList                  | PRESENCE optional } |
| { ID id-UuRLCChannelToBeModifiedList               | CRITICALITY reject | TYPE UuRLCChannelToBeModifiedList               | PRESENCE optional } |
| { ID id-UuRLCChannelToBeReleasedList               | CRITICALITY reject | TYPE UuRLCChannelToBeReleasedList               | PRESENCE optional } |
| { ID id-PC5RLCChannelToBeSetupList                 | CRITICALITY reject | TYPE PC5RLCChannelToBeSetupList                 | PRESENCE optional } |
| { ID id-PC5RLCChannelToBeModifiedList              | CRITICALITY reject | TYPE PC5RLCChannelToBeModifiedList              | PRESENCE optional } |
| { ID id-PC5RLCChannelToBeReleasedList              | CRITICALITY reject | TYPE PC5RLCChannelToBeReleasedList              | PRESENCE optional } |
| { ID id-PathSwitchConfiguration                    | CRITICALITY ignore | TYPE PathSwitchConfiguration                    | PRESENCE optional } |
| { ID id-GNBDUUESliceMaximumBitRateList             | CRITICALITY ignore | TYPE GNBDUUESliceMaximumBitRateList             | PRESENCE optional } |
| { ID id-MulticastMBSSessionSetupList               | CRITICALITY reject | TYPE MulticastMBSSessionList                    | PRESENCE optional } |
| { ID id-MulticastMBSSessionRemoveList              | CRITICALITY reject | TYPE MulticastMBSSessionList                    | PRESENCE optional } |
| { ID id-UE-MulticastMRBs-ToBeSetup-atModify-List   | CRITICALITY reject | TYPE UE-MulticastMRBs-ToBeSetup-atModify-List   | PRESENCE optional } |
| { ID id-UE-MulticastMRBs-ToBeReleased-List         | CRITICALITY reject | TYPE UE-MulticastMRBs-ToBeReleased-List         | PRESENCE optional } |
| { ID id-SLDRXCycleList                             | CRITICALITY ignore | TYPE SLDRXCycleList                             | PRESENCE optional } |
| { ID id-ManagementBasedMDTPLMNModificationList     | CRITICALITY ignore | TYPE MDTPLMNModificationList                    | PRESENCE optional } |
| { ID id-SDTBearerConfigurationQueryIndication      | CRITICALITY ignore | TYPE SDTBearerConfigurationQueryIndication      | PRESENCE optional } |
| { ID id-DAPS-HO-Status                             | CRITICALITY ignore | TYPE DAPS-HO-Status                             | PRESENCE optional } |
| { ID id-ServingCellMO-List                         | CRITICALITY ignore | TYPE ServingCellMO-List                         | PRESENCE optional } |
| { ID id-ULTxDirectCurrentMoreCarrierInformation    | CRITICALITY ignore | TYPE ULTxDirectCurrentMoreCarrierInformation    | PRESENCE optional } |
| { ID id-CPACMCGInformation                         | CRITICALITY ignore | TYPE CPACMCGInformation                         | PRESENCE optional } |
| { ID id-NetworkControlledRepeaterAuthorized        | CRITICALITY ignore | TYPE NetworkControlledRepeaterAuthorized        | PRESENCE optional } |
| { ID id-SDT-Volume-Threshold                       | CRITICALITY ignore | TYPE SDT-Volume-Threshold                       | PRESENCE optional } |
| { ID id-LTMInformation-Modify                      | CRITICALITY reject | TYPE LTMInformation-Modify                      | PRESENCE optional } |

```

{ ID id-LTMCFRAResourceConfig-List      CRITICALITY ignore TYPE LTMCFRAResourceConfig-List      PRESENCE optional }|
{ ID id-LTMConfigurationIDMappingList    CRITICALITY reject  TYPE LTMConfigurationIDMappingList    PRESENCE optional }|
{ ID id-EarlySyncInformation-Request      CRITICALITY ignore  TYPE EarlySyncInformation-Request      PRESENCE optional }|
{ ID id-EarlySyncCandidateCellInformation-List CRITICALITY ignore TYPE EarlySyncCandidateCellInformation-List PRESENCE optional }|
{ ID id-EarlySyncServingCellInformation    CRITICALITY ignore  TYPE EarlySyncServingCellInformation    PRESENCE optional }|
{ ID id-LTMCCells-ToBeReleased-List      CRITICALITY reject  TYPE LTMCCells-ToBeReleased-List      PRESENCE optional }|
{ ID id-PathAdditionInformation           CRITICALITY reject  TYPE PathAdditionInformation           PRESENCE optional }|
{ ID id-NRA2XServicesAuthorized           CRITICALITY ignore  TYPE NRA2XServicesAuthorized           PRESENCE optional }|
{ ID id-LTEA2XServicesAuthorized          CRITICALITY ignore  TYPE LTEA2XServicesAuthorized          PRESENCE optional }|
{ ID id-NRUESidelinkAggregateMaximumBitrateForA2X CRITICALITY ignore TYPE NRUESidelinkAggregateMaximumBitrateForA2X PRESENCE optional }|
{ ID id-LTEUESidelinkAggregateMaximumBitrateForA2X CRITICALITY ignore TYPE LTEUESidelinkAggregateMaximumBitrateForA2X PRESENCE optional }|
{ ID id-DLLBTFailureInformationRequest     CRITICALITY ignore  TYPE DLLBTFailureInformationRequest     PRESENCE optional }|
{ ID id-SLPositioning-Ranging-Service-Info CRITICALITY ignore  TYPE SLPositioning-Ranging-Service-Info PRESENCE optional }|
{ ID id-NonIntegerDRXCycle                CRITICALITY ignore  TYPE NonIntegerDRXCycle                PRESENCE optional }|
{ ID id-LTMResetInformation               CRITICALITY ignore  TYPE LTMResetInformation               PRESENCE optional },
...
}

SCell-ToBeSetupMod-List ::= SEQUENCE (SIZE(1..maxnoofSCells)) OF ProtocolIE-SingleContainer { { SCell-ToBeSetupMod-ItemIEs } }
SCell-ToBeRemoved-List ::= SEQUENCE (SIZE(1..maxnoofSCells)) OF ProtocolIE-SingleContainer { { SCell-ToBeRemoved-ItemIEs } }
SRBs-ToBeSetupMod-List ::= SEQUENCE (SIZE(1..maxnoofSRBs)) OF ProtocolIE-SingleContainer { { SRBs-ToBeSetupMod-ItemIEs } }
DRBs-ToBeSetupMod-List ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRBs-ToBeSetupMod-ItemIEs } }
BHChannels-ToBeSetupMod-List ::= SEQUENCE (SIZE(1..maxnoofBHRLCChannels)) OF ProtocolIE-SingleContainer { { BHChannels-ToBeSetupMod-ItemIEs } }

DRBs-ToBeModified-List ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRBs-ToBeModified-ItemIEs } }
BHChannels-ToBeModified-List ::= SEQUENCE (SIZE(1..maxnoofBHRLCChannels)) OF ProtocolIE-SingleContainer { { BHChannels-ToBeModified-ItemIEs } }
SRBs-ToBeReleased-List ::= SEQUENCE (SIZE(1..maxnoofSRBs)) OF ProtocolIE-SingleContainer { { SRBs-ToBeReleased-ItemIEs } }
DRBs-ToBeReleased-List ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRBs-ToBeReleased-ItemIEs } }
BHChannels-ToBeReleased-List ::= SEQUENCE (SIZE(1..maxnoofBHRLCChannels)) OF ProtocolIE-SingleContainer { { BHChannels-ToBeReleased-ItemIEs } }
UE-MulticastMRBs-ToBeSetup-atModify-List ::= SEQUENCE (SIZE(1..maxnoofMRBsforUE)) OF
    ProtocolIE-SingleContainer { { UE-MulticastMRBs-ToBeSetup-atModify-ItemIEs } }

UE-MulticastMRBs-ToBeReleased-List ::= SEQUENCE (SIZE(1..maxnoofMRBsforUE)) OF ProtocolIE-SingleContainer { { UE-MulticastMRBs-ToBeReleased-ItemIEs } }

SCell-ToBeSetupMod-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-SCell-ToBeSetupMod-Item      CRITICALITY ignore TYPE SCell-ToBeSetupMod-Item      PRESENCE mandatory },
    ...
}

SCell-ToBeRemoved-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-SCell-ToBeRemoved-Item      CRITICALITY ignore TYPE SCell-ToBeRemoved-Item      PRESENCE mandatory },
    ...
}

SRBs-ToBeSetupMod-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-SRBs-ToBeSetupMod-Item      CRITICALITY reject TYPE SRBs-ToBeSetupMod-Item      PRESENCE mandatory},
    ...
}

DRBs-ToBeSetupMod-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-DRBs-ToBeSetupMod-Item      CRITICALITY reject TYPE DRBs-ToBeSetupMod-Item      PRESENCE mandatory},

```



```

    ...
}

DRBs-ToBeModified-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-DRBs-ToBeModified-Item          CRITICALITY reject  TYPE DRBs-ToBeModified-Item          PRESENCE mandatory},
    ...
}

SRBs-ToBeReleased-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-SRBs-ToBeReleased-Item          CRITICALITY reject  TYPE SRBs-ToBeReleased-Item          PRESENCE mandatory},
    ...
}

DRBs-ToBeReleased-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-DRBs-ToBeReleased-Item          CRITICALITY reject  TYPE DRBs-ToBeReleased-Item          PRESENCE mandatory},
    ...
}

BHChannels-ToBeSetupMod-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-BHChannels-ToBeSetupMod-Item          CRITICALITY reject  TYPE BHChannels-ToBeSetupMod-Item          PRESENCE mandatory},
    ...
}

BHChannels-ToBeModified-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-BHChannels-ToBeModified-Item          CRITICALITY reject  TYPE BHChannels-ToBeModified-Item          PRESENCE mandatory},
    ...
}

BHChannels-ToBeReleased-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-BHChannels-ToBeReleased-Item          CRITICALITY reject  TYPE BHChannels-ToBeReleased-Item          PRESENCE mandatory},
    ...
}

SLDRBs-ToBeSetupMod-List ::= SEQUENCE (SIZE(1..maxnoofSLDRBs)) OF ProtocolIE-SingleContainer { { SLDRBs-ToBeSetupMod-ItemIES } }
SLDRBs-ToBeModified-List ::= SEQUENCE (SIZE(1..maxnoofSLDRBs)) OF ProtocolIE-SingleContainer { { SLDRBs-ToBeModified-ItemIES } }
SLDRBs-ToBeReleased-List ::= SEQUENCE (SIZE(1..maxnoofSLDRBs)) OF ProtocolIE-SingleContainer { { SLDRBs-ToBeReleased-ItemIES } }

SLDRBs-ToBeSetupMod-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-SLDRBs-ToBeSetupMod-Item          CRITICALITY reject  TYPE SLDRBs-ToBeSetupMod-Item          PRESENCE mandatory},
    ...
}

SLDRBs-ToBeModified-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-SLDRBs-ToBeModified-Item          CRITICALITY reject  TYPE SLDRBs-ToBeModified-Item          PRESENCE mandatory},
    ...
}

SLDRBs-ToBeReleased-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-SLDRBs-ToBeReleased-Item          CRITICALITY reject  TYPE SLDRBs-ToBeReleased-Item          PRESENCE mandatory},
    ...
}

UE-MulticastMRBs-ToBeSetup-atModify-ItemIES F1AP-PROTOCOL-IES ::= {

```

```

    { ID id-UE-MulticastMRBs-ToBeSetup-atModify-Item    CRITICALITY reject  TYPE UE-MulticastMRBs-ToBeSetup-atModify-Item    PRESENCE mandatory},
    ...
}

UE-MulticastMRBs-ToBeReleased-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-UE-MulticastMRBs-ToBeReleased-Item    CRITICALITY reject  TYPE UE-MulticastMRBs-ToBeReleased-Item    PRESENCE mandatory},
    ...
}

-- *****
--
-- UE CONTEXT MODIFICATION RESPONSE
--
-- *****

UEContextModificationResponse ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    { { UEContextModificationResponseIES} },
    ...
}

UEContextModificationResponseIES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID                CRITICALITY reject  TYPE GNB-CU-UE-F1AP-ID                PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID                CRITICALITY reject  TYPE GNB-DU-UE-F1AP-ID                PRESENCE mandatory }|
    { ID id-ResourceCoordinationTransferContainer  CRITICALITY ignore  TYPE ResourceCoordinationTransferContainer  PRESENCE optional }|
    { ID id-DUtoCURRCInformation                CRITICALITY reject  TYPE DUtoCURRCInformation                PRESENCE optional }|
    { ID id-DRBs-SetupMod-List                  CRITICALITY ignore  TYPE DRBs-SetupMod-List                  PRESENCE optional }|
    { ID id-DRBs-Modified-List                  CRITICALITY ignore  TYPE DRBs-Modified-List                  PRESENCE optional }|
    { ID id-SRBs-FailedToBeSetupMod-List          CRITICALITY ignore  TYPE SRBs-FailedToBeSetupMod-List          PRESENCE optional }|
    { ID id-DRBs-FailedToBeSetupMod-List          CRITICALITY ignore  TYPE DRBs-FailedToBeSetupMod-List          PRESENCE optional }|
    { ID id-SCell-FailedToSetupMod-List            CRITICALITY ignore  TYPE SCell-FailedToSetupMod-List            PRESENCE optional }|
    { ID id-DRBs-FailedToBeModified-List          CRITICALITY ignore  TYPE DRBs-FailedToBeModified-List          PRESENCE optional }|
    { ID id-InactivityMonitoringResponse          CRITICALITY reject  TYPE InactivityMonitoringResponse          PRESENCE optional }|
    { ID id-CriticalityDiagnostics                CRITICALITY ignore  TYPE CriticalityDiagnostics                PRESENCE optional }|
    { ID id-C-RNTI                              CRITICALITY ignore  TYPE C-RNTI                              PRESENCE optional }|
    { ID id-Associated-SCell-List                  CRITICALITY ignore  TYPE Associated-SCell-List                  PRESENCE optional }|
    { ID id-SRBs-SetupMod-List                    CRITICALITY ignore  TYPE SRBs-SetupMod-List                    PRESENCE optional }|
    { ID id-SRBs-Modified-List                    CRITICALITY ignore  TYPE SRBs-Modified-List                    PRESENCE optional }|
    { ID id-FullConfiguration                    CRITICALITY reject  TYPE FullConfiguration                    PRESENCE optional }|
    { ID id-BHChannels-SetupMod-List                CRITICALITY ignore  TYPE BHChannels-SetupMod-List                PRESENCE optional }|
    { ID id-BHChannels-Modified-List                CRITICALITY ignore  TYPE BHChannels-Modified-List                PRESENCE optional }|
    { ID id-BHChannels-FailedToBeSetupMod-List        CRITICALITY ignore  TYPE BHChannels-FailedToBeSetupMod-List        PRESENCE optional }|
    { ID id-BHChannels-FailedToBeModified-List        CRITICALITY ignore  TYPE BHChannels-FailedToBeModified-List        PRESENCE optional }|
    { ID id-SLDRBs-SetupMod-List                    CRITICALITY ignore  TYPE SLDRBs-SetupMod-List                    PRESENCE optional }|
    { ID id-SLDRBs-Modified-List                    CRITICALITY ignore  TYPE SLDRBs-Modified-List                    PRESENCE optional }|
    { ID id-SLDRBs-FailedToBeSetupMod-List            CRITICALITY ignore  TYPE SLDRBs-FailedToBeSetupMod-List            PRESENCE optional }|
    { ID id-SLDRBs-FailedToBeModified-List            CRITICALITY ignore  TYPE SLDRBs-FailedToBeModified-List            PRESENCE optional }|
    { ID id-requestedTargetCellGlobalID            CRITICALITY reject  TYPE NRCGI                                PRESENCE optional }|
    { ID id-SCGActivationStatus                    CRITICALITY ignore  TYPE SCGActivationStatus                    PRESENCE optional }|
    { ID id-UuRLCChannelSetupList                  CRITICALITY ignore  TYPE UuRLCChannelSetupList                  PRESENCE optional }|
    { ID id-UuRLCChannelFailedToBeSetupList          CRITICALITY ignore  TYPE UuRLCChannelFailedToBeSetupList          PRESENCE optional }|
    { ID id-UuRLCChannelModifiedList                CRITICALITY ignore  TYPE UuRLCChannelModifiedList                PRESENCE optional }|
    { ID id-UuRLCChannelFailedToBeModifiedList        CRITICALITY ignore  TYPE UuRLCChannelFailedToBeModifiedList        PRESENCE optional }|
}

```

|                                             |                    |                                          |                      |
|---------------------------------------------|--------------------|------------------------------------------|----------------------|
| { ID id-PC5RLCChannelSetupList              | CRITICALITY ignore | TYPE PC5RLCChannelSetupList              | PRESENCE optional}}  |
| { ID id-PC5RLCChannelFailedToBeSetupList    | CRITICALITY ignore | TYPE PC5RLCChannelFailedToBeSetupList    | PRESENCE optional}}  |
| { ID id-PC5RLCChannelModifiedList           | CRITICALITY ignore | TYPE PC5RLCChannelModifiedList           | PRESENCE optional}}  |
| { ID id-PC5RLCChannelFailedToBeModifiedList | CRITICALITY ignore | TYPE PC5RLCChannelFailedToBeModifiedList | PRESENCE optional}}  |
| { ID id-SDTBearerConfigurationInfo          | CRITICALITY ignore | TYPE SDTBearerConfigurationInfo          | PRESENCE optional}}  |
| { ID id-UE-MulticastMRBs-Setup-List         | CRITICALITY reject | TYPE UE-MulticastMRBs-Setup-List         | PRESENCE optional}}  |
| { ID id-ServingCellMO-encoded-in-CGC-List   | CRITICALITY ignore | TYPE ServingCellMO-encoded-in-CGC-List   | PRESENCE optional}}  |
| { ID id-DedicatedSIDeliveryIndication       | CRITICALITY ignore | TYPE DedicatedSIDeliveryIndication       | PRESENCE optional}}  |
| { ID id-Configured-BWP-List                 | CRITICALITY ignore | TYPE Configured-BWP-List                 | PRESENCE optional}}  |
| { ID id-EarlySyncInformation                | CRITICALITY ignore | TYPE EarlySyncInformation                | PRESENCE optional}}  |
| { ID id-LTMConfiguration                    | CRITICALITY ignore | TYPE LTMConfiguration                    | PRESENCE optional}}  |
| { ID id-S-CPAC-Configuration                | CRITICALITY ignore | TYPE S-CPAC-Configuration                | PRESENCE optional}}, |
| ...                                         |                    |                                          |                      |
| }                                           |                    |                                          |                      |

DRBs-SetupMod-List ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRBs-SetupMod-ItemIEs } }

DRBs-Modified-List ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRBs-Modified-ItemIEs } }

SRBs-SetupMod-List ::= SEQUENCE (SIZE(1..maxnoofSRBs)) OF ProtocolIE-SingleContainer { { SRBs-SetupMod-ItemIEs } }

SRBs-Modified-List ::= SEQUENCE (SIZE(1..maxnoofSRBs)) OF ProtocolIE-SingleContainer { { SRBs-Modified-ItemIEs } }

DRBs-FailedToBeModified-List ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRBs-FailedToBeModified-ItemIEs } }

SRBs-FailedToBeSetupMod-List ::= SEQUENCE (SIZE(1..maxnoofSRBs)) OF ProtocolIE-SingleContainer { { SRBs-FailedToBeSetupMod-ItemIEs } }

DRBs-FailedToBeSetupMod-List ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRBs-FailedToBeSetupMod-ItemIEs } }

SCell-FailedtoSetupMod-List ::= SEQUENCE (SIZE(1..maxnoofSCells)) OF ProtocolIE-SingleContainer { { SCell-FailedtoSetupMod-ItemIEs } }

BHChannels-SetupMod-List ::= SEQUENCE (SIZE(1..maxnoofBHRLCChannels)) OF ProtocolIE-SingleContainer { { BHChannels-SetupMod-ItemIEs } }

BHChannels-Modified-List ::= SEQUENCE (SIZE(1..maxnoofBHRLCChannels)) OF ProtocolIE-SingleContainer { { BHChannels-Modified-ItemIEs } }

BHChannels-FailedToBeModified-List ::= SEQUENCE (SIZE(1..maxnoofBHRLCChannels)) OF ProtocolIE-SingleContainer { { BHChannels-FailedToBeModified-ItemIEs } }

BHChannels-FailedToBeSetupMod-List ::= SEQUENCE (SIZE(1..maxnoofBHRLCChannels)) OF ProtocolIE-SingleContainer { { BHChannels-FailedToBeSetupMod-ItemIEs } }

Associated-SCell-List ::= SEQUENCE (SIZE(1.. maxnoofSCells)) OF ProtocolIE-SingleContainer { { Associated-SCell-ItemIEs } }

DRBs-SetupMod-ItemIEs F1AP-PROTOCOL-IES ::= {

|                            |                    |                         |                       |
|----------------------------|--------------------|-------------------------|-----------------------|
| { ID id-DRBs-SetupMod-Item | CRITICALITY ignore | TYPE DRBs-SetupMod-Item | PRESENCE mandatory}}, |
| ...                        |                    |                         |                       |

}

DRBs-Modified-ItemIEs F1AP-PROTOCOL-IES ::= {

|                            |                    |                         |                       |
|----------------------------|--------------------|-------------------------|-----------------------|
| { ID id-DRBs-Modified-Item | CRITICALITY ignore | TYPE DRBs-Modified-Item | PRESENCE mandatory}}, |
| ...                        |                    |                         |                       |

}

SRBs-SetupMod-ItemIEs F1AP-PROTOCOL-IES ::= {

|                            |                    |                         |                       |
|----------------------------|--------------------|-------------------------|-----------------------|
| { ID id-SRBs-SetupMod-Item | CRITICALITY ignore | TYPE SRBs-SetupMod-Item | PRESENCE mandatory}}, |
| ...                        |                    |                         |                       |

}

SRBs-Modified-ItemIEs F1AP-PROTOCOL-IES ::= {

|                            |                    |                         |                       |
|----------------------------|--------------------|-------------------------|-----------------------|
| { ID id-SRBs-Modified-Item | CRITICALITY ignore | TYPE SRBs-Modified-Item | PRESENCE mandatory}}, |
| ...                        |                    |                         |                       |

}

```

SRBs-FailedToBeSetupMod-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-SRBs-FailedToBeSetupMod-Item          CRITICALITY ignore  TYPE SRBs-FailedToBeSetupMod-Item          PRESENCE mandatory},
    ...
}

DRBs-FailedToBeSetupMod-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-DRBs-FailedToBeSetupMod-Item          CRITICALITY ignore  TYPE DRBs-FailedToBeSetupMod-Item          PRESENCE mandatory},
    ...
}

DRBs-FailedToBeModified-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-DRBs-FailedToBeModified-Item          CRITICALITY ignore  TYPE DRBs-FailedToBeModified-Item          PRESENCE mandatory},
    ...
}

SCell-FailedtoSetupMod-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-SCell-FailedtoSetupMod-Item          CRITICALITY ignore  TYPE SCell-FailedtoSetupMod-Item          PRESENCE mandatory},
    ...
}

Associated-SCell-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-Associated-SCell-Item          CRITICALITY ignore  TYPE Associated-SCell-Item          PRESENCE mandatory},
    ...
}

BHChannels-SetupMod-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-BHChannels-SetupMod-Item          CRITICALITY ignore      TYPE BHChannels-SetupMod-Item          PRESENCE mandatory},
    ...
}

BHChannels-Modified-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-BHChannels-Modified-Item          CRITICALITY ignore  TYPE BHChannels-Modified-Item          PRESENCE mandatory},
    ...
}

BHChannels-FailedToBeSetupMod-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-BHChannels-FailedToBeSetupMod-Item          CRITICALITY ignore  TYPE BHChannels-FailedToBeSetupMod-Item          PRESENCE mandatory},
    ...
}

BHChannels-FailedToBeModified-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-BHChannels-FailedToBeModified-Item          CRITICALITY ignore  TYPE BHChannels-FailedToBeModified-Item          PRESENCE mandatory},
    ...
}

SLDRBs-SetupMod-List          ::= SEQUENCE (SIZE(1..maxnoofSLDRBs)) OF ProtocolIE-SingleContainer { { SLDRBs-SetupMod-ItemIES } }
SLDRBs-Modified-List          ::= SEQUENCE (SIZE(1..maxnoofSLDRBs)) OF ProtocolIE-SingleContainer { { SLDRBs-Modified-ItemIES } }
SLDRBs-FailedToBeModified-List ::= SEQUENCE (SIZE(1..maxnoofSLDRBs)) OF ProtocolIE-SingleContainer { { SLDRBs-FailedToBeModified-ItemIES } }
SLDRBs-FailedToBeSetupMod-List ::= SEQUENCE (SIZE(1..maxnoofSLDRBs)) OF ProtocolIE-SingleContainer { { SLDRBs-FailedToBeSetupMod-ItemIES } }

```

```

SLDRBs-SetupMod-ItemIES F1AP-PROTOCOL-IES ::= {
  { ID id-SLDRBs-SetupMod-Item          CRITICALITY ignore      TYPE SLDRBs-SetupMod-Item          PRESENCE mandatory},
  ...
}

SLDRBs-Modified-ItemIES F1AP-PROTOCOL-IES ::= {
  { ID id-SLDRBs-Modified-Item          CRITICALITY ignore      TYPE SLDRBs-Modified-Item          PRESENCE mandatory},
  ...
}

SLDRBs-FailedToBeSetupMod-ItemIES F1AP-PROTOCOL-IES ::= {
  { ID id-SLDRBs-FailedToBeSetupMod-Item          CRITICALITY ignore      TYPE SLDRBs-FailedToBeSetupMod-Item          PRESENCE mandatory},
  ...
}

SLDRBs-FailedToBeModified-ItemIES F1AP-PROTOCOL-IES ::= {
  { ID id-SLDRBs-FailedToBeModified-Item          CRITICALITY ignore      TYPE SLDRBs-FailedToBeModified-Item          PRESENCE mandatory},
  ...
}

UE-MulticastMRBs-Setup-List ::= SEQUENCE (SIZE(1..maxnoofMRBsforUE)) OF ProtocolIE-SingleContainer { { UE-MulticastMRBs-Setup-ItemIES } }

UE-MulticastMRBs-Setup-ItemIES F1AP-PROTOCOL-IES ::= {
  { ID id-UE-MulticastMRBs-Setup-Item          CRITICALITY reject      TYPE UE-MulticastMRBs-Setup-Item          PRESENCE mandatory},
  ...
}

-- *****
--
-- UE CONTEXT MODIFICATION FAILURE
--
-- *****

UEContextModificationFailure ::= SEQUENCE {
  protocolIES          ProtocolIE-Container          { { UEContextModificationFailureIES } },
  ...
}

UEContextModificationFailureIES F1AP-PROTOCOL-IES ::= {
  { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject      TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
  { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject      TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
  { ID id-Cause          CRITICALITY ignore      TYPE Cause          PRESENCE mandatory }|
  { ID id-CriticalityDiagnostics          CRITICALITY ignore      TYPE CriticalityDiagnostics          PRESENCE optional }|
  { ID id-requestedTargetCellGlobalID          CRITICALITY reject      TYPE NRCGI          PRESENCE optional},
  ...
}

-- *****
--
-- UE Context Modification Required (gNB-DU initiated) ELEMENTARY PROCEDURE
--
-- *****

```

```
-- *****
--
-- UE CONTEXT MODIFICATION REQUIRED
--
-- *****
```

```
UEContextModificationRequired ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    { { UEContextModificationRequiredIEs } },
    ...
}
```

```
UEContextModificationRequiredIEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-ResourceCoordinationTransferContainer CRITICALITY ignore TYPE ResourceCoordinationTransferContainer PRESENCE optional }|
    { ID id-DUtoCURRCInformation        CRITICALITY reject TYPE DUtoCURRCInformation        PRESENCE optional }|
    { ID id-DRBs-Required-ToBeModified-List CRITICALITY reject TYPE DRBs-Required-ToBeModified-List PRESENCE optional }|
    { ID id-SRBs-Required-ToBeReleased-List CRITICALITY reject TYPE SRBs-Required-ToBeReleased-List PRESENCE optional }|
    { ID id-DRBs-Required-ToBeReleased-List CRITICALITY reject TYPE DRBs-Required-ToBeReleased-List PRESENCE optional }|
    { ID id-Cause                       CRITICALITY ignore TYPE Cause                       PRESENCE mandatory }|
    { ID id-BHChannels-Required-ToBeReleased-List CRITICALITY reject TYPE BHChannels-Required-ToBeReleased-List PRESENCE optional }|
    { ID id-SLDRBs-Required-ToBeModified-List CRITICALITY reject TYPE SLDRBs-Required-ToBeModified-List PRESENCE optional }|
    { ID id-SLDRBs-Required-ToBeReleased-List CRITICALITY reject TYPE SLDRBs-Required-ToBeReleased-List PRESENCE optional }|
    { ID id-targetCellsToCancel          CRITICALITY reject TYPE TargetCellList          PRESENCE optional }|
    { ID id-UuRLCChannelRequiredToBeModifiedList CRITICALITY reject TYPE UuRLCChannelRequiredToBeModifiedList PRESENCE optional }|
    { ID id-UuRLCChannelRequiredToBeReleasedList CRITICALITY reject TYPE UuRLCChannelRequiredToBeReleasedList PRESENCE optional }|
    { ID id-PC5RLCChannelRequiredToBeModifiedList CRITICALITY reject TYPE PC5RLCChannelRequiredToBeModifiedList PRESENCE optional }|
    { ID id-PC5RLCChannelRequiredToBeReleasedList CRITICALITY reject TYPE PC5RLCChannelRequiredToBeReleasedList PRESENCE optional }|
    { ID id-UE-MulticastMRBs-RequiredToBeModified-List CRITICALITY reject TYPE UE-MulticastMRBs-RequiredToBeModified-List PRESENCE optional }|
    { ID id-UE-MulticastMRBs-RequiredToBeReleased-List CRITICALITY reject TYPE UE-MulticastMRBs-RequiredToBeReleased-List PRESENCE optional }|
    { ID id-LTMCells-ToBeReleased-List    CRITICALITY reject TYPE LTMCells-ToBeReleased-List    PRESENCE optional },
    ...
}
```

```
DRBs-Required-ToBeModified-List ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRBs-Required-ToBeModified-ItemIEs } }
DRBs-Required-ToBeReleased-List ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRBs-Required-ToBeReleased-ItemIEs } }
```

```
SRBs-Required-ToBeReleased-List ::= SEQUENCE (SIZE(1..maxnoofSRBs)) OF ProtocolIE-SingleContainer { { SRBs-Required-ToBeReleased-ItemIEs } }
```

```
BHChannels-Required-ToBeReleased-List ::= SEQUENCE (SIZE(1..maxnoofBHRLCChannels)) OF ProtocolIE-SingleContainer { { BHChannels-Required-ToBeReleased-ItemIEs } }
```

```
DRBs-Required-ToBeModified-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-DRBs-Required-ToBeModified-Item          CRITICALITY reject TYPE DRBs-Required-ToBeModified-Item          PRESENCE mandatory},
    ...
}
```

```
DRBs-Required-ToBeReleased-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-DRBs-Required-ToBeReleased-Item          CRITICALITY reject TYPE DRBs-Required-ToBeReleased-Item          PRESENCE mandatory},
    ...
}
```

```
SRBs-Required-ToBeReleased-ItemIEs F1AP-PROTOCOL-IES ::= {
```

```

    { ID id-SRBs-Required-ToBeReleased-Item          CRITICALITY reject  TYPE SRBs-Required-ToBeReleased-Item          PRESENCE mandatory},
    ...
}

BHChannels-Required-ToBeReleased-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-BHChannels-Required-ToBeReleased-Item          CRITICALITY reject  TYPE BHChannels-Required-ToBeReleased-Item          PRESENCE mandatory},
    ...
}

SLDRBs-Required-ToBeModified-List ::= SEQUENCE (SIZE(1..maxnoofSLDRBs)) OF ProtocolIE-SingleContainer { { SLDRBs-Required-ToBeModified-ItemIES } }
SLDRBs-Required-ToBeReleased-List ::= SEQUENCE (SIZE(1..maxnoofSLDRBs)) OF ProtocolIE-SingleContainer { { SLDRBs-Required-ToBeReleased-ItemIES } }

SLDRBs-Required-ToBeModified-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-SLDRBs-Required-ToBeModified-Item          CRITICALITY reject  TYPE SLDRBs-Required-ToBeModified-Item          PRESENCE mandatory},
    ...
}

SLDRBs-Required-ToBeReleased-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-SLDRBs-Required-ToBeReleased-Item          CRITICALITY reject  TYPE SLDRBs-Required-ToBeReleased-Item          PRESENCE mandatory},
    ...
}

UE-MulticastMRBs-RequiredToBeModified-List ::= SEQUENCE (SIZE(1..maxnoofMRBsforUE)) OF
    ProtocolIE-SingleContainer { { UE-MulticastMRBs-RequiredToBeModified-ItemIES } }

UE-MulticastMRBs-RequiredToBeModified-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-UE-MulticastMRBs-RequiredToBeModified-Item  CRITICALITY reject  TYPE UE-MulticastMRBs-RequiredToBeModified-Item  PRESENCE mandatory},
    ...
}

UE-MulticastMRBs-RequiredToBeReleased-List ::= SEQUENCE (SIZE(1..maxnoofMRBsforUE)) OF
    ProtocolIE-SingleContainer { { UE-MulticastMRBs-RequiredToBeReleased-ItemIES } }

UE-MulticastMRBs-RequiredToBeReleased-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-UE-MulticastMRBs-RequiredToBeReleased-Item  CRITICALITY reject  TYPE UE-MulticastMRBs-RequiredToBeReleased-Item  PRESENCE
mandatory},
    ...
}

-- *****
--
-- UE CONTEXT MODIFICATION CONFIRM
--
-- *****

UEContextModificationConfirm ::= SEQUENCE {
    protocolIES          ProtocolIE-Container          { { UEContextModificationConfirmIES } },
    ...
}

UEContextModificationConfirmIES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject  TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|

```

```

{ ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
{ ID id-ResourceCoordinationTransferContainer CRITICALITY ignore TYPE ResourceCoordinationTransferContainer PRESENCE optional }|
{ ID id-DRBs-ModifiedConf-List      CRITICALITY ignore TYPE DRBs-ModifiedConf-List      PRESENCE optional }|
{ ID id-RRCContainer                CRITICALITY ignore TYPE RRCContainer                PRESENCE optional }|
{ ID id-CriticalityDiagnostics       CRITICALITY ignore TYPE CriticalityDiagnostics       PRESENCE optional }|
{ ID id-ExecuteDuplication          CRITICALITY ignore TYPE ExecuteDuplication          PRESENCE optional }|
{ ID id-ResourceCoordinationTransferInformation CRITICALITY ignore TYPE ResourceCoordinationTransferInformation PRESENCE optional }|
{ ID id-SLDRBs-ModifiedConf-List     CRITICALITY ignore TYPE SLDRBs-ModifiedConf-List     PRESENCE optional }|
{ ID id-UuRLCChannelModifiedList     CRITICALITY reject TYPE UuRLCChannelModifiedList     PRESENCE optional }|
{ ID id-PC5RLCChannelModifiedList    CRITICALITY reject TYPE PC5RLCChannelModifiedList    PRESENCE optional }|
{ ID id-UE-MulticastMRBs-ConfirmedToBeModified-List CRITICALITY reject TYPE UE-MulticastMRBs-ConfirmedToBeModified-List PRESENCE optional },
...
}

DRBs-ModifiedConf-List ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRBs-ModifiedConf-ItemIES } }

DRBs-ModifiedConf-ItemIES F1AP-PROTOCOL-IES ::= {
  { ID id-DRBs-ModifiedConf-Item      CRITICALITY ignore TYPE DRBs-ModifiedConf-Item      PRESENCE mandatory},
  ...
}

SLDRBs-ModifiedConf-List ::= SEQUENCE (SIZE(1..maxnoofSLDRBs)) OF ProtocolIE-SingleContainer { { SLDRBs-ModifiedConf-ItemIES } }

SLDRBs-ModifiedConf-ItemIES F1AP-PROTOCOL-IES ::= {
  { ID id-SLDRBs-ModifiedConf-Item     CRITICALITY ignore TYPE SLDRBs-ModifiedConf-Item     PRESENCE mandatory},
  ...
}

UE-MulticastMRBs-ConfirmedToBeModified-List ::= SEQUENCE (SIZE(1..maxnoofMRBsforUE)) OF
  ProtocolIE-SingleContainer { { UE-MulticastMRBs-ConfirmedToBeModified-ItemIES } }

UE-MulticastMRBs-ConfirmedToBeModified-ItemIES F1AP-PROTOCOL-IES ::= {
  { ID id-UE-MulticastMRBs-ConfirmedToBeModified-Item CRITICALITY reject TYPE UE-MulticastMRBs-ConfirmedToBeModified-Item PRESENCE mandatory},
  ...
}

-- *****
--
-- UE CONTEXT MODIFICATION REFUSE
--
-- *****

UEContextModificationRefuse ::= SEQUENCE {
  protocolIEs      ProtocolIE-Container      { { UEContextModificationRefuseIES } },
  ...
}

UEContextModificationRefuseIES F1AP-PROTOCOL-IES ::= {
  { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
  { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
  { ID id-Cause                      CRITICALITY ignore TYPE Cause                      PRESENCE mandatory }|
  { ID id-CriticalityDiagnostics      CRITICALITY ignore TYPE CriticalityDiagnostics      PRESENCE optional },

```



```

    ...
}

-- *****
--
-- WRITE-REPLACE WARNING ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Write-Replace Warning Request
--
-- *****

WriteReplaceWarningRequest ::= SEQUENCE {
    protocolIEs ProtocolIE-Container { {WriteReplaceWarningRequestIEs} },
    ...
}

WriteReplaceWarningRequestIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-PWSSystemInformation    CRITICALITY reject TYPE PWSSystemInformation    PRESENCE mandatory }|
    { ID id-RepetitionPeriod        CRITICALITY reject TYPE RepetitionPeriod        PRESENCE mandatory }|
    { ID id-NumberOfBroadcastRequest CRITICALITY reject TYPE NumberOfBroadcastRequest PRESENCE mandatory }|
    { ID id-Cells-To-Be-Broadcast-List CRITICALITY reject TYPE Cells-To-Be-Broadcast-List PRESENCE optional },
    ...
}

Cells-To-Be-Broadcast-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Cells-To-Be-Broadcast-List-ItemIEs } }

Cells-To-Be-Broadcast-List-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-Cells-To-Be-Broadcast-Item CRITICALITY reject TYPE Cells-To-Be-Broadcast-Item PRESENCE mandatory },
    ...
}

-- *****
--
-- Write-Replace Warning Response
--
-- *****

WriteReplaceWarningResponse ::= SEQUENCE {
    protocolIEs ProtocolIE-Container { {WriteReplaceWarningResponseIEs} },
    ...
}

WriteReplaceWarningResponseIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-Cells-Broadcast-Completed-List CRITICALITY reject TYPE Cells-Broadcast-Completed-List PRESENCE optional }|
    { ID id-CriticalityDiagnostics        CRITICALITY ignore TYPE CriticalityDiagnostics        PRESENCE optional }|
    { ID id-Dedicated-SIDelivery-NeededUE-List CRITICALITY ignore TYPE Dedicated-SIDelivery-NeededUE-List PRESENCE optional },
    ...
}

```

```

}

Cells-Broadcast-Completed-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Cells-Broadcast-Completed-List-
ItemIEs } }

Cells-Broadcast-Completed-List-ItemIEs F1AP-PROTOCOL-IES ::= {
  { ID id-Cells-Broadcast-Completed-Item      CRITICALITY reject  TYPE      Cells-Broadcast-Completed-Item      PRESENCE mandatory  },
  ...
}

-- *****
--
-- PWS CANCEL ELEMENTARY PROCEDURE
-- *****

-- *****
--
-- PWS Cancel Request
-- *****

PWSCancelRequest ::= SEQUENCE {
  protocolIEs ProtocolIE-Container { {PWSCancelRequestIEs} },
  ...
}

PWSCancelRequestIEs F1AP-PROTOCOL-IES ::= {
  { ID id-TransactionID                CRITICALITY reject TYPE TransactionID                PRESENCE mandatory  }|
  { ID id-NumberOfBroadcastRequest      CRITICALITY reject TYPE NumberOfBroadcastRequest      PRESENCE mandatory  }|
  { ID id-Broadcast-To-Be-Cancelled-List CRITICALITY reject TYPE Broadcast-To-Be-Cancelled-List PRESENCE optional  }|
  { ID id-Cancel-all-Warning-Messages-Indicator CRITICALITY reject TYPE Cancel-all-Warning-Messages-Indicator PRESENCE optional  }|
  { ID id-NotificationInformation        CRITICALITY reject TYPE NotificationInformation        PRESENCE optional},
  ...
}

Broadcast-To-Be-Cancelled-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Broadcast-To-Be-Cancelled-List-
ItemIEs } }

Broadcast-To-Be-Cancelled-List-ItemIEs F1AP-PROTOCOL-IES ::= {
  { ID id-Broadcast-To-Be-Cancelled-Item      CRITICALITY reject  TYPE      Broadcast-To-Be-Cancelled-Item      PRESENCE mandatory  },
  ...
}

-- *****
--
-- PWS Cancel Response
-- *****

PWSCancelResponse ::= SEQUENCE {
  protocolIEs ProtocolIE-Container { {PWSCancelResponseIEs} },
  ...
}

```

```

}

PWSCancelResponseIEs F1AP-PROTOCOL-IES ::= {
  { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
  { ID id-Cells-Broadcast-Cancelled-List CRITICALITY reject TYPE Cells-Broadcast-Cancelled-List PRESENCE optional }|
  { ID id-CriticalityDiagnostics      CRITICALITY ignore TYPE CriticalityDiagnostics      PRESENCE optional },
  ...
}

Cells-Broadcast-Cancelled-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Cells-Broadcast-Cancelled-List-ItemIEs } }

Cells-Broadcast-Cancelled-List-ItemIEs F1AP-PROTOCOL-IES ::= {
  { ID id-Cells-Broadcast-Cancelled-Item          CRITICALITY reject TYPE Cells-Broadcast-Cancelled-Item          PRESENCE mandatory },
  ...
}

-- *****
--
-- UE Inactivity Notification ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- UE Inactivity Notification
--
-- *****

UEInactivityNotification ::= SEQUENCE {
  protocolIEs          ProtocolIE-Container      {{ UEInactivityNotificationIEs}},
  ...
}

UEInactivityNotificationIEs F1AP-PROTOCOL-IES ::= {
  { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
  { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
  { ID id-DRB-Activity-List          CRITICALITY reject TYPE DRB-Activity-List          PRESENCE mandatory }|
  { ID id-SDT-Termination-Request    CRITICALITY ignore TYPE SDT-Termination-Request    PRESENCE optional },
  ...
}

DRB-Activity-List ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRB-Activity-ItemIEs } }

DRB-Activity-ItemIEs F1AP-PROTOCOL-IES ::= {
  { ID id-DRB-Activity-Item          CRITICALITY reject TYPE DRB-Activity-Item          PRESENCE mandatory},
  ...
}

-- *****
--
-- Initial UL RRC Message Transfer ELEMENTARY PROCEDURE
--
-- *****

```

```

-- *****
--
-- INITIAL UL RRC Message Transfer
--
-- *****

InitialULRRCTransfer ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    {{ InitialULRRCTransferIEs}},
    ...
}

InitialULRRCTransferIEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-NRCGI                      CRITICALITY reject TYPE NRCGI                      PRESENCE mandatory }|
    { ID id-C-RNTI                     CRITICALITY reject TYPE C-RNTI                     PRESENCE mandatory }|
    { ID id-RRCTransfer                CRITICALITY reject TYPE RRCTransfer                PRESENCE mandatory }|
    { ID id-DUtoCURRRCTransfer         CRITICALITY reject TYPE DUtoCURRRCTransfer         PRESENCE optional }|
    { ID id-SULAccessIndication         CRITICALITY ignore TYPE SULAccessIndication         PRESENCE optional }|
    { ID id-TransactionID              CRITICALITY ignore TYPE TransactionID              PRESENCE mandatory }|
    { ID id-RANUEID                    CRITICALITY ignore TYPE RANUEID                    PRESENCE optional }|
    { ID id-RRCTransfer-RRCTransferComplete CRITICALITY ignore TYPE RRCTransfer-RRCTransferComplete PRESENCE optional }|
    { ID id-NRRedCapUEIndication        CRITICALITY ignore TYPE NRRedCapUEIndication        PRESENCE optional }|
    { ID id-SDTInformation              CRITICALITY ignore TYPE SDTInformation              PRESENCE optional }|
    { ID id-SidelinkRelayConfiguration CRITICALITY ignore TYPE SidelinkRelayConfiguration PRESENCE optional }|
    { ID id-NRRedCapUEIndication        CRITICALITY ignore TYPE NRRedCapUEIndication        PRESENCE optional },
    ...
}

-- *****
--
-- DL RRC Message Transfer ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- DL RRC Message Transfer
--
-- *****

DLRRCTransfer ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    {{ DLRRCTransferIEs}},
    ...
}

DLRRCTransferIEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-oldgNB-DU-UE-F1AP-ID        CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE optional }|
    { ID id-SRBID                      CRITICALITY reject TYPE SRBID                      PRESENCE mandatory }|
    { ID id-ExecuteDuplication          CRITICALITY ignore TYPE ExecuteDuplication          PRESENCE optional }|
    { ID id-RRCTransfer                CRITICALITY reject TYPE RRCTransfer                PRESENCE mandatory }|
    { ID id-RAT-FrequencyPriorityInformation CRITICALITY reject TYPE RAT-FrequencyPriorityInformation PRESENCE optional }|

```

```

    { ID id-RRCDeliveryStatusRequest          CRITICALITY ignore TYPE RRCDeliveryStatusRequest PRESENCE optional }|
    { ID id-UEContextNotRetrievable           CRITICALITY reject TYPE UEContextNotRetrievable PRESENCE optional }|
    { ID id-RedirectedRRCmessage               CRITICALITY reject TYPE OCTET STRING PRESENCE optional }|
    { ID id-PLMNAssistanceInfoForNetShar       CRITICALITY ignore TYPE PLMN-Identity PRESENCE optional }|
    { ID id-new-gNB-CU-UE-F1AP-ID             CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE optional }|
    { ID id-AdditionalRRMPriorityIndex         CRITICALITY ignore TYPE AdditionalRRMPriorityIndex PRESENCE optional }|
    { ID id-SRBMappingInfo                     CRITICALITY ignore TYPE UuRLCChannelID PRESENCE optional }|
    { ID id-PLMNIndexNRAssistanceInfoForNetShar CRITICALITY ignore TYPE PLMNIndexNR PRESENCE optional }|
  },
  ...
}
-- *****
--
-- UL RRC Message Transfer ELEMENTARY PROCEDURE
--
-- *****
--
-- *****
--
-- UL RRC Message Transfer
--
-- *****

ULRRCTransfer ::= SEQUENCE {
  protocolIES          ProtocolIE-Container    {{ ULRRCTransferIES}},
  ...
}

ULRRCTransferIES F1AP-PROTOCOL-IES ::= {
  { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
  { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
  { ID id-SRBID                      CRITICALITY reject TYPE SRBID                      PRESENCE mandatory }|
  { ID id-RRCTransfer                CRITICALITY reject TYPE RRCTransfer                PRESENCE mandatory }|
  { ID id-SelectedPLMNID              CRITICALITY reject TYPE PLMN-Identity              PRESENCE optional }|
  { ID id-new-gNB-DU-UE-F1AP-ID      CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE optional }|
  ...
}
-- *****
--
-- PRIVATE MESSAGE
--
-- *****

PrivateMessage ::= SEQUENCE {
  privateIES          PrivateIE-Container {{PrivateMessage-IES}},
  ...
}

PrivateMessage-IES F1AP-PRIVATE-IES ::= {
  ...
}

```

```

-- *****
--
-- System Information ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- System information Delivery Command
--
-- *****

SystemInformationDeliveryCommand ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    {{ SystemInformationDeliveryCommandIES}},
    ...
}

SystemInformationDeliveryCommandIES F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-NRCGI                  CRITICALITY reject TYPE NRCGI                  PRESENCE mandatory }|
    { ID id-SItype-List            CRITICALITY reject TYPE SItype-List            PRESENCE mandatory }|
    { ID id-ConfirmedUEID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID        PRESENCE mandatory },
    ...
}

-- *****
--
-- Paging PROCEDURE
--
-- *****

-- *****
--
-- Paging
--
-- *****

Paging ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    {{ PagingIES}},
    ...
}

PagingIES F1AP-PROTOCOL-IES ::= {
    { ID id-UEIdentityIndexValue    CRITICALITY reject TYPE UEIdentityIndexValue    PRESENCE mandatory }|
    { ID id-PagingIdentity          CRITICALITY reject TYPE PagingIdentity          PRESENCE mandatory }|
    { ID id-PagingDRX               CRITICALITY ignore TYPE PagingDRX               PRESENCE optional }|
    { ID id-PagingPriority           CRITICALITY ignore TYPE PagingPriority           PRESENCE optional }|
    { ID id-PagingCell-List         CRITICALITY ignore TYPE PagingCell-list         PRESENCE mandatory }|
    { ID id-PagingOrigin            CRITICALITY ignore TYPE PagingOrigin            PRESENCE optional }|
    { ID id-RANUEPagingDRX          CRITICALITY ignore TYPE PagingDRX              PRESENCE optional }|
    { ID id-CNUEPagingDRX           CRITICALITY ignore TYPE PagingDRX              PRESENCE optional }|
    { ID id-NRPagingeDRXInformation CRITICALITY ignore TYPE NRPagingeDRXInformation    PRESENCE optional }|
    { ID id-NRPagingeDRXInformationforRRCINACTIVE CRITICALITY ignore TYPE NRPagingeDRXInformationforRRCINACTIVE PRESENCE optional }|
}

```

```

    { ID id-PagingCause          CRITICALITY ignore TYPE PagingCause          PRESENCE optional }|
    { ID id-PEIPSAssistanceInfo  CRITICALITY ignore TYPE PEIPSAssistanceInfo PRESENCE optional }|
    { ID id-UEPagingCapability    CRITICALITY ignore TYPE UEPagingCapability    PRESENCE optional }|
    { ID id-ExtendedUEIdentityIndexValue CRITICALITY ignore TYPE ExtendedUEIdentityIndexValue PRESENCE optional}|
    { ID id-HashedUEIdentityIndexValue CRITICALITY ignore TYPE HashedUEIdentityIndexValue PRESENCE optional}|
    { ID id-MT-SDT-Information    CRITICALITY ignore TYPE MT-SDT-Information    PRESENCE optional }|
    { ID id-NRPagingLongeDRXInformationforRRCINACTIVE CRITICALITY ignore TYPE NRPagingLongeDRXInformationforRRCINACTIVE PRESENCE optional },
    ...
}

PagingCell-list ::= SEQUENCE (SIZE(1.. maxnoofPagingCells)) OF ProtocolIE-SingleContainer { { PagingCell-ItemIEs } }

PagingCell-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-PagingCell-Item      CRITICALITY ignore TYPE PagingCell-Item      PRESENCE mandatory },
    ...
}

-- *****
--
-- Notify
--
-- *****

Notify ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container      {{ NotifyIEs}},
    ...
}

NotifyIEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-DRB-Notify-List            CRITICALITY reject TYPE DRB-Notify-List            PRESENCE mandatory },
    ...
}

DRB-Notify-List ::= SEQUENCE (SIZE(1.. maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRB-Notify-ItemIEs } }

DRB-Notify-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-DRB-Notify-Item            CRITICALITY reject TYPE DRB-Notify-Item            PRESENCE mandatory },
    ...
}

-- *****
--
-- NETWORK ACCESS RATE REDUCTION ELEMENTARY PROCEDURE
--
-- *****
-- *****
--

```

```

-- Network Access Rate Reduction
--
-- *****

NetworkAccessRateReduction ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container    {{ NetworkAccessRateReductionIEs }},
    ...
}

NetworkAccessRateReductionIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-UAC-Assistance-Info    CRITICALITY reject TYPE UAC-Assistance-Info    PRESENCE mandatory },
    ...
}

-- *****
--
-- PWS RESTART INDICATION ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- PWS Restart Indication
--
-- *****

PWSRestartIndication ::= SEQUENCE {
    protocolIEs ProtocolIE-Container { { PWSRestartIndicationIEs } },
    ...
}

PWSRestartIndicationIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-NR-CGI-List-For-Restart-List CRITICALITY reject TYPE NR-CGI-List-For-Restart-List PRESENCE mandatory },
    ...
}

NR-CGI-List-For-Restart-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { NR-CGI-List-For-Restart-List-ItemIEs } }

NR-CGI-List-For-Restart-List-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-NR-CGI-List-For-Restart-Item          CRITICALITY reject TYPE NR-CGI-List-For-Restart-Item          PRESENCE mandatory },
    ...
}

-- *****
--
-- PWS FAILURE INDICATION ELEMENTARY PROCEDURE
--
-- *****
--
-- *****
--

```



```

-- PWS Failure Indication
--
-- *****

PWSFailureIndication ::= SEQUENCE {
    protocolIES ProtocolIE-Container { { PWSFailureIndicationIES} },
    ...
}

PWSFailureIndicationIES F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject  TYPE TransactionID          PRESENCE mandatory }|
    { ID id-PWS-Failed-NR-CGI-List CRITICALITY reject  TYPE PWS-Failed-NR-CGI-List PRESENCE optional },
    ...
}

PWS-Failed-NR-CGI-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { PWS-Failed-NR-CGI-List-ItemIES } }

PWS-Failed-NR-CGI-List-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-PWS-Failed-NR-CGI-Item CRITICALITY reject  TYPE PWS-Failed-NR-CGI-Item PRESENCE mandatory },
    ...
}

-- *****
--
-- gNB-DU STATUS INDICATION ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- gNB-DU Status Indication
--
-- *****

GNBDUStatusIndication ::= SEQUENCE {
    protocolIES ProtocolIE-Container { {GNBDUStatusIndicationIES} },
    ...
}

GNBDUStatusIndicationIES F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject  TYPE TransactionID          PRESENCE mandatory }|
    { ID id-GNBDUOverloadInformation CRITICALITY reject  TYPE GNBDUOverloadInformation PRESENCE mandatory }|
    { ID id-IABCongestionIndication CRITICALITY ignore  TYPE IABCongestionIndication PRESENCE optional },
    ...
}

-- *****
--
-- RRC Delivery Report ELEMENTARY PROCEDURE
--
-- *****

```

```

-- *****
--
-- RRC Delivery Report
--
-- *****

RRCDeliveryReport ::= SEQUENCE {
    protocolIES          ProtocolIE-Container      {{ RRCDeliveryReportIES}},
    ...
}

RRCDeliveryReportIES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID    CRITICALITY reject  TYPE GNB-CU-UE-F1AP-ID  PRESENCE mandatory  }|
    { ID id-gNB-DU-UE-F1AP-ID    CRITICALITY reject  TYPE GNB-DU-UE-F1AP-ID  PRESENCE mandatory  }|
    { ID id-RRCDeliveryStatus    CRITICALITY ignore   TYPE RRCDeliveryStatus  PRESENCE mandatory  }|
    { ID id-SRBID                CRITICALITY ignore   TYPE SRBID              PRESENCE mandatory  },
    ...
}

-- *****
--
-- F1 Removal ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- F1 Removal Request
--
-- *****

F1RemovalRequest ::= SEQUENCE {
    protocolIES          ProtocolIE-Container      {{ F1RemovalRequestIES }},
    ...
}

F1RemovalRequestIES F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID        CRITICALITY reject  TYPE TransactionID      PRESENCE mandatory  },
    ...
}

-- *****
--
-- F1 Removal Response
--
-- *****

F1RemovalResponse ::= SEQUENCE {
    protocolIES          ProtocolIE-Container      {{ F1RemovalResponseIES }},
    ...
}

F1RemovalResponseIES F1AP-PROTOCOL-IES ::= {

```

```

    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional  },
    ...
}

-- *****
--
-- F1 Removal Failure
--
-- *****

F1RemovalFailure ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    {{ F1RemovalFailureIEs }},
    ...
}

F1RemovalFailureIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-Cause                  CRITICALITY ignore TYPE Cause                  PRESENCE mandatory }|
    { ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional  },
    ...
}

-- *****
--
-- TRACE ELEMENTARY PROCEDURES
--
-- *****

-- *****
--
-- TRACE START
--
-- *****

TraceStart ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    { {TraceStartIEs} },
    ...
}

TraceStartIEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID      CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID      PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID      CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID      PRESENCE mandatory }|
    { ID id-TraceActivation         CRITICALITY ignore TYPE TraceActivation         PRESENCE mandatory },
    ...
}

-- *****
--
-- DEACTIVATE TRACE
--

```

```

-- *****
DeactivateTrace ::= SEQUENCE {
    protocolIES      ProtocolIE-Container      { {DeactivateTraceIES} },
    ...
}

DeactivateTraceIES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject  TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject  TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-TraceID                    CRITICALITY ignore   TYPE TraceID                    PRESENCE mandatory },
    ...
}

-- *****
--
-- CELL TRAFFIC TRACE
--
-- *****

CellTrafficTrace ::= SEQUENCE {
    protocolIES      ProtocolIE-Container      { {CellTrafficTraceIES} },
    ...
}

CellTrafficTraceIES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject  TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject  TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    {ID id-TraceID                    CRITICALITY ignore   TYPE TraceID                    PRESENCE mandatory }|
    {ID id-TraceCollectionEntityIPAddress CRITICALITY ignore TYPE TransportLayerAddress PRESENCE mandatory }|
    {ID id-PrivacyIndicator            CRITICALITY ignore   TYPE PrivacyIndicator          PRESENCE optional }|
    {ID id-TraceCollectionEntityURI CRITICALITY ignore   TYPE URI-address              PRESENCE optional },
    ...
}

-- *****
--
-- DU-CU Radio Information Transfer ELEMENTARY PROCEDURE
--
-- *****
--
-- DU-CU Radio Information Transfer
--
-- *****

DUCURadioInformationTransfer ::= SEQUENCE {
    protocolIES      ProtocolIE-Container      {{ DUCURadioInformationTransferIES}},
    ...
}

DUCURadioInformationTransferIES F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID              CRITICALITY reject  TYPE TransactionID              PRESENCE mandatory }|

```

```

    { ID id-DUCURadioInformationType      CRITICALITY ignore  TYPE DUCURadioInformationType      PRESENCE mandatory  },
    ...
}

-- *****
--
-- CU-DU Radio Information Transfer ELEMENTARY PROCEDURE
-- *****
--
-- *****
--
-- CU-DU Radio Information Transfer
-- *****

CUDURadioInformationTransfer ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container      {{ CUDURadioInformationTransferIEs}},
    ...
}

CUDURadioInformationTransferIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject  TYPE TransactionID          PRESENCE mandatory  }|
    { ID id-CUDURadioInformationType  CRITICALITY ignore  TYPE CUDURadioInformationType  PRESENCE mandatory  },
    ...
}

-- *****
--
-- IAB PROCEDURES
-- *****
--
-- BAP Mapping Configuration ELEMENTARY PROCEDURE
-- *****
--
-- *****
--
-- BAP MAPPING CONFIGURATION
-- *****

BAPMappingConfiguration ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container      { {BAPMappingConfiguration-IEs} },
    ...
}

BAPMappingConfiguration-IEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject  TYPE      TransactionID          PRESENCE mandatory}|

```

```

    { ID id-BH-Routing-Information-Added-List      CRITICALITY ignore TYPE BH-Routing-Information-Added-List PRESENCE optional}|
    { ID id-BH-Routing-Information-Removed-List     CRITICALITY ignore TYPE BH-Routing-Information-Removed-List PRESENCE optional}|
    { ID id-TrafficMappingInformation               CRITICALITY ignore TYPE TrafficMappingInfo PRESENCE optional}|
    { ID id-BufferSizeThresh                       CRITICALITY ignore TYPE BufferSizeThresh PRESENCE optional}|
    { ID id-BAP-Header-Rewriting-Added-List         CRITICALITY ignore TYPE BAP-Header-Rewriting-Added-List PRESENCE optional}|
    { ID id-Re-routingEnableIndicator               CRITICALITY ignore TYPE Re-routingEnableIndicator PRESENCE optional}|
    { ID id-BAP-Header-Rewriting-Removed-List       CRITICALITY ignore TYPE BAP-Header-Rewriting-Removed-List PRESENCE optional},
    ...
}

BH-Routing-Information-Added-List ::= SEQUENCE (SIZE(1.. maxnoofRoutingEntries)) OF ProtocolIE-SingleContainer { { BH-Routing-Information-Added-
List-ItemIEs } }
BH-Routing-Information-Removed-List ::= SEQUENCE (SIZE(1.. maxnoofRoutingEntries)) OF ProtocolIE-SingleContainer { { BH-Routing-Information-
Removed-List-ItemIEs } }

BH-Routing-Information-Added-List-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-BH-Routing-Information-Added-List-Item      CRITICALITY ignore TYPE BH-Routing-Information-Added-List-Item
    PRESENCE mandatory},
    ...
}

BH-Routing-Information-Removed-List-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-BH-Routing-Information-Removed-List-Item    CRITICALITY ignore TYPE BH-Routing-Information-Removed-List-Item
    PRESENCE mandatory},
    ...
}

BAP-Header-Rewriting-Added-List ::= SEQUENCE (SIZE(1.. maxnoofRoutingEntries)) OF ProtocolIE-SingleContainer { { BAP-Header-Rewriting-Added-List-
ItemIEs } }

BAP-Header-Rewriting-Added-List-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-BAP-Header-Rewriting-Added-List-Item      CRITICALITY ignore TYPE BAP-Header-Rewriting-Added-List-Item PRESENCE mandatory},
    ...
}

BAP-Header-Rewriting-Removed-List ::= SEQUENCE (SIZE(1.. maxnoofRoutingEntries)) OF ProtocolIE-SingleContainer { { BAP-Header-Rewriting-Removed-
List-ItemIEs } }

BAP-Header-Rewriting-Removed-List-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-BAP-Header-Rewriting-Removed-List-Item    CRITICALITY ignore TYPE BAP-Header-Rewriting-Removed-List-Item PRESENCE mandatory},
    ...
}

-- *****
--
-- BAP MAPPING CONFIGURATION ACKNOWLEDGE
--
-- *****

BAPMappingConfigurationAcknowledge ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container      { {BAPMappingConfigurationAcknowledge-IEs} },
    ...
}

```

```

BAPMappingConfigurationAcknowledge-IEs F1AP-PROTOCOL-IES ::= {
  { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
  { ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },
  ...
}

-- *****
--
-- BAP MAPPING CONFIGURATION FAILURE
--
-- *****

BAPMappingConfigurationFailure ::= SEQUENCE {
  protocolIEs          ProtocolIE-Container      { { BAPMappingConfigurationFailureIEs } },
  ...
}

BAPMappingConfigurationFailureIEs F1AP-PROTOCOL-IES ::= {
  { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
  { ID id-Cause                  CRITICALITY ignore TYPE Cause                  PRESENCE mandatory }|
  { ID id-TimeToWait             CRITICALITY ignore TYPE TimeToWait             PRESENCE optional }|
  { ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },
  ...
}

-- *****
--
-- GNB-DU Configuration ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- GNB-DU RESOURCE CONFIGURATION
--
-- *****

GNBDUResourceConfiguration ::= SEQUENCE {
  protocolIEs          ProtocolIE-Container      {{ GNBDUResourceConfigurationIEs }},
  ...
}

GNBDUResourceConfigurationIEs F1AP-PROTOCOL-IES ::= {
  { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
  { ID id-Activated-Cells-to-be-Updated-List CRITICALITY reject TYPE Activated-Cells-to-be-Updated-List PRESENCE optional }|
  { ID id-Child-Nodes-List       CRITICALITY reject TYPE Child-Nodes-List       PRESENCE optional }|
  { ID id-Neighbour-Node-Cells-List CRITICALITY reject TYPE Neighbour-Node-Cells-List PRESENCE optional }|
  { ID id-Serving-Cells-List     CRITICALITY reject TYPE Serving-Cells-List     PRESENCE optional },
  ...
}

```

```

-- *****
--
-- GNB-DU RESOURCE CONFIGURATION ACKNOWLEDGE
--
-- *****

GNBDUResourceConfigurationAcknowledge ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    { { GNBDUResourceConfigurationAcknowledgeIEs} },
    ...
}

GNBDUResourceConfigurationAcknowledgeIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },
    ...
}

-- *****
--
-- GNB-DU RESOURCE CONFIGURATION FAILURE
--
-- *****

GNBDUResourceConfigurationFailure ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    { { GNBDUResourceConfigurationFailureIEs} },
    ...
}

GNBDUResourceConfigurationFailureIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-Cause                  CRITICALITY ignore TYPE Cause                  PRESENCE mandatory }|
    { ID id-TimeToWait             CRITICALITY ignore TYPE TimeToWait             PRESENCE optional }|
    { ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },
    ...
}

-- *****
--
-- IAB TNL Address Allocation ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- IAB TNL ADDRESS REQUEST
--
-- *****

```



```

IABTNLAddressRequest ::= SEQUENCE {
    protocolIES          ProtocolIE-Container      { {IABTNLAddressRequestIES} },
    ...
}

IABTNLAddressRequestIES F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-IABv4AddressesRequested CRITICALITY reject TYPE IABv4AddressesRequested PRESENCE optional }|
    { ID id-IABIPv6RequestType      CRITICALITY reject TYPE IABIPv6RequestType      PRESENCE optional }|
    { ID id-IAB-TNL-Addresses-To-Remove-List CRITICALITY reject TYPE IAB-TNL-Addresses-To-Remove-List PRESENCE optional }|
    { ID id-IAB-TNL-Addresses-Exception CRITICALITY reject TYPE IAB-TNL-Addresses-Exception PRESENCE optional },
    ...
}

IAB-TNL-Addresses-To-Remove-List ::= SEQUENCE (SIZE(1..maxnoofTLAsIAB)) OF ProtocolIE-SingleContainer { { IAB-TNL-Addresses-To-Remove-ItemIES } }

IAB-TNL-Addresses-To-Remove-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-IAB-TNL-Addresses-To-Remove-Item          CRITICALITY reject TYPE IAB-TNL-Addresses-To-Remove-Item          PRESENCE mandatory},
    ...
}

-- *****
--
-- IAB TNL ADDRESS RESPONSE
--
-- *****

IABTNLAddressResponse ::= SEQUENCE {
    protocolIES          ProtocolIE-Container      { {IABTNLAddressResponseIES} },
    ...
}

IABTNLAddressResponseIES F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-IAB-Allocated-TNL-Address-List CRITICALITY reject TYPE IAB-Allocated-TNL-Address-List PRESENCE mandatory },
    ...
}

IAB-Allocated-TNL-Address-List ::= SEQUENCE (SIZE(1.. maxnoofTLAsIAB)) OF ProtocolIE-SingleContainer { { IAB-Allocated-TNL-Address-List-ItemIES } }

IAB-Allocated-TNL-Address-List-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-IAB-Allocated-TNL-Address-Item          CRITICALITY reject TYPE IAB-Allocated-TNL-Address-Item          PRESENCE mandatory},
    ...
}

```

```

-- *****
--
-- IAB TNL ADDRESS FAILURE
--
-- *****

IABTNLAddressFailure ::= SEQUENCE {
    protocolIES          ProtocolIE-Container          { { IABTNLAddressFailureIES} },
    ...
}

IABTNLAddressFailureIES F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-Cause                  CRITICALITY ignore TYPE Cause                  PRESENCE mandatory }|
    { ID id-TimeToWait             CRITICALITY ignore TYPE TimeToWait             PRESENCE optional }|
    { ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },
    ...
}

-- *****
--
-- IAB UP Configuration Update ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- IAB UP Configuration Update Request
--
-- *****

IABUPConfigurationUpdateRequest ::= SEQUENCE {
    protocolIES          ProtocolIE-Container          { { IABUPConfigurationUpdateRequestIES} },
    ...
}

IABUPConfigurationUpdateRequestIES F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-UL-UP-TNL-Information-to-Update-List CRITICALITY ignore TYPE UL-UP-TNL-Information-to-Update-List PRESENCE optional }|
    { ID id-UL-UP-TNL-Address-to-Update-List     CRITICALITY ignore TYPE UL-UP-TNL-Address-to-Update-List     PRESENCE optional },
    ...
}

UL-UP-TNL-Information-to-Update-List ::= SEQUENCE (SIZE(1.. maxnoofULUPTNLInformationforIAB)) OF ProtocolIE-SingleContainer { { UL-UP-TNL-
Information-to-Update-List-ItemIES } }

UL-UP-TNL-Information-to-Update-List-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-UL-UP-TNL-Information-to-Update-List-Item CRITICALITY ignore TYPE UL-UP-TNL-Information-to-Update-List-Item PRESENCE mandatory },
    ...
}

UL-UP-TNL-Address-to-Update-List ::= SEQUENCE (SIZE(1.. maxnoofUPTNLAddresses)) OF ProtocolIE-SingleContainer { { UL-UP-TNL-Address-to-Update-List-
ItemIES } }

```

```

UL-UP-TNL-Address-to-Update-List-ItemIES F1AP-PROTOCOL-IES ::= {
  { ID id-UL-UP-TNL-Address-to-Update-List-Item  CRITICALITY ignore  TYPE UL-UP-TNL-Address-to-Update-List-Item PRESENCE mandatory },
  ...
}

-- *****
--
-- IAB UP Configuration Update Response
--
-- *****

IABUPConfigurationUpdateResponse ::= SEQUENCE {
  protocolIES          ProtocolIE-Container      { { IABUPConfigurationUpdateResponseIES } },
  ...
}

IABUPConfigurationUpdateResponseIES F1AP-PROTOCOL-IES ::= {
  { ID id-TransactionID          CRITICALITY reject  TYPE TransactionID          PRESENCE mandatory }|
  { ID id-CriticalityDiagnostics CRITICALITY ignore  TYPE CriticalityDiagnostics PRESENCE optional }|
  { ID id-DL-UP-TNL-Address-to-Update-List CRITICALITY reject  TYPE DL-UP-TNL-Address-to-Update-List PRESENCE optional },
  ...
}

DL-UP-TNL-Address-to-Update-List ::= SEQUENCE (SIZE(1.. maxnoofUPTNLAddresses)) OF ProtocolIE-SingleContainer { { DL-UP-TNL-Address-to-Update-List-ItemIES } }

DL-UP-TNL-Address-to-Update-List-ItemIES F1AP-PROTOCOL-IES ::= {
  { ID id-DL-UP-TNL-Address-to-Update-List-Item  CRITICALITY ignore  TYPE DL-UP-TNL-Address-to-Update-List-Item PRESENCE mandatory },
  ...
}

-- *****
--
-- IAB UP Configuration Update Failure
--
-- *****

IABUPConfigurationUpdateFailure ::= SEQUENCE {
  protocolIES          ProtocolIE-Container      { { IABUPConfigurationUpdateFailureIES } },
  ...
}

IABUPConfigurationUpdateFailureIES F1AP-PROTOCOL-IES ::= {
  { ID id-TransactionID          CRITICALITY reject  TYPE TransactionID          PRESENCE mandatory }|
  { ID id-Cause                  CRITICALITY ignore  TYPE Cause                  PRESENCE mandatory }|
  { ID id-TimeToWait             CRITICALITY ignore  TYPE TimeToWait             PRESENCE optional }|
  { ID id-CriticalityDiagnostics CRITICALITY ignore  TYPE CriticalityDiagnostics PRESENCE optional },
  ...
}

-- MIAB F1 SETUP TRIGGERING PROCEDURE
--

```

```

-- *****

-- *****
--
-- MIAB F1 SETUP TRIGGERING
--
-- *****

MIABF1SetupTriggering ::= SEQUENCE {
    protocolIES          ProtocolIE-Container      {{ MIABF1SetupTriggeringIES}},
    ...
}

MIABF1SetupTriggeringIES F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-Target-gNB-ID          CRITICALITY reject TYPE GlobalGNB-ID          PRESENCE mandatory }|
    { ID id-Target-gNB-IP-address   CRITICALITY ignore TYPE TransportLayerAddress PRESENCE optional }|
    { ID id-Target-SeGW-IP-address  CRITICALITY ignore TYPE TransportLayerAddress PRESENCE optional },
    ...
}

-- MIAB F1 SETUP OUTCOME NOTIFICATION PROCEDURE
--
-- *****

-- *****
--
-- MIAB F1 SETUP OUTCOME NOTIFICATION
--
-- *****

MIABF1SetupOutcomeNotification ::= SEQUENCE {
    protocolIES          ProtocolIE-Container      {{ MIABF1SetupOutcomeNotificationIES}},
    ...
}

MIABF1SetupOutcomeNotificationIES F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-F1SetupOutcome         CRITICALITY reject TYPE F1SetupOutcome         PRESENCE mandatory }|
    { ID id-Activated-Cells-Mapping-List CRITICALITY ignore TYPE Activated-Cells-Mapping-List PRESENCE optional }|
    { ID id-Target-F1-Terminating-Donor-gNB-ID CRITICALITY reject TYPE GlobalGNB-ID          PRESENCE optional },
    ...
}

F1SetupOutcome ::= ENUMERATED {success, failure,...}

Activated-Cells-Mapping-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Activated-Cells-Mapping-List-ItemIES } }

Activated-Cells-Mapping-List-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-Activated-Cells-Mapping-List-Item CRITICALITY ignore TYPE Activated-Cells-Mapping-List-Item PRESENCE mandatory },
    ...
}

```

```
}

```

```
-- *****
--
-- Resource Status Reporting Initiation ELEMENTARY PROCEDURE
--
-- *****
--
-- *****
--
-- Resource Status Request
--
-- *****

```

```
ResourceStatusRequest ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    { {ResourceStatusRequestIES} },
    ...
}
```

```
ResourceStatusRequestIES F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-gNBCUMeasurementID      CRITICALITY reject TYPE GNBCUMeasurementID      PRESENCE mandatory }|
    { ID id-gNBDUMeasurementID      CRITICALITY ignore TYPE GNBDUMeasurementID      PRESENCE conditional }|
    -- The above IE shall be present if the Registration Request IE is set to the value "stop" or "add".
    { ID id-RegistrationRequest      CRITICALITY ignore TYPE RegistrationRequest      PRESENCE mandatory }|
    { ID id-ReportCharacteristics    CRITICALITY ignore TYPE ReportCharacteristics    PRESENCE conditional }|
    -- The above IE shall be present if the Registration Request IE is set to the value "start".
    { ID id-CellToReportList         CRITICALITY ignore TYPE CellToReportList         PRESENCE optional }|
    { ID id-ReportingPeriodicity     CRITICALITY ignore TYPE ReportingPeriodicity     PRESENCE optional },
    ...
}
```

```
-- *****
--
-- Resource Status Response
--
-- *****

```

```
ResourceStatusResponse ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    { { ResourceStatusResponseIES} },
    ...
}
```

```
ResourceStatusResponseIES F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-gNBCUMeasurementID      CRITICALITY reject TYPE GNBCUMeasurementID      PRESENCE mandatory }|
    { ID id-gNBDUMeasurementID      CRITICALITY ignore TYPE GNBDUMeasurementID      PRESENCE mandatory }|
    { ID id-CriticalityDiagnostics   CRITICALITY ignore TYPE CriticalityDiagnostics   PRESENCE optional },
    ...
}
```

```
-- *****
--
-- Resource Status Failure
--
-- *****

ResourceStatusFailure ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    { { ResourceStatusFailureIES} },
    ...
}

ResourceStatusFailureIES F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-gNBCUMeasurementID      CRITICALITY reject TYPE GNBCUMeasurementID      PRESENCE mandatory }|
    { ID id-gNBDUMeasurementID      CRITICALITY ignore TYPE GNBUMeasurementID      PRESENCE mandatory }|
    { ID id-Cause                  CRITICALITY ignore TYPE Cause                  PRESENCE mandatory }|
    { ID id-CriticalityDiagnostics  CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },
    ...
}

-- *****
--
-- Resource Status Reporting ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Resource Status Update
--
-- *****

ResourceStatusUpdate ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    {{ ResourceStatusUpdateIES}},
    ...
}

ResourceStatusUpdateIES F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-gNBCUMeasurementID      CRITICALITY reject TYPE GNBCUMeasurementID      PRESENCE mandatory }|
    { ID id-gNBDUMeasurementID      CRITICALITY ignore TYPE GNBUMeasurementID      PRESENCE mandatory }|
    { ID id-HardwareLoadIndicator   CRITICALITY ignore TYPE HardwareLoadIndicator   PRESENCE optional }|
    { ID id-TNLCapacityIndicator    CRITICALITY ignore TYPE TNLCapacityIndicator    PRESENCE optional }|
    { ID id-CellMeasurementResultList CRITICALITY ignore TYPE CellMeasurementResultList PRESENCE optional },
    ...
}

-- *****
--
-- Access And Mobility Indication ELEMENTARY PROCEDURE
--
-- *****
```

```
-- *****
--
-- Access And Mobility Indication
--
-- *****

AccessAndMobilityIndication ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container      { { AccessAndMobilityIndicationIEs} },
    ...
}

AccessAndMobilityIndicationIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-RAReportList           CRITICALITY ignore TYPE RAReportList           PRESENCE optional }|
    { ID id-RLFReportInformationList CRITICALITY ignore TYPE RLFReportInformationList PRESENCE optional }|
    { ID id-SuccessfulHOREportInformationList CRITICALITY ignore TYPE SuccessfulHOREportInformationList PRESENCE optional }|
    { ID id-SuccessfulPSCellChangeReportInformationList CRITICALITY ignore TYPE SuccessfulPSCellChangeReportInformationList PRESENCE optional },
    ...
}

-- *****
--
-- REFERENCE TIME INFORMATION REPORTING CONTROL ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- REFERENCE TIME INFORMATION REPORTING CONTROL
--
-- *****

ReferenceTimeInformationReportingControl ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container      { { ReferenceTimeInformationReportingControlIEs} },
    ...
}

ReferenceTimeInformationReportingControlIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-ReportingRequestType    CRITICALITY reject TYPE ReportingRequestType    PRESENCE mandatory },
    ...
}

-- *****
--
-- REFERENCE TIME INFORMATION REPORT ELEMENTARY PROCEDURE
--
-- *****
```

```
-- *****
--
-- REFERENCE TIME INFORMATION REPORT
--
-- *****

ReferenceTimeInformationReport ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container      { { ReferenceTimeInformationReportIEs } },
    ...
}

ReferenceTimeInformationReportIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY ignore TYPE TransactionID          PRESENCE mandatory }|
    { ID id-TimeReferenceInformation CRITICALITY ignore TYPE TimeReferenceInformation PRESENCE mandatory },
    ...
}

-- *****
--
-- ACCESS SUCCESS ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Access Success
--
-- *****

AccessSuccess ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container      {{ AccessSuccessIEs}},
    ...
}

AccessSuccessIEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-NRCGI                      CRITICALITY reject TYPE NRCGI                      PRESENCE mandatory },
    ...
}

-- *****
--
-- POSITIONING ASSISTANCE INFORMATION CONTROL ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Positioning Assistance Information Control
--
-- *****
```



```

PositioningAssistanceInformationControl ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    {{ PositioningAssistanceInformationControlIEs}},
    ...
}

PositioningAssistanceInformationControlIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory   }|
    { ID id-PosAssistance-Information CRITICALITY reject TYPE PosAssistance-Information PRESENCE optional}|
    { ID id-PosBroadcast           CRITICALITY reject TYPE PosBroadcast           PRESENCE optional}|
    { ID id-PositioningBroadcastCells CRITICALITY reject TYPE PositioningBroadcastCells PRESENCE optional}|
    { ID id-RoutingID              CRITICALITY reject TYPE RoutingID              PRESENCE optional},
    ...
}

-- *****
--
-- POSITIONING ASSISTANCE INFORMATION FEEDBACK ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Positioning Assistance Information Feedback
--
-- *****

PositioningAssistanceInformationFeedback ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    {{ PositioningAssistanceInformationFeedbackIEs}},
    ...
}

PositioningAssistanceInformationFeedbackIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory   }|
    { ID id-PosAssistanceInformationFailureList CRITICALITY reject TYPE PosAssistanceInformationFailureList PRESENCE optional}|
    { ID id-PositioningBroadcastCells          CRITICALITY reject TYPE PositioningBroadcastCells          PRESENCE optional}|
    { ID id-RoutingID                        CRITICALITY reject TYPE RoutingID                        PRESENCE optional}|
    { ID id-CriticalityDiagnostics            CRITICALITY ignore TYPE CriticalityDiagnostics            PRESENCE optional},
    ...
}

-- *****
--
-- POSITONING MEASUREMENT EXCHANGE ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Positioning Measurement Request
--
-- *****

PositioningMeasurementRequest ::= SEQUENCE {

```

```

    protocolIEs          ProtocolIE-Container    { { PositioningMeasurementRequestIEs } },
    ...
}

PositioningMeasurementRequestIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-LMF-MeasurementID      CRITICALITY reject TYPE LMF-MeasurementID      PRESENCE mandatory }|
    { ID id-RAN-MeasurementID      CRITICALITY reject TYPE RAN-MeasurementID      PRESENCE mandatory }|
    { ID id-TRP-MeasurementRequestList CRITICALITY reject TYPE TRP-MeasurementRequestList PRESENCE mandatory }|
    { ID id-PosReportCharacteristics CRITICALITY reject TYPE PosReportCharacteristics PRESENCE mandatory }|
    { ID id-PosMeasurementPeriodicity CRITICALITY reject TYPE MeasurementPeriodicity PRESENCE conditional }|
    -- The above IE shall be present if the PosReportCharacteristics IE is set to "periodic" --
    { ID id-PosMeasurementQuantities CRITICALITY reject TYPE PosMeasurementQuantities PRESENCE mandatory }|
    { ID id-SFNInitialisationTime   CRITICALITY ignore TYPE RelativeTime1900 PRESENCE optional }|
    { ID id-SRSConfiguration        CRITICALITY ignore TYPE SRSConfiguration        PRESENCE optional }|
    { ID id-MeasurementBeamInfoRequest CRITICALITY ignore TYPE MeasurementBeamInfoRequest PRESENCE optional }|
    { ID id-SystemFrameNumber       CRITICALITY ignore TYPE SystemFrameNumber       PRESENCE optional }|
    { ID id-SlotNumber              CRITICALITY ignore TYPE SlotNumber              PRESENCE optional }|
    { ID id-PosMeasurementPeriodicityExtended CRITICALITY reject TYPE MeasurementPeriodicityExtended PRESENCE conditional }|
    -- The IE shall be present the MeasurementPeriodicity IE is set to the value "extended"

    { ID id-ResponseTime           CRITICALITY ignore TYPE ResponseTime           PRESENCE optional }|
    { ID id-MeasurementCharacteristicsRequestIndicator CRITICALITY ignore TYPE MeasurementCharacteristicsRequestIndicator PRESENCE optional }|
    { ID id-MeasurementTimeOccasion CRITICALITY ignore TYPE MeasurementTimeOccasion PRESENCE optional }|
    { ID id-PosMeasurementAmount    CRITICALITY ignore TYPE PosMeasurementAmount    PRESENCE optional }|
    { ID id-TimeWindowInformation-Measurement-List CRITICALITY ignore TYPE TimeWindowInformation-Measurement-List PRESENCE optional },
    ...
}

-- *****
--
-- Positioning Measurement Response
--
-- *****

PositioningMeasurementResponse ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    { { PositioningMeasurementResponseIEs } },
    ...
}

PositioningMeasurementResponseIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-LMF-MeasurementID      CRITICALITY reject TYPE LMF-MeasurementID      PRESENCE mandatory }|
    { ID id-RAN-MeasurementID      CRITICALITY reject TYPE RAN-MeasurementID      PRESENCE mandatory }|
    { ID id-PosMeasurementResultList CRITICALITY reject TYPE PosMeasurementResultList PRESENCE optional }|
    { ID id-CriticalityDiagnostics  CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },
    ...
}

-- *****

```

```

--
-- Positioning Measurement Failure
--
-- *****

PositioningMeasurementFailure ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    { { PositioningMeasurementFailureIES} },
    ...
}

PositioningMeasurementFailureIES F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-LMF-MeasurementID      CRITICALITY reject TYPE LMF-MeasurementID      PRESENCE mandatory }|
    { ID id-RAN-MeasurementID      CRITICALITY reject TYPE RAN-MeasurementID      PRESENCE mandatory }|
    { ID id-Cause                  CRITICALITY ignore TYPE Cause                  PRESENCE mandatory }|
    { ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },
    ...
}

-- *****
--
-- POSITIONING MEASUREMENT REPORT ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Positioning Measurement Report
--
-- *****

PositioningMeasurementReport ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    { { PositioningMeasurementReportIES} },
    ...
}

PositioningMeasurementReportIES F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-LMF-MeasurementID      CRITICALITY reject TYPE LMF-MeasurementID      PRESENCE mandatory }|
    { ID id-RAN-MeasurementID      CRITICALITY reject TYPE RAN-MeasurementID      PRESENCE mandatory }|
    { ID id-PosMeasurementResultList CRITICALITY reject TYPE PosMeasurementResultList PRESENCE mandatory },
    ...
}

-- *****
--
-- POSITIONING MEASUREMENT ABORT ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Positioning Measurement Abort

```

```

--
-- *****
PositioningMeasurementAbort ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container      { { PositioningMeasurementAbortIEs} },
    ...
}

PositioningMeasurementAbortIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-LMF-MeasurementID      CRITICALITY reject TYPE LMF-MeasurementID      PRESENCE mandatory }|
    { ID id-RAN-MeasurementID      CRITICALITY reject TYPE RAN-MeasurementID      PRESENCE mandatory },
    ...
}

-- *****
--
-- POSITIONING MEASUREMENT FAILURE INDICATION ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Positioning Measurement Failure Indication
--
-- *****

PositioningMeasurementFailureIndication ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container      { { PositioningMeasurementFailureIndicationIEs} },
    ...
}

PositioningMeasurementFailureIndicationIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-LMF-MeasurementID      CRITICALITY reject TYPE LMF-MeasurementID      PRESENCE mandatory }|
    { ID id-RAN-MeasurementID      CRITICALITY reject TYPE RAN-MeasurementID      PRESENCE mandatory }|
    { ID id-Cause                  CRITICALITY ignore TYPE Cause                  PRESENCE mandatory },
    ...
}

-- *****
--
-- POSITIONING MEASUREMENT UPDATE ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Positioning Measurement Update
--
-- *****

PositioningMeasurementUpdate ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container      { { PositioningMeasurementUpdateIEs} },

```

```

    ...
}

PositioningMeasurementUpdateIEs F1AP-PROTOCOL-IES ::= {
  { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
  { ID id-LMF-MeasurementID      CRITICALITY reject TYPE LMF-MeasurementID      PRESENCE mandatory }|
  { ID id-RAN-MeasurementID      CRITICALITY reject TYPE RAN-MeasurementID      PRESENCE mandatory }|
  { ID id-SRSConfiguration       CRITICALITY ignore TYPE SRSConfiguration       PRESENCE optional}|
  { ID id-TRP-MeasurementUpdateList CRITICALITY reject TYPE TRP-MeasurementUpdateList PRESENCE optional}|
  { ID id-MeasurementCharacteristicsRequestIndicator CRITICALITY ignore TYPE MeasurementCharacteristicsRequestIndicator PRESENCE optional}|
  { ID id-MeasurementTimeOccasion CRITICALITY ignore TYPE MeasurementTimeOccasion PRESENCE optional},
  ...
}

-- *****
--
-- TRP INFORMATION EXCHANGE ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- TRP Information Request
--
-- *****

TRPInformationRequest ::= SEQUENCE {
  protocolIEs      ProtocolIE-Container      { { TRPInformationRequestIEs } },
  ...
}

TRPInformationRequestIEs F1AP-PROTOCOL-IES ::= {
  { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
  { ID id-TRPList                CRITICALITY ignore TYPE TRPList                PRESENCE optional }|
  { ID id-TRPInformationTypeListTRPReq CRITICALITY reject TYPE TRPInformationTypeListTRPReq PRESENCE mandatory },
  ...
}

TRPInformationTypeListTRPReq ::= SEQUENCE (SIZE(1.. maxnoofTRPInfoTypes)) OF ProtocolIE-SingleContainer { { TRPInformationTypeItemTRPReq } }

TRPInformationTypeItemTRPReq F1AP-PROTOCOL-IES ::= {
  { ID id-TRPInformationTypeItem CRITICALITY reject TYPE TRPInformationTypeItem PRESENCE mandatory },
  ...
}

-- *****
--
-- TRP Information Response
--
-- *****

TRPInformationResponse ::= SEQUENCE {

```

```

    protocolIEs      ProtocolIE-Container      { { TRPInformationResponseIEs } },
    ...
}

TRPInformationResponseIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-TRPInformationListTRPResp CRITICALITY ignore TYPE TRPInformationListTRPResp PRESENCE mandatory }|
    { ID id-CriticalityDiagnostics   CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },
    ...
}

TRPInformationListTRPResp ::= SEQUENCE (SIZE(1.. maxnoofTRPs)) OF ProtocolIE-SingleContainer { { TRPInformationItemTRPResp } }

TRPInformationItemTRPResp F1AP-PROTOCOL-IES ::= {
    { ID id-TRPInformationItem      CRITICALITY ignore TYPE TRPInformationItem      PRESENCE mandatory },
    ...
}

-- *****
--
-- TRP Information Failure
--
-- *****

TRPInformationFailure ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container      { { TRPInformationFailureIEs } },
    ...
}

TRPInformationFailureIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-Cause                  CRITICALITY ignore TYPE Cause                  PRESENCE mandatory }|
    { ID id-CriticalityDiagnostics   CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },
    ...
}

-- *****
--
-- POSITIONING INFORMATION EXCHANGE ELEMENTARY PROCEDURE
--
-- *****
--
-- Positioning Information Request
--
-- *****

PositioningInformationRequest ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container      { { PositioningInformationRequestIEs } },
    ...
}

```

```

PositioningInformationRequestIES F1AP-PROTOCOL-IES ::= {
  { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
  { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
  { ID id-RequestedSRSTransmissionCharacteristics CRITICALITY ignore TYPE RequestedSRSTransmissionCharacteristics PRESENCE optional}|
  { ID id-UEReportingInformation      CRITICALITY ignore TYPE UEReportingInformation      PRESENCE optional}|
  { ID id-SRSPosRRRCInactiveQueryIndication CRITICALITY ignore TYPE SRSPosRRRCInactiveQueryIndication PRESENCE optional}|
  { ID id-TimeWindowInformation-SRS-List CRITICALITY ignore TYPE TimeWindowInformation-SRS-List PRESENCE optional}|
  { ID id-RequestedSRSPreconfigurationCharacteristics-List CRITICALITY ignore TYPE RequestedSRSPreconfigurationCharacteristics-List PRESENCE optional }|
  ...
}

-- *****
--
-- Positioning Information Response
--
-- *****

PositioningInformationResponse ::= SEQUENCE {
  protocolIES          ProtocolIE-Container  { { PositioningInformationResponseIES} },
  ...
}

PositioningInformationResponseIES F1AP-PROTOCOL-IES ::= {
  { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
  { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
  { ID id-SRSConfiguration           CRITICALITY ignore TYPE SRSConfiguration           PRESENCE optional}|
  { ID id-SFNInitialisationTime      CRITICALITY ignore TYPE RelativeTime1900         PRESENCE optional}|
  { ID id-CriticalityDiagnostics      CRITICALITY ignore TYPE CriticalityDiagnostics    PRESENCE optional }|
  { ID id-SRSPosRRRCInactiveConfig    CRITICALITY ignore TYPE SRSPosRRRCInactiveConfig  PRESENCE optional}|
  { ID id-SRSPosRRRCInactiveValidityAreaConfig CRITICALITY ignore TYPE SRSPosRRRCInactiveValidityAreaConfig PRESENCE optional}|
  { ID id-SRSPreconfiguration-List    CRITICALITY ignore TYPE SRSPreconfiguration-List    PRESENCE optional},
  ...
}

-- *****
--
-- Positioning Information Failure
--
-- *****

PositioningInformationFailure ::= SEQUENCE {
  protocolIES          ProtocolIE-Container  { { PositioningInformationFailureIES} },
  ...
}

PositioningInformationFailureIES F1AP-PROTOCOL-IES ::= {
  { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
  { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|

```

```

    { ID id-Cause                CRITICALITY ignore TYPE Cause                PRESENCE mandatory }|
    { ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },
    ...
}

-- *****
--
-- POSITIONING ACTIVATION ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Positioning Activation Request
--
-- *****

PositioningActivationRequest ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    { { PositioningActivationRequestIEs } },
    ...
}

PositioningActivationRequestIEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID      CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID      PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID      CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID      PRESENCE mandatory }|
    { ID id-SRSType                CRITICALITY reject TYPE SRSType                PRESENCE mandatory }|
    { ID id-ActivationTime         CRITICALITY ignore TYPE RelativeTime1900        PRESENCE optional  },
    ...
}

SRSType ::= CHOICE {
    semipersistentSRS          SemipersistentSRS,
    aperiodicSRS              AperiodicSRS,
    choice-extension           ProtocolIE-SingleContainer { { SRSType-ExtIEs } }
}

SRSType-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

SemipersistentSRS ::= SEQUENCE {
    sRSResourceSetID          SRSResourceSetID,
    sRSSpatialRelation        SpatialRelationInfo OPTIONAL,
    iE-Extensions             ProtocolExtensionContainer { {SemipersistentSRS-ExtIEs} } OPTIONAL,
    ...
}

SemipersistentSRS-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-SRSSpatialRelationPerSRSResource CRITICALITY ignore EXTENSION SpatialRelationPerSRSResource PRESENCE optional}|
    { ID id-AggregatedPosSRSResourceSetList CRITICALITY ignore EXTENSION AggregatedPosSRSResourceSetList PRESENCE optional},
    ...
}

```



```

AperiodicSRS ::= SEQUENCE {
    aperiodic          ENUMERATED {true, ...},
    sRSResourceTrigger SRSResourceTrigger OPTIONAL,
    iE-Extensions      ProtocolExtensionContainer { {AperiodicSRS-ExtIEs} } OPTIONAL,
    ...
}

AperiodicSRS-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-AggregatedPosSRSResourceSetList CRITICALITY ignore EXTENSION AggregatedPosSRSResourceSetList PRESENCE optional},
    ...
}

-- *****
--
-- Positioning Activation Response
--
-- *****

PositioningActivationResponse ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container      { { PositioningActivationResponseIEs} },
    ...
}

PositioningActivationResponseIEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID      CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID      PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID      CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID      PRESENCE mandatory }|
    { ID id-SystemFrameNumber      CRITICALITY ignore TYPE SystemFrameNumber      PRESENCE optional }|
    { ID id-SlotNumber              CRITICALITY ignore TYPE SlotNumber              PRESENCE optional }|
    { ID id-CriticalityDiagnostics  CRITICALITY ignore TYPE CriticalityDiagnostics  PRESENCE optional },
    ...
}

-- *****
--
-- Positioning Activation Failure
--
-- *****

PositioningActivationFailure ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container      { { PositioningActivationFailureIEs} },
    ...
}

PositioningActivationFailureIEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID      CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID      PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID      CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID      PRESENCE mandatory }|
    { ID id-Cause                  CRITICALITY ignore TYPE Cause                  PRESENCE mandatory }|
    { ID id-CriticalityDiagnostics  CRITICALITY ignore TYPE CriticalityDiagnostics  PRESENCE optional },
    ...
}

```

```

}

-- *****
--
-- POSITIONING DEACTIVATION ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Positioning Deactivation
--
-- *****

PositioningDeactivation ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    { { PositioningDeactivationIEs} },
    ...
}

PositioningDeactivationIEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID      CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID      PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID      CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID      PRESENCE mandatory }|
    { ID id-AbortTransmission      CRITICALITY ignore TYPE AbortTransmission      PRESENCE mandatory },
    ...
}

-- *****
--
-- POSITIONING INFORMATION UPDATE ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Positioning Information Update
--
-- *****

PositioningInformationUpdate ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    { { PositioningInformationUpdateIEs} },
    ...
}

PositioningInformationUpdateIEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID      CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID      PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID      CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID      PRESENCE mandatory }|
    { ID id-SRSConfiguration       CRITICALITY ignore TYPE SRSConfiguration       PRESENCE optional }|
    { ID id-SFNInitialisationTime  CRITICALITY ignore TYPE RelativeTime1900      PRESENCE optional},
    ...
}

-- *****

```

```

--
-- SRS Information Reservation Notification
--
-- *****

SRSInformationReservationNotification ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    {{ SRSInformationReservationNotificationIEs}},
    ...
}

SRSInformationReservationNotificationIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject  TYPE TransactionID          PRESENCE mandatory }|
    { ID id-SRSReservationType      CRITICALITY reject  TYPE SRSReservationType      PRESENCE mandatory }|
    { ID id-SRSInformation          CRITICALITY ignore  TYPE RequestedSRSTransmissionCharacteristics PRESENCE optional }|
    { ID id-PreconfiguredSRSInformation CRITICALITY ignore  TYPE RequestedSRSPreconfigurationCharacteristics-List PRESENCE optional },
    ...
}

-- *****
--
-- E-CID MEASUREMENT ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- E-CID Measurement Initiation Request
--
-- *****

E-CIDMeasurementInitiationRequest ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    {{E-CIDMeasurementInitiationRequest-IEs}},
    ...
}

E-CIDMeasurementInitiationRequest-IEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject  TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject  TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-LMF-UE-MeasurementID        CRITICALITY reject  TYPE LMF-UE-MeasurementID        PRESENCE mandatory }|
    { ID id-RAN-UE-MeasurementID        CRITICALITY reject  TYPE RAN-UE-MeasurementID        PRESENCE mandatory }|
    { ID id-E-CID-ReportCharacteristics CRITICALITY reject  TYPE E-CID-ReportCharacteristics PRESENCE mandatory }|
    { ID id-E-CID-MeasurementPeriodicity CRITICALITY reject  TYPE MeasurementPeriodicity     PRESENCE conditional }|
    -- The above IE shall be present if the E-CID-ReportCharacteristics IE is set to "periodic" --
    { ID id-E-CID-MeasurementQuantities CRITICALITY reject  TYPE E-CID-MeasurementQuantities PRESENCE mandatory }|
    { ID id-PosMeasurementPeriodicityNR-AoA CRITICALITY reject  TYPE PosMeasurementPeriodicityNR-AoA PRESENCE conditional},
    -- The IE shall be present if the E-CID-ReportCharacteristics IE is set to "periodic" and the E-CID-MeasurementQuantities-Item IE in the E-CID-
    MeasurementQuantities IE is set to the value "angleOfArrivalNR"--
    ...
}

-- *****
--
-- E-CID Measurement Initiation Response

```

```

--
-- *****
E-CIDMeasurementInitiationResponse ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container    {{E-CIDMeasurementInitiationResponse-IEs}},
    ...
}

E-CIDMeasurementInitiationResponse-IEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-LMF-UE-MeasurementID        CRITICALITY reject TYPE LMF-UE-MeasurementID        PRESENCE mandatory }|
    { ID id-RAN-UE-MeasurementID        CRITICALITY reject TYPE RAN-UE-MeasurementID        PRESENCE mandatory }|
    { ID id-E-CID-MeasurementResult     CRITICALITY ignore TYPE E-CID-MeasurementResult     PRESENCE optional }|
    { ID id-Cell-Portion-ID             CRITICALITY ignore TYPE Cell-Portion-ID           PRESENCE optional }|
    { ID id-CriticalityDiagnostics      CRITICALITY ignore TYPE CriticalityDiagnostics      PRESENCE optional },
    ...
}

-- *****
--
-- E-CID Measurement Initiation Failure
--
-- *****

E-CIDMeasurementInitiationFailure ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container    {{E-CIDMeasurementInitiationFailure-IEs}},
    ...
}

E-CIDMeasurementInitiationFailure-IEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-LMF-UE-MeasurementID        CRITICALITY reject TYPE LMF-UE-MeasurementID        PRESENCE mandatory }|
    { ID id-RAN-UE-MeasurementID        CRITICALITY reject TYPE RAN-UE-MeasurementID        PRESENCE mandatory }|
    { ID id-Cause                      CRITICALITY ignore TYPE Cause                      PRESENCE mandatory }|
    { ID id-CriticalityDiagnostics      CRITICALITY ignore TYPE CriticalityDiagnostics      PRESENCE optional },
    ...
}

-- *****
--
-- E-CID MEASUREMENT FAILURE INDICATION ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- E-CID Measurement Failure Indication
--
-- *****

E-CIDMeasurementFailureIndication ::= SEQUENCE {

```

```

    protocolIEs
    ...
}

E-CIDMeasurementFailureIndication-IES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-LMF-UE-MeasurementID        CRITICALITY reject TYPE LMF-UE-MeasurementID        PRESENCE mandatory }|
    { ID id-RAN-UE-MeasurementID        CRITICALITY reject TYPE RAN-UE-MeasurementID        PRESENCE mandatory }|
    { ID id-Cause                       CRITICALITY ignore TYPE Cause                     PRESENCE mandatory },
    ...
}

-- *****
--
-- E-CID MEASUREMENT REPORT ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- E-CID Measurement Report
--
-- *****

E-CIDMeasurementReport ::= SEQUENCE {
    protocolIEs
    ...
}

E-CIDMeasurementReport-IES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-LMF-UE-MeasurementID        CRITICALITY reject TYPE LMF-UE-MeasurementID        PRESENCE mandatory }|
    { ID id-RAN-UE-MeasurementID        CRITICALITY reject TYPE RAN-UE-MeasurementID        PRESENCE mandatory }|
    { ID id-E-CID-MeasurementResult     CRITICALITY ignore TYPE E-CID-MeasurementResult     PRESENCE mandatory }|
    { ID id-Cell-Portion-ID             CRITICALITY ignore TYPE Cell-Portion-ID             PRESENCE optional },
    ...
}

-- *****
--
-- E-CID MEASUREMENT TERMINATION ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- E-CID Measurement Termination Command
--
-- *****

```

```

E-CIDMeasurementTerminationCommand ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    {{E-CIDMeasurementTerminationCommand-IEs}},
    ...
}

E-CIDMeasurementTerminationCommand-IEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-LMF-UE-MeasurementID        CRITICALITY reject TYPE LMF-UE-MeasurementID        PRESENCE mandatory }|
    { ID id-RAN-UE-MeasurementID        CRITICALITY reject TYPE RAN-UE-MeasurementID        PRESENCE mandatory },
    ...
}

-- *****
--
-- BROADCAST CONTEXT SETUP ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- BROADCAST CONTEXT SETUP REQUEST
--
-- *****

BroadcastContextSetupRequest ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    { { BroadcastContextSetupRequestIEs } },
    ...
}

BroadcastContextSetupRequestIEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID          PRESENCE mandatory }|
    { ID id-MBS-Session-ID              CRITICALITY reject TYPE MBS-Session-ID              PRESENCE mandatory }|
    { ID id-MBS-ServiceArea              CRITICALITY reject TYPE MBS-ServiceArea              PRESENCE optional }|
    { ID id-MBS-CUtoDURRCInformation      CRITICALITY reject TYPE MBS-CUtoDURRCInformation      PRESENCE mandatory }|
    { ID id-SNSSAI                       CRITICALITY reject TYPE SNSSAI                       PRESENCE mandatory }|
    { ID id-BroadcastMRBs-ToBeSetup-List CRITICALITY reject TYPE BroadcastMRBs-ToBeSetup-List PRESENCE mandatory }|
    { ID id-SupportedUETypeList           CRITICALITY ignore TYPE SupportedUETypeList           PRESENCE optional }|
    { ID id-AssociatedSessionID           CRITICALITY ignore TYPE AssociatedSessionID           PRESENCE optional }|
    { ID id-RANSharingAssistanceInformation CRITICALITY ignore TYPE RANSharingAssistanceInformation PRESENCE optional },
    ...
}

BroadcastMRBs-ToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF ProtocolIE-SingleContainer { { BroadcastMRBs-ToBeSetup-ItemIEs } }

BroadcastMRBs-ToBeSetup-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-BroadcastMRBs-ToBeSetup-Item CRITICALITY reject TYPE BroadcastMRBs-ToBeSetup-Item PRESENCE mandatory },
    ...
}

```

```
-- *****
--
-- BROADCAST CONTEXT SETUP RESPONSE
--
-- *****
```

```
BroadcastContextSetupResponse ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    { { BroadcastContextSetupResponseIEs} },
    ...
}
```

```
BroadcastContextSetupResponseIEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-DU-MBS-F1AP-ID          PRESENCE mandatory }|
    { ID id-BroadcastMRBs-Setup-List     CRITICALITY reject TYPE BroadcastMRBs-Setup-List     PRESENCE mandatory }|
    { ID id-BroadcastMRBs-FailedToBeSetup-List CRITICALITY ignore TYPE BroadcastMRBs-FailedToBeSetup-List PRESENCE optional }|
    { ID id-BroadcastAreaScope           CRITICALITY ignore TYPE BroadcastAreaScope           PRESENCE optional }|
    { ID id-CriticalityDiagnostics        CRITICALITY ignore TYPE CriticalityDiagnostics        PRESENCE optional },
    ...
}
```

```
BroadcastMRBs-Setup-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF ProtocolIE-SingleContainer { { BroadcastMRBs-Setup-ItemIEs} }
```

```
BroadcastMRBs-FailedToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF ProtocolIE-SingleContainer { { BroadcastMRBs-FailedToBeSetup-ItemIEs} }
```

```
BroadcastMRBs-Setup-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-BroadcastMRBs-Setup-Item     CRITICALITY reject TYPE BroadcastMRBs-Setup-Item     PRESENCE mandatory},
    ...
}
```

```
BroadcastMRBs-FailedToBeSetup-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-BroadcastMRBs-FailedToBeSetup-Item CRITICALITY ignore TYPE BroadcastMRBs-FailedToBeSetup-Item PRESENCE mandatory}, ...
}
```

```
-- *****
--
-- BROADCAST CONTEXT SETUP FAILURE
--
-- *****
```

```
BroadcastContextSetupFailure ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    { { BroadcastContextSetupFailureIEs} },
    ...
}
```

```
BroadcastContextSetupFailureIEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-MBS-F1AP-ID          CRITICALITY ignore TYPE GNB-DU-UE-F1AP-ID          PRESENCE optional }|
    { ID id-Cause                       CRITICALITY ignore TYPE Cause                       PRESENCE mandatory }|
    { ID id-CriticalityDiagnostics        CRITICALITY ignore TYPE CriticalityDiagnostics        PRESENCE optional },
    ...
}
```

```

-- *****
--
-- BROADCAST CONTEXT RELEASE ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- BROADCAST CONTEXT RELEASE COMMAND
--
-- *****

BroadcastContextReleaseCommand ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    { { BroadcastContextReleaseCommandIES} },
    ...
}

BroadcastContextReleaseCommandIES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-DU-MBS-F1AP-ID          PRESENCE mandatory }|
    { ID id-Cause                        CRITICALITY ignore TYPE Cause                      PRESENCE mandatory },
    ...
}

-- *****
--
-- BROADCAST CONTEXT RELEASE COMPLETE
--
-- *****

BroadcastContextReleaseComplete ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    { { BroadcastContextReleaseCompleteIES} },
    ...
}

BroadcastContextReleaseCompleteIES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-DU-MBS-F1AP-ID          PRESENCE mandatory }|
    { ID id-CriticalityDiagnostics      CRITICALITY ignore TYPE CriticalityDiagnostics      PRESENCE optional },
    ...
}

-- *****
--
-- BROADCAST CONTEXT RELEASE REQUEST ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- BROADCAST CONTEXT RELEASE REQUEST
--

```



```

-- *****

BroadcastContextReleaseRequest ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    {{ BroadcastContextReleaseRequestIES}},
    ...
}

BroadcastContextReleaseRequestIES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-DU-MBS-F1AP-ID          PRESENCE mandatory }|
    { ID id-Cause                        CRITICALITY ignore TYPE Cause                      PRESENCE mandatory },
    ...
}

-- *****
--
-- BROADCAST CONTEXT MODIFICATION ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- BROADCAST CONTEXT MODIFICATION REQUEST
--
-- *****

BroadcastContextModificationRequest ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    { { BroadcastContextModificationRequestIES} },
    ...
}

BroadcastContextModificationRequestIES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-DU-MBS-F1AP-ID          PRESENCE mandatory }|
    { ID id-MBS-ServiceArea             CRITICALITY reject TYPE MBS-ServiceArea           PRESENCE optional }|
    { ID id-MBS-CUtoDURRCInformation     CRITICALITY reject TYPE MBS-CUtoDURRCInformation   PRESENCE mandatory }|
    { ID id-BroadcastMRBs-ToBeSetupMod-List CRITICALITY reject TYPE BroadcastMRBs-ToBeSetupMod-List PRESENCE optional }|
    { ID id-BroadcastMRBs-ToBeModified-List CRITICALITY reject TYPE BroadcastMRBs-ToBeModified-List PRESENCE optional }|
    { ID id-BroadcastMRBs-ToBeReleased-List CRITICALITY reject TYPE BroadcastMRBs-ToBeReleased-List PRESENCE optional }|
    { ID id-SupportedUETypeList          CRITICALITY ignore TYPE SupportedUETypeList       PRESENCE optional },
    ...
}

BroadcastMRBs-ToBeSetupMod-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF ProtocolIE-SingleContainer { { BroadcastMRBs-ToBeSetupMod-ItemIES} }
BroadcastMRBs-ToBeModified-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF ProtocolIE-SingleContainer { { BroadcastMRBs-ToBeModified-ItemIES} }
BroadcastMRBs-ToBeReleased-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF ProtocolIE-SingleContainer { { BroadcastMRBs-ToBeReleased-ItemIES} }

BroadcastMRBs-ToBeSetupMod-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-BroadcastMRBs-ToBeSetupMod-Item CRITICALITY reject TYPE BroadcastMRBs-ToBeSetupMod-Item PRESENCE mandatory},
    ...
}

BroadcastMRBs-ToBeModified-ItemIES F1AP-PROTOCOL-IES ::= {

```

```

    { ID id-BroadcastMRBs-ToBeModified-Item    CRITICALITY reject TYPE BroadcastMRBs-ToBeModified-Item    PRESENCE mandatory},
    ...
}

BroadcastMRBs-ToBeReleased-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-BroadcastMRBs-ToBeReleased-Item    CRITICALITY reject TYPE BroadcastMRBs-ToBeReleased-Item    PRESENCE mandatory},
    ...
}

-- *****
--
-- BROADCAST CONTEXT MODIFICATION RESPONSE
--
-- *****

BroadcastContextModificationResponse ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    { { BroadcastContextModificationResponseIES} },
    ...
}

BroadcastContextModificationResponseIES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-MBS-F1AP-ID                CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID                PRESENCE mandatory}|
    { ID id-gNB-DU-MBS-F1AP-ID                CRITICALITY reject TYPE GNB-DU-MBS-F1AP-ID                PRESENCE mandatory}|

    { ID id-BroadcastMRBs-SetupMod-List        CRITICALITY reject TYPE BroadcastMRBs-SetupMod-List        PRESENCE optional}|
    { ID id-BroadcastMRBs-FailedToBeSetupMod-List CRITICALITY ignore TYPE BroadcastMRBs-FailedToBeSetupMod-List PRESENCE optional}|
    { ID id-BroadcastMRBs-Modified-List        CRITICALITY reject TYPE BroadcastMRBs-Modified-List        PRESENCE optional}|
    { ID id-BroadcastMRBs-FailedToBeModified-List CRITICALITY ignore TYPE BroadcastMRBs-FailedToBeModified-List PRESENCE optional}|
    { ID id-CriticalityDiagnostics             CRITICALITY ignore TYPE CriticalityDiagnostics             PRESENCE optional}|
    { ID id-BroadcastAreaScope                 CRITICALITY ignore TYPE BroadcastAreaScope                 PRESENCE optional},
    ...
}

BroadcastMRBs-SetupMod-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF ProtocolIE-SingleContainer { { BroadcastMRBs-SetupMod-ItemIES} }

BroadcastMRBs-FailedToBeSetupMod-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF ProtocolIE-SingleContainer { { BroadcastMRBs-FailedToBeSetupMod-ItemIES} }

BroadcastMRBs-Modified-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF ProtocolIE-SingleContainer { { BroadcastMRBs-Modified-ItemIES} }

BroadcastMRBs-FailedToBeModified-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF ProtocolIE-SingleContainer { { BroadcastMRBs-FailedToBeModified-ItemIES} }

BroadcastMRBs-SetupMod-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-BroadcastMRBs-SetupMod-Item        CRITICALITY reject TYPE BroadcastMRBs-SetupMod-Item        PRESENCE mandatory},
    ...
}

BroadcastMRBs-FailedToBeSetupMod-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-BroadcastMRBs-FailedToBeSetupMod-Item CRITICALITY ignore TYPE BroadcastMRBs-FailedToBeSetupMod-Item PRESENCE mandatory},
    ...
}

```

```

}

BroadcastMRBs-Modified-ItemIES F1AP-PROTOCOL-IES ::= {
  { ID id-BroadcastMRBs-Modified-Item          CRITICALITY reject TYPE BroadcastMRBs-Modified-Item PRESENCE mandatory},
  ...
}

BroadcastMRBs-FailedToBeModified-ItemIES F1AP-PROTOCOL-IES ::= {
  { ID id-BroadcastMRBs-FailedToBeModified-Item CRITICALITY ignore TYPE BroadcastMRBs-FailedToBeModified-Item PRESENCE mandatory},
  ...
}

-- *****
--
-- BROADCAST CONTEXT MODIFICATION FAILURE
--
-- *****

BroadcastContextModificationFailure ::= SEQUENCE {
  protocolIES          ProtocolIE-Container    { { BroadcastContextModificationFailureIES} },
  ...
}

BroadcastContextModificationFailureIES F1AP-PROTOCOL-IES ::= {
  { ID id-gNB-CU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID PRESENCE mandatory }|
  { ID id-gNB-DU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-DU-MBS-F1AP-ID PRESENCE mandatory }|
  { ID id-Cause                        CRITICALITY ignore TYPE Cause PRESENCE mandatory }|
  { ID id-CriticalityDiagnostics       CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },
  ...
}

-- *****
--
-- BROADCAST TRANSPORT RESOURCE REQUEST ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- BROADCAST TRANSPORT RESOURCE REQUEST
--
-- *****

BroadcastTransportResourceRequest ::= SEQUENCE {
  protocolIES          ProtocolIE-Container    {{ BroadcastTransportResourceRequestIES}},
  ...
}

BroadcastTransportResourceRequestIES F1AP-PROTOCOL-IES ::= {
  { ID id-gNB-CU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID PRESENCE mandatory }|
  { ID id-gNB-DU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-DU-MBS-F1AP-ID PRESENCE mandatory }|
  { ID id-Broadcast-MRBs-Transport-Request-List CRITICALITY reject TYPE Broadcast-MRBs-Transport-Request-List PRESENCE optional }|
  { ID id-F1U-PathFailure             CRITICALITY ignore TYPE F1U-PathFailure PRESENCE optional },

```

```

    ...
}

Broadcast-MRBs-Transport-Request-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF ProtocolIE-SingleContainer { { Broadcast-MRBs-Transport-Request-ItemIEs} }

Broadcast-MRBs-Transport-Request-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-Broadcast-MRBs-Transport-Request-Item          CRITICALITY reject  TYPE Broadcast-MRBs-Transport-Request-Item          PRESENCE
mandatory},
    ...
}

-- *****
--
-- Multicast Group Paging ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Multicast Group Paging
--
-- *****

MulticastGroupPaging ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container          {{ MulticastGroupPagingIEs}},
    ...
}

MulticastGroupPagingIEs F1AP-PROTOCOL-IES ::= {
    { ID id-MBS-Session-ID          CRITICALITY reject  TYPE MBS-Session-ID          PRESENCE mandatory   }|
    { ID id-UEIdentity-List-For-Paging-List CRITICALITY ignore  TYPE UEIdentity-List-For-Paging-List PRESENCE optional   }|
    { ID id-MC-PagingCell-List       CRITICALITY ignore  TYPE MC-PagingCell-list       PRESENCE optional   }|
    { ID id-IndicationMCInactiveReception CRITICALITY ignore  TYPE IndicationMCInactiveReception PRESENCE optional   },
    ...
}

UEIdentity-List-For-Paging-List ::= SEQUENCE (SIZE(1.. maxnoofUEIDforPaging)) OF ProtocolIE-SingleContainer { { UEIdentity-List-For-Paging-ItemIEs } }

UEIdentity-List-For-Paging-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-UEIdentity-List-For-Paging-Item CRITICALITY ignore  TYPE UEIdentity-List-For-Paging-Item          PRESENCE mandatory } ,
    ...
}

MC-PagingCell-list ::= SEQUENCE (SIZE(1.. maxnoofPagingCells)) OF ProtocolIE-SingleContainer { { MC-PagingCell-ItemIEs } }

MC-PagingCell-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-MC-PagingCell-Item          CRITICALITY ignore  TYPE MC-PagingCell-Item          PRESENCE mandatory} ,
    ...
}

```

```
-- *****
--
-- MULTICAST CONTEXT SETUP ELEMENTARY PROCEDURE
--
-- *****
```

```
-- *****
--
-- MULTICAST CONTEXT SETUP REQUEST
--
-- *****
```

```
MulticastContextSetupRequest ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    {{ MulticastContextSetupRequestIES}},
    ...
}
```

```
MulticastContextSetupRequestIES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID          PRESENCE mandatory }|
    { ID id-MBS-Session-ID              CRITICALITY reject TYPE MBS-Session-ID              PRESENCE mandatory }|
    { ID id-MBS-ServiceArea              CRITICALITY reject TYPE MBS-ServiceArea            PRESENCE optional   }|
    { ID id-SNSSAI                      CRITICALITY reject TYPE SNSSAI                    PRESENCE mandatory }|
    { ID id-MulticastMRBs-ToBeSetup-List CRITICALITY reject TYPE MulticastMRBs-ToBeSetup-List PRESENCE mandatory }|
    { ID id-MulticastCU2DURRCInfo        CRITICALITY reject TYPE MulticastCU2DURRCInfo        PRESENCE optional   }|
    { ID id-MBSMulticastSessionReceptionState CRITICALITY reject TYPE MBSMulticastSessionReceptionState PRESENCE optional   },
    ...
}
```

```
MulticastMRBs-ToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF ProtocolIE-SingleContainer { { MulticastMRBs-ToBeSetup-ItemIES} }
```

```
MulticastMRBs-ToBeSetup-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-MulticastMRBs-ToBeSetup-Item CRITICALITY reject TYPE MulticastMRBs-ToBeSetup-Item PRESENCE mandatory },
    ...
}
```

```
-- *****
--
-- MULTICAST CONTEXT SETUP RESPONSE
--
-- *****
```

```
MulticastContextSetupResponse ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    {{ MulticastContextSetupResponseIES}},
    ...
}
```

```
MulticastContextSetupResponseIES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID          PRESENCE mandatory }|
```

```

    { ID id-gNB-DU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-DU-MBS-F1AP-ID          PRESENCE mandatory }|
    { ID id-MulticastMRBs-Setup-List     CRITICALITY reject TYPE MulticastMRBs-Setup-List     PRESENCE mandatory }|
    { ID id-MulticastMRBs-FailedToBeSetup-List CRITICALITY ignore TYPE MulticastMRBs-FailedToBeSetup-List PRESENCE optional }|
    { ID id-CriticalityDiagnostics        CRITICALITY ignore TYPE CriticalityDiagnostics        PRESENCE optional }|
    { ID id-MulticastDU2CURRCInfo         CRITICALITY reject TYPE MulticastDU2CURRCInfo         PRESENCE optional },
    ...
}

MulticastMRBs-Setup-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF ProtocolIE-SingleContainer { { MulticastMRBs-Setup-ItemIEs} }

MulticastMRBs-FailedToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF ProtocolIE-SingleContainer { { MulticastMRBs-FailedToBeSetup-ItemIEs} }

MulticastMRBs-Setup-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-MulticastMRBs-Setup-Item          CRITICALITY reject TYPE MulticastMRBs-Setup-Item          PRESENCE mandatory},
    ...
}

MulticastMRBs-FailedToBeSetup-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-MulticastMRBs-FailedToBeSetup-Item CRITICALITY ignore TYPE MulticastMRBs-FailedToBeSetup-Item PRESENCE mandatory},
    ...
}

-- *****
--
-- MULTICAST CONTEXT SETUP FAILURE
--
-- *****

MulticastContextSetupFailure ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    {{ MulticastContextSetupFailureIEs}},
    ...
}

MulticastContextSetupFailureIEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-MBS-F1AP-ID          CRITICALITY ignore TYPE GNB-DU-MBS-F1AP-ID          PRESENCE optional }|
    { ID id-Cause                       CRITICALITY ignore TYPE Cause                       PRESENCE mandatory }|
    { ID id-CriticalityDiagnostics       CRITICALITY ignore TYPE CriticalityDiagnostics       PRESENCE optional },
    ...
}

-- *****
--
-- MULTICAST CONTEXT RELEASE ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- MULTICAST CONTEXT RELEASE COMMAND
--

```

```

-- *****

MulticastContextReleaseCommand ::= SEQUENCE {
    protocolIES          ProtocolIE-Container      {{ MulticastContextReleaseCommandIES}},
    ...
}

MulticastContextReleaseCommandIES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID PRESENCE mandatory }|
    { ID id-gNB-DU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-DU-MBS-F1AP-ID PRESENCE mandatory }|
    { ID id-Cause                        CRITICALITY ignore TYPE Cause PRESENCE mandatory },
    ...
}

-- *****
--
-- MULTICAST CONTEXT RELEASE COMPLETE
--
-- *****

MulticastContextReleaseComplete ::= SEQUENCE {
    protocolIES          ProtocolIE-Container      {{ MulticastContextReleaseCompleteIES}},
    ...
}

MulticastContextReleaseCompleteIES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID PRESENCE mandatory }|
    { ID id-gNB-DU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-DU-MBS-F1AP-ID PRESENCE mandatory }|
    { ID id-CriticalityDiagnostics      CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },
    ...
}

-- *****
--
-- MULTICAST CONTEXT RELEASE REQUEST ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- MULTICAST CONTEXT RELEASE REQUEST
--
-- *****

MulticastContextReleaseRequest ::= SEQUENCE {
    protocolIES          ProtocolIE-Container      {{ MulticastContextReleaseRequestIES}},
    ...
}

MulticastContextReleaseRequestIES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID PRESENCE mandatory }|

```

```

    { ID id-gNB-DU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-DU-MBS-F1AP-ID      PRESENCE mandatory }|
    { ID id-Cause                        CRITICALITY ignore TYPE Cause                PRESENCE mandatory },
    ...
}

-- *****
--
-- MULTICAST CONTEXT MODIFICATION ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- MULTICAST CONTEXT MODIFICATION REQUEST
--
-- *****

MulticastContextModificationRequest ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    {{ MulticastContextModificationRequestIES}},
    ...
}

MulticastContextModificationRequestIES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID      PRESENCE mandatory }|
    { ID id-gNB-DU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-DU-MBS-F1AP-ID      PRESENCE mandatory }|
    { ID id-MBS-ServiceArea             CRITICALITY reject TYPE MBS-ServiceArea        PRESENCE optional  }|
    { ID id-MulticastMRBs-ToBeSetupMod-List CRITICALITY reject TYPE MulticastMRBs-ToBeSetupMod-List PRESENCE optional  }|
    { ID id-MulticastMRBs-ToBeModified-List CRITICALITY reject TYPE MulticastMRBs-ToBeModified-List PRESENCE optional  }|
    { ID id-MulticastMRBs-ToBeReleased-List CRITICALITY reject TYPE MulticastMRBs-ToBeReleased-List PRESENCE optional  }|
    { ID id-MulticastCU2DURRCInfo        CRITICALITY reject TYPE MulticastCU2DURRCInfo    PRESENCE optional  }|
    { ID id-MBSMulticastSessionReceptionState CRITICALITY reject TYPE MBSMulticastSessionReceptionState PRESENCE optional },
    ...
}

MulticastMRBs-ToBeSetupMod-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF ProtocolIE-SingleContainer { { MulticastMRBs-ToBeSetupMod-ItemIES} }
MulticastMRBs-ToBeSetupMod-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-MulticastMRBs-ToBeSetupMod-Item CRITICALITY reject TYPE MulticastMRBs-ToBeSetupMod-Item PRESENCE mandatory},
    ...
}

MulticastMRBs-ToBeModified-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF ProtocolIE-SingleContainer { { MulticastMRBs-ToBeModified-ItemIES} }
MulticastMRBs-ToBeModified-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-MulticastMRBs-ToBeModified-Item CRITICALITY reject TYPE MulticastMRBs-ToBeModified-Item PRESENCE mandatory},
    ...
}

MulticastMRBs-ToBeReleased-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF ProtocolIE-SingleContainer { { MulticastMRBs-ToBeReleased-ItemIES} }
MulticastMRBs-ToBeReleased-ItemIES F1AP-PROTOCOL-IES ::= {
    { ID id-MulticastMRBs-ToBeReleased-Item CRITICALITY reject TYPE MulticastMRBs-ToBeReleased-Item PRESENCE mandatory},
    ...
}

```



```

-- *****
--
-- MULTICAST CONTEXT MODIFICATION RESPONSE
--
-- *****

MulticastContextModificationResponse ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    {{ MulticastContextModificationResponseIEs}},
    ...
}

MulticastContextModificationResponseIEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-DU-MBS-F1AP-ID          PRESENCE mandatory }|
    { ID id-MulticastMRBs-SetupMod-List  CRITICALITY reject TYPE MulticastMRBs-SetupMod-List PRESENCE optional  }|
    { ID id-MulticastMRBs-FailedToBeSetupMod-List CRITICALITY ignore TYPE MulticastMRBs-FailedToBeSetupMod-List PRESENCE optional }|
    { ID id-MulticastMRBs-Modified-List   CRITICALITY reject TYPE MulticastMRBs-Modified-List PRESENCE optional  }|
    { ID id-MulticastMRBs-FailedToBeModified-List CRITICALITY ignore TYPE MulticastMRBs-FailedToBeModified-List PRESENCE optional }|
    { ID id-CriticalityDiagnostics        CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional  }|
    { ID id-MulticastDU2CURRCInfo         CRITICALITY reject TYPE MulticastDU2CURRCInfo PRESENCE optional },
    ...
}

MulticastMRBs-SetupMod-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF ProtocolIE-SingleContainer { { MulticastMRBs-SetupMod-ItemIEs } }
MulticastMRBs-SetupMod-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-MulticastMRBs-SetupMod-Item          CRITICALITY reject TYPE MulticastMRBs-SetupMod-Item          PRESENCE mandatory},
    ...
}

MulticastMRBs-FailedToBeSetupMod-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF ProtocolIE-SingleContainer { { MulticastMRBs-FailedToBeSetupMod-ItemIEs } }
MulticastMRBs-FailedToBeSetupMod-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-MulticastMRBs-FailedToBeSetupMod-Item CRITICALITY ignore TYPE MulticastMRBs-FailedToBeSetupMod-Item PRESENCE mandatory},
    ...
}

MulticastMRBs-Modified-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF ProtocolIE-SingleContainer { { MulticastMRBs-Modified-ItemIEs } }
MulticastMRBs-Modified-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-MulticastMRBs-Modified-Item          CRITICALITY reject TYPE MulticastMRBs-Modified-Item          PRESENCE mandatory},
    ...
}

MulticastMRBs-FailedToBeModified-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF ProtocolIE-SingleContainer { { MulticastMRBs-FailedToBeModified-ItemIEs } }
MulticastMRBs-FailedToBeModified-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-MulticastMRBs-FailedToBeModified-Item CRITICALITY ignore TYPE MulticastMRBs-FailedToBeModified-Item PRESENCE mandatory},
    ...
}

-- *****
--

```

```

-- MULTICAST CONTEXT MODIFICATION FAILURE
--
-- *****

MulticastContextModificationFailure ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    {{ MulticastContextModificationFailureIEs}},
    ...
}

MulticastContextModificationFailureIEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-DU-MBS-F1AP-ID          PRESENCE mandatory }|
    { ID id-Cause                        CRITICALITY ignore TYPE Cause                      PRESENCE mandatory }|
    { ID id-CriticalityDiagnostics        CRITICALITY ignore TYPE CriticalityDiagnostics    PRESENCE optional },
    ...
}

-- *****
--
-- MULTICAST CONTEXT NOTIFICATION ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- MULTICAST CONTEXT NOTIFICATION INDICATION
--
-- *****

MulticastContextNotificationIndication ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    {{MulticastContextNotificationIndicationIEs}},
    ...
}

MulticastContextNotificationIndicationIEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-DU-MBS-F1AP-ID          PRESENCE mandatory }|
    { ID id-MulticastDU2CURRCInfo        CRITICALITY reject TYPE MulticastDU2CURRCInfo        PRESENCE optional },
    ...
}

-- *****
--
-- MULTICAST CONTEXT NOTIFICATION CONFIRM
--
-- *****

MulticastContextNotificationConfirm ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    {{MulticastContextNotificationConfirmIEs}},
    ...
}

```

```

MulticastContextNotificationConfirmIES F1AP-PROTOCOL-IES ::= {
  { ID id-gNB-CU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID          PRESENCE mandatory }|
  { ID id-gNB-DU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-DU-MBS-F1AP-ID          PRESENCE mandatory }|
  { ID id-CriticalityDiagnostics        CRITICALITY ignore TYPE CriticalityDiagnostics    PRESENCE optional  },
  ...
}

-- *****
--
-- MULTICAST CONTEXT NOTIFICATION REFUSE
--
-- *****

MulticastContextNotificationRefuse ::= SEQUENCE {
  protocolIES          ProtocolIE-Container    {{MulticastContextNotificationRefuseIES}},
  ...
}

MulticastContextNotificationRefuseIES F1AP-PROTOCOL-IES ::= {
  { ID id-gNB-CU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID          PRESENCE mandatory }|
  { ID id-gNB-DU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-DU-MBS-F1AP-ID          PRESENCE mandatory }|
  { ID id-CriticalityDiagnostics        CRITICALITY ignore TYPE CriticalityDiagnostics    PRESENCE optional  }|
  { ID id-Cause                        CRITICALITY ignore TYPE Cause                      PRESENCE mandatory },
  ...
}

-- *****
--
-- MULTICAST COMMON CONFIGURATION ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- MULTICAST COMMON CONFIGURATION REQUEST
--
-- *****

MulticastCommonConfigurationRequest ::= SEQUENCE {
  protocolIES          ProtocolIE-Container    {{MulticastCommonConfigurationRequestIES}},
  ...
}

MulticastCommonConfigurationRequestIES F1AP-PROTOCOL-IES ::= {
  { ID id-TransactionID                CRITICALITY reject TYPE TransactionID                PRESENCE mandatory }|
  { ID id-MulticastCU2DUCCommonRRCInfo CRITICALITY reject TYPE MulticastCU2DUCCommonRRCInfo PRESENCE optional  },
  ...
}

```

```

-- *****
--
-- MULTICAST COMMON CONFIGURATION RESPONSE
--
-- *****

MulticastCommonConfigurationResponse ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    {{MulticastCommonConfigurationResponseIEs}},
    ...
}

MulticastCommonConfigurationResponseIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional  },
    ...
}

-- *****
--
-- MULTICAST COMMON CONFIGURATION REFUSE
--
-- *****

MulticastCommonConfigurationRefuse ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    {{MulticastCommonConfigurationRefuseIEs}},
    ...
}

MulticastCommonConfigurationRefuseIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-Cause                  CRITICALITY ignore TYPE Cause                  PRESENCE mandatory }|
    { ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional  },
    ...
}

-- *****
--
-- MULTICAST DISTRIBUTION SETUP ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- MULTICAST DISTRIBUTION SETUP REQUEST
--
-- *****

MulticastDistributionSetupRequest ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    {{ MulticastDistributionSetupRequestIEs}},
    ...
}

```

```

MulticastDistributionSetupRequestIES F1AP-PROTOCOL-IES ::= {
  { ID id-gNB-CU-MBS-F1AP-ID                CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID                PRESENCE mandatory }|
  { ID id-gNB-DU-MBS-F1AP-ID                CRITICALITY reject TYPE GNB-DU-MBS-F1AP-ID                PRESENCE mandatory }|
  { ID id-MBSMulticastF1UContextDescriptor    CRITICALITY reject TYPE MBSMulticastF1UContextDescriptor    PRESENCE mandatory }|
  { ID id-MulticastF1UContext-ToBeSetup-List CRITICALITY reject TYPE MulticastF1UContext-ToBeSetup-List PRESENCE mandatory },
  ...
}

MulticastF1UContext-ToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF
                                     ProtocolIE-SingleContainer { { MulticastF1UContext-ToBeSetup-ItemIES } }
MulticastF1UContext-ToBeSetup-ItemIES F1AP-PROTOCOL-IES ::= {
  { ID id-MulticastF1UContext-ToBeSetup-Item    CRITICALITY reject TYPE MulticastF1UContext-ToBeSetup-Item    PRESENCE
mandatory},
  ...
}

-- *****
--
-- MULTICAST DISTRIBUTION SETUP RESPONSE
--
-- *****

MulticastDistributionSetupResponse ::= SEQUENCE {
  protocolIES          ProtocolIE-Container    {{ MulticastDistributionSetupResponseIES}},
  ...
}

MulticastDistributionSetupResponseIES F1AP-PROTOCOL-IES ::= {
  { ID id-gNB-CU-MBS-F1AP-ID                CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID                PRESENCE mandatory}|
  { ID id-gNB-DU-MBS-F1AP-ID                CRITICALITY reject TYPE GNB-DU-MBS-F1AP-ID                PRESENCE mandatory}|
  { ID id-MBSMulticastF1UContextDescriptor    CRITICALITY reject TYPE MBSMulticastF1UContextDescriptor    PRESENCE mandatory}|
  { ID id-MulticastF1UContext-Setup-List      CRITICALITY reject TYPE MulticastF1UContext-Setup-List      PRESENCE mandatory}|
  { ID id-MulticastF1UContext-FailedToBeSetup-List CRITICALITY ignore TYPE MulticastF1UContext-FailedToBeSetup-List PRESENCE optional}|
  { ID id-CriticalityDiagnostics              CRITICALITY ignore TYPE CriticalityDiagnostics              PRESENCE optional }|
  { ID id-MulticastF1UContextReferenceCU      CRITICALITY reject TYPE MulticastF1UContextReferenceCU      PRESENCE mandatory},
  ...
}

MulticastF1UContext-Setup-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF ProtocolIE-SingleContainer { { MulticastF1UContext-Setup-ItemIES } }
MulticastF1UContext-Setup-ItemIES F1AP-PROTOCOL-IES ::= {
  { ID id-MulticastF1UContext-Setup-Item    CRITICALITY reject TYPE MulticastF1UContext-Setup-Item    PRESENCE mandatory},
  ...
}

MulticastF1UContext-FailedToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF
                                     ProtocolIE-SingleContainer { { MulticastF1UContext-FailedToBeSetup-ItemIES } }
MulticastF1UContext-FailedToBeSetup-ItemIES F1AP-PROTOCOL-IES ::= {
  { ID id-MulticastF1UContext-FailedToBeSetup-Item    CRITICALITY ignore TYPE MulticastF1UContext-FailedToBeSetup-Item PRESENCE mandatory},
  ...
}

```

```

-- *****
--
-- MULTICAST DISTRIBUTION SETUP FAILURE
--
-- *****

MulticastDistributionSetupFailure ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    {{ MulticastDistributionSetupFailureIES}},
    ...
}

MulticastDistributionSetupFailureIES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-MBS-F1AP-ID          CRITICALITY ignore TYPE GNB-DU-MBS-F1AP-ID          PRESENCE optional }|
    { ID id-MBSMulticastF1UContextDescriptor CRITICALITY reject TYPE MBSMulticastF1UContextDescriptor PRESENCE mandatory }|
    { ID id-Cause                        CRITICALITY ignore TYPE Cause                        PRESENCE mandatory }|
    { ID id-CriticalityDiagnostics        CRITICALITY ignore TYPE CriticalityDiagnostics    PRESENCE optional },
    ...
}

-- *****
--
-- MULTICAST DISTRIBUTION RELEASE ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- MULTICAST DISTRIBUTION RELEASE COMMAND
--
-- *****

MulticastDistributionReleaseCommand ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    {{ MulticastDistributionReleaseCommandIES}},
    ...
}

MulticastDistributionReleaseCommandIES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-DU-MBS-F1AP-ID          PRESENCE mandatory }|
    { ID id-MBSMulticastF1UContextDescriptor CRITICALITY reject TYPE MBSMulticastF1UContextDescriptor PRESENCE mandatory }|
    { ID id-Cause                        CRITICALITY ignore TYPE Cause                        PRESENCE mandatory },
    ...
}

-- *****
--
-- MULTICAST DISTRIBUTION RELEASE COMPLETE
--
-- *****

```

```

MulticastDistributionReleaseComplete ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container    {{ MulticastDistributionReleaseCompleteIEs}},
    ...
}

MulticastDistributionReleaseCompleteIEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-MBS-F1AP-ID          CRITICALITY reject TYPE GNB-DU-MBS-F1AP-ID          PRESENCE mandatory }|
    { ID id-MBSMulticastF1UContextDescriptor CRITICALITY reject TYPE MBSMulticastF1UContextDescriptor PRESENCE mandatory }|
    { ID id-CriticalityDiagnostics       CRITICALITY ignore TYPE CriticalityDiagnostics       PRESENCE optional },
    ...
}

-- *****
--
-- PDC MEASUREMENT ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- PDC Measurement Initiation Request
--
-- *****

PDCMeasurementInitiationRequest ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container    {{PDCMeasurementInitiationRequest-IEs}},
    ...
}

PDCMeasurementInitiationRequest-IEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-RAN-UE-PDC-MeasID          CRITICALITY reject TYPE RAN-UE-PDC-MeasID          PRESENCE mandatory }|
    { ID id-PDCReportType              CRITICALITY reject TYPE PDCReportType              PRESENCE mandatory }|
    { ID id-PDCMeasurementPeriodicity  CRITICALITY reject TYPE PDCMeasurementPeriodicity  PRESENCE conditional }|
    -- The above IE shall be present if the PDCReportType IE is set to "periodic" --
    { ID id-PDCMeasurementQuantities   CRITICALITY reject TYPE PDCMeasurementQuantities   PRESENCE mandatory },
    ...
}

-- *****
--
-- PDC Measurement Initiation Response
--
-- *****

PDCMeasurementInitiationResponse ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container    {{PDCMeasurementInitiationResponse-IEs}},
    ...
}

PDCMeasurementInitiationResponse-IEs F1AP-PROTOCOL-IES ::= {

```

```

    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-RAN-UE-PDC-MeasID          CRITICALITY reject TYPE RAN-UE-PDC-MeasID          PRESENCE mandatory }|
    { ID id-PDCMeasurementResult        CRITICALITY ignore TYPE PDCMeasurementResult        PRESENCE optional  }|
    { ID id-CriticalityDiagnostics      CRITICALITY ignore TYPE CriticalityDiagnostics      PRESENCE optional  },
    ...
}

-- *****
--
-- PDC Measurement Initiation Failure
--
-- *****

PDCMeasurementInitiationFailure ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    {{PDCMeasurementInitiationFailure-IEs}},
    ...
}

PDCMeasurementInitiationFailure-IEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-RAN-UE-PDC-MeasID          CRITICALITY ignore TYPE RAN-UE-PDC-MeasID          PRESENCE mandatory }|
    { ID id-Cause                     CRITICALITY ignore TYPE Cause                     PRESENCE mandatory }|
    { ID id-CriticalityDiagnostics      CRITICALITY ignore TYPE CriticalityDiagnostics      PRESENCE optional  },
    ...
}

-- *****
--
-- PDC MEASUREMENT REPORT ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- PDC Measurement Report
--
-- *****

PDCMeasurementReport ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    {{PDCMeasurementReport-IEs}},
    ...
}

PDCMeasurementReport-IEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-RAN-UE-PDC-MeasID          CRITICALITY reject TYPE RAN-UE-PDC-MeasID          PRESENCE mandatory }|
    { ID id-PDCMeasurementResult        CRITICALITY ignore TYPE PDCMeasurementResult        PRESENCE mandatory },
    ...
}

-- *****

```



```

--
-- PDC MEASUREMENT TERMINATION PROCEDURE
--
-- *****
--
-- *****
--
-- PDC Measurement Termination
--
-- *****

PDCMeasurementTerminationCommand ::= SEQUENCE {
    protocolIES      ProtocolIE-Container      { { PDCMeasurementTerminationCommand-IES} },
    ...
}

PDCMeasurementTerminationCommand-IES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-RAN-UE-PDC-MeasID          CRITICALITY ignore TYPE RAN-UE-PDC-MeasID          PRESENCE mandatory },
    ...
}

-- *****
--
-- PDC MEASUREMENT FAILURE INDICATION ELEMENTARY PROCEDURE
--
-- *****
--
-- *****
--
-- PDC Measurement Failure Indication
--
-- *****

PDCMeasurementFailureIndication ::= SEQUENCE {
    protocolIES      ProtocolIE-Container      { { PDCMeasurementFailureIndication-IES} },
    ...
}

PDCMeasurementFailureIndication-IES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-RAN-UE-PDC-MeasID          CRITICALITY ignore TYPE RAN-UE-PDC-MeasID          PRESENCE mandatory }|
    { ID id-Cause                      CRITICALITY ignore TYPE Cause                      PRESENCE mandatory },
    ...
}

-- *****
--
-- PPS CONFIGURATION ELEMENTARY PROCEDURE

```

```

--
-- *****
-- *****
--
-- PRS CONFIGURATION REQUEST
--
-- *****

PRSConfigurationRequest ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container    {{PRSConfigurationRequest-IEs}},
    ...
}

PRSConfigurationRequest-IEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject  TYPE TransactionID          PRESENCE mandatory }|
    { ID id-PRSConfigRequestType    CRITICALITY reject  TYPE PRSConfigRequestType    PRESENCE mandatory }|
    { ID id-PRSTRPList              CRITICALITY ignore  TYPE PRSTRPList              PRESENCE mandatory },
    ...
}

-- *****
--
-- PRS CONFIGURATION RESPONSE
--
-- *****

PRSConfigurationResponse ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container    {{ PRSConfigurationResponse-IEs}},
    ...
}

PRSConfigurationResponse-IEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject  TYPE TransactionID          PRESENCE mandatory}|
    { ID id-PRSTransmissionTRPList CRITICALITY ignore  TYPE PRSTransmissionTRPList  PRESENCE optional}|
    { ID id-CriticalityDiagnostics CRITICALITY ignore  TYPE CriticalityDiagnostics PRESENCE optional},
    ...
}

-- *****
--
-- PRS CONFIGURATION FAILURE
--
-- *****

PRSConfigurationFailure ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container    {{ PRSConfigurationFailure-IEs}},
    ...
}

PRSConfigurationFailure-IEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject  TYPE TransactionID          PRESENCE mandatory}|
    { ID id-Cause                  CRITICALITY ignore  TYPE Cause                  PRESENCE mandatory}|
    { ID id-CriticalityDiagnostics CRITICALITY ignore  TYPE CriticalityDiagnostics PRESENCE optional},

```

```

    ...
}

-- *****
--
-- MEASUREMENT PRECONFIGURATION ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Positioning Preconfiguration Required
--
-- *****

MeasurementPreconfigurationRequired ::= SEQUENCE {
    protocolIES      ProtocolIE-Container    {{ MeasurementPreconfigurationRequired-IEs}},
    ...
}

MeasurementPreconfigurationRequired-IEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID    CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory}|
    { ID id-gNB-DU-UE-F1AP-ID    CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory}|
    { ID id-TRP-PRS-Info-List    CRITICALITY ignore TYPE TRP-PRS-Info-List PRESENCE mandatory},
    ...
}

-- *****
--
-- Positioning Preconfiguration Confirm
--
-- *****

MeasurementPreconfigurationConfirm ::= SEQUENCE {
    protocolIES      ProtocolIE-Container    { { MeasurementPreconfigurationConfirm-IEs} },
    ...
}

MeasurementPreconfigurationConfirm-IEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID    CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID    CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|
    { ID id-PosMeasGapPreConfigList CRITICALITY ignore TYPE PosMeasGapPreConfigList PRESENCE optional }|
    { ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },
    ...
}

-- *****
--

```

```

-- Positioning Preconfiguration Refuse
--
-- *****

MeasurementPreconfigurationRefuse ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    { { MeasurementPreconfigurationRefuse-IES} },
    ...
}

MeasurementPreconfigurationRefuse-IES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-Cause                      CRITICALITY ignore TYPE Cause                      PRESENCE mandatory }|
    { ID id-CriticalityDiagnostics      CRITICALITY ignore TYPE CriticalityDiagnostics    PRESENCE optional },
    ...
}

-- *****
--
-- MEASUREMENT ACTIVATION ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Measurement Activation
--
-- *****

MeasurementActivation ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    { { MeasurementActivation-IES} },
    ...
}

MeasurementActivation-IES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-ActivationRequestType      CRITICALITY reject TYPE ActivationRequestType      PRESENCE mandatory }|
    { ID id-PRS-Measurement-Info-List  CRITICALITY ignore TYPE PRS-Measurement-Info-List    PRESENCE optional},
    ...
}

-- *****
--
-- QOE INFORMATION TRANSFER ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- QoE Information Transfer
--
-- *****

```

```

QoEInformationTransfer ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    {{QoEInformationTransfer-IEs}},
    ...
}

QoEInformationTransfer-IEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject  TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject  TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-QoEInformation              CRITICALITY ignore  TYPE QoEInformation            PRESENCE optional },
    ...
}

-- *****
--
-- POSITIONING SYSTEM INFORMATION DELIVERY ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- Positioning System information Delivery Command
--
-- *****

PosSystemInformationDeliveryCommand ::= SEQUENCE {
    protocolIES          ProtocolIE-Container    {{ PosSystemInformationDeliveryCommandIEs}},
    ...
}

PosSystemInformationDeliveryCommandIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID              CRITICALITY reject  TYPE TransactionID            PRESENCE mandatory }|
    { ID id-NRCGI                      CRITICALITY reject  TYPE NRCGI                    PRESENCE mandatory }|
    { ID id-PosSIttypeList              CRITICALITY reject  TYPE PosSIttypeList           PRESENCE mandatory }|
    { ID id-ConfirmedUEID              CRITICALITY reject  TYPE GNB-DU-UE-F1AP-ID        PRESENCE mandatory },
    ...
}

-- *****
--
-- DU-CU CELL SWITCH NOTIFICATION ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- DU-CU Cell Switch Notification
--
-- *****

DUCUCellSwitchNotification ::= SEQUENCE {

```

```

    protocolIEs          ProtocolIE-Container    {{ DUCUCellSwitchNotificationIEs}},
    ...
}

DUCUCellSwitchNotificationIEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject  TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject  TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-NRCGI                      CRITICALITY reject  TYPE NRCGI                      PRESENCE mandatory }|
    { ID id-LTMCCellSwitchInformation    CRITICALITY ignore TYPE LTMCCellSwitchInformation PRESENCE optional  }|
    { ID id-TAInformation-List          CRITICALITY ignore TYPE TAInformation-List          PRESENCE optional  },
    ...
}

-- *****
--
-- CU-DU CELL SWITCH NOTIFICATION ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- CU-DU Cell Switch Notification
--
-- *****

CUDUCellSwitchNotification ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    {{ CUDUCellSwitchNotificationIEs}},
    ...
}

CUDUCellSwitchNotificationIEs F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID          CRITICALITY reject  TYPE GNB-CU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID          CRITICALITY reject  TYPE GNB-DU-UE-F1AP-ID          PRESENCE mandatory }|
    { ID id-NRCGI                      CRITICALITY reject  TYPE NRCGI                      PRESENCE mandatory }|
    { ID id-LTMCCellSwitchInformation    CRITICALITY ignore TYPE LTMCCellSwitchInformation PRESENCE optional  }|
    { ID id-TAInformation-List          CRITICALITY ignore TYPE TAInformation-List          PRESENCE optional  },
    ...
}

-- *****
--
-- DU-CU TA INFORMATION TRANSFER ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- DU-CU TA Information Transfer
--
-- *****

DUCUTAIInformationTransfer ::= SEQUENCE {

```

```

    protocolIEs      ProtocolIE-Container      {{ DUCUTAIInformationTransferIEs}},
  ...
}

DUCUTAIInformationTransferIEs F1AP-PROTOCOL-IES ::= {
  { ID id-TransactionID          CRITICALITY reject  TYPE TransactionID          PRESENCE mandatory  }|
  { ID id-DUtoCUTAIInformation-List  CRITICALITY ignore  TYPE DUtoCUTAIInformation-List  PRESENCE mandatory  },
  ...
}

-- *****
--
-- CU-DU TA INFORMATION TRANSFER ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- CU-DU TA Information Transfer
--
-- *****

CUDUTAIInformationTransfer ::= SEQUENCE {
  protocolIEs      ProtocolIE-Container      {{ CUDUTAIInformationTransferIEs}},
  ...
}

CUDUTAIInformationTransferIEs F1AP-PROTOCOL-IES ::= {
  { ID id-TransactionID          CRITICALITY reject  TYPE TransactionID          PRESENCE mandatory  }|
  { ID id-CUtoDUTAIInformation-List  CRITICALITY ignore  TYPE CUtoDUTAIInformation-List  PRESENCE mandatory  },
  ...
}

-- *****
--
-- QOE INFORMATION TRANSFER CONTROL ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- QoE Information Transfer Control
--
-- *****

QoEInformationTransferControl ::= SEQUENCE {
  protocolIEs      ProtocolIE-Container {{QoEInformationTransferControl-IEs}},
  ...
}

QoEInformationTransferControl-IEs F1AP-PROTOCOL-IES ::= {
  { ID id-TransactionID          CRITICALITY reject  TYPE TransactionID          PRESENCE mandatory  }|

```

```

    { ID id-DeactivationIndication          CRITICALITY ignore  TYPE DeactivationIndication  PRESENCE optional },
    ...
}

-- *****
--
-- RACH Indication ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- RACH Indication
--
-- *****

RachIndication ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    {{ RachIndication-IEs}},
    ...
}

RachIndication-IEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject  TYPE TransactionID          PRESENCE mandatory }|
    { ID id-RAReportIndicationList CRITICALITY reject  TYPE RAReportIndicationList PRESENCE mandatory },
    ...
}

-- *****
--
-- Timing Synchronisation Status Elementary Procedure
--
-- *****

-- *****
--
-- TIMING SYNCHRONISATION STATUS REQUEST
--
-- *****

TimingSynchronisationStatusRequest ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container    {{TimingSynchronisationStatusRequest-IEs}},
    ...
}

TimingSynchronisationStatusRequest-IEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject  TYPE TransactionID          PRESENCE mandatory }|
    { ID id-RANTSSRequestType      CRITICALITY reject  TYPE RANTSSRequestType      PRESENCE mandatory },
    ...
}

-- *****

```



```

--
-- TIMING SYNCHRONISATION STATUS RESPONSE
--
-- *****

TimingSynchronisationStatusResponse ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container    {{TimingSynchronisationStatusResponse-IEs}},
    ...
}

TimingSynchronisationStatusResponse-IEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject  TYPE TransactionID          PRESENCE mandatory }|
    { ID id-CriticalityDiagnostics CRITICALITY ignore  TYPE CriticalityDiagnostics PRESENCE optional },
    ...
}

-- *****
--
-- TIMING SYNCHRONISATION STATUS FAILURE
--
-- *****

TimingSynchronisationStatusFailure ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container    {{TimingSynchronisationStatusFailure-IEs}},
    ...
}

TimingSynchronisationStatusFailure-IEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject  TYPE TransactionID          PRESENCE mandatory }|
    { ID id-Cause                  CRITICALITY ignore  TYPE Cause                  PRESENCE mandatory }|
    { ID id-CriticalityDiagnostics CRITICALITY ignore  TYPE CriticalityDiagnostics PRESENCE optional },
    ...
}

-- *****
--
-- Timing Synchronisation Status Reporting Elementary Procedure
--
-- *****

-- *****
--
-- TIMING SYNCHRONISATION STATUS REPORT
--
-- *****

TimingSynchronisationStatusReport ::= SEQUENCE {
    protocolIEs      ProtocolIE-Container    {{ TimingSynchronisationStatusReport-IEs}},
    ...
}

TimingSynchronisationStatusReport-IEs F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject  TYPE TransactionID          PRESENCE mandatory }|
    { ID id-RANTimingSynchronisationStatusInfo CRITICALITY ignore  TYPE RANTimingSynchronisationStatusInfo PRESENCE mandatory },
    ...
}

```

```

    ...
}

-- *****
--
-- DU-CU Access And Mobility Indication ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- DU-CU Access And Mobility Indication
--
-- *****

DUCUAccessAndMobilityIndication ::= SEQUENCE {
    protocolIES          ProtocolIE-Container      { { DUCUAccessAndMobilityIndicationIES} },
    ...
}

DUCUAccessAndMobilityIndicationIES F1AP-PROTOCOL-IES ::= {
    { ID id-TransactionID          CRITICALITY reject TYPE TransactionID          PRESENCE mandatory }|
    { ID id-DLLBTFailureInformationList CRITICALITY ignore TYPE DLLBTFailureInformationList PRESENCE optional},
    ...
}

-- *****
--
-- CU-DU MOBILITY INITIATION ELEMENTARY PROCEDURE
--
-- *****

-- *****
--
-- CU-DU Mobility Initiation Request
--
-- *****

CUDUMobilityInitiationRequest ::= SEQUENCE {
    protocolIES          ProtocolIE-Container      {{ CUDUMobilityInitiationRequestIES }},
    ...
}

CUDUMobilityInitiationRequestIES F1AP-PROTOCOL-IES ::= {
    { ID id-gNB-CU-UE-F1AP-ID      CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID      PRESENCE mandatory }|
    { ID id-gNB-DU-UE-F1AP-ID      CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID      PRESENCE mandatory }|
    { ID id-MobilityInitiation     CRITICALITY reject TYPE MobilityInitiation     PRESENCE mandatory },
    ...
}

END
-- ASN1STOP

```

## 9.4.5 Information Element Definitions

```
-- ASN1START
-- *****
--
-- Information Element Definitions
--
-- *****

F1AP-IEs {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
ngran-access (22) modules (3) f1ap (3) version1 (1) f1ap-IEs (2) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS
    id-gNB-CUSystemInformation,
    id-HandoverPreparationInformation,
    id-TAISliceSupportList,
    id-RANAC,
    id-BearerTypeChange,
    id-Coverage-Modification-Cause,
    id-Cell-Direction,
    id-Cell-Type,
    id-CellGroupConfig,
    id-AvailablePLMNList,
    id-PDUSessionID,
    id-ULPDUSessionAggregateMaximumBitRate,
    id-DC-Based-Duplication-Configured,
    id-DC-Based-Duplication-Activation,
    id-Duplication-Activation,
    id-DLPDCPSNLength,
    id-ULPDCPSNLength,
    id-RLC-Status,
    id-MeasurementTimingConfiguration,
    id-DRB-Information,
    id-QoSFlowMappingIndication,
    id-ServingCellMO,
    id-RLCMode,
    id-ExtendedServedPLMNs-List,
    id-ExtendedAvailablePLMN-List,
    id-DRX-LongCycleStartOffset,
    id-SelectedBandCombinationIndex,
    id-SelectedFeatureSetEntryIndex,
    id-Ph-InfoSCG,
    id-latest-RRC-Version-Enhanced,
    id-RequestedBandCombinationIndex,
    id-RequestedFeatureSetEntryIndex,
    id-DRX-Config,
    id-UEAssistanceInformation,
```

id-PDCCH-BlindDetectionSCG,  
id-Requested-PDCCH-BlindDetectionSCG,  
id-BPLMN-ID-Info-List,  
id-NotificationInformation,  
id-TNLAssociationTransportLayerAddressgNBdu,  
id-portNumber,  
id-AdditionalSIBMessageList,  
id-IgnorePRACHConfiguration,  
id-CG-Config,  
id-Ph-InfoMCG,  
id-AggressorgNBSetID,  
id-VictimgNBSetID,  
id-MeasGapSharingConfig,  
id-systemInformationAreaID,  
id-areaScope,  
id-IntendedTDD-DL-ULConfig,  
id-QoSMonitoringRequest,  
id-BHInfo,  
id-IAB-Info-IAB-DU,  
id-IAB-Info-IAB-donor-CU,  
id-IAB-Barred,  
id-SIB12-message,  
id-SIB13-message,  
id-SIB14-message,  
id-UEAssistanceInformationEUTRA,  
id-SL-PHY-MAC-RLC-Config,  
id-SL-ConfigDedicatedEUTRA-Info,  
id-AlternativeQoSParaSetList,  
id-CurrentQoSParaSetIndex,  
id-CarrierList,  
id-ULCarrierList,  
id-FrequencyShift7p5khz,  
id-SSB-PositionsInBurst,  
id-NRPRACHConfig,  
id-TDD-UL-DLConfigCommonNR,  
id-CNPacketDelayBudgetDownlink,  
id-CNPacketDelayBudgetUplink,  
id-ExtendedPacketDelayBudget,  
id-TSCTrafficCharacteristics,  
id-AdditionalPDCPDuplicationTNL-List,  
id-RLCDuplicationInformation,  
id-AdditionalDuplicationIndication,  
id-mdtConfiguration,  
id-TraceCollectionEntityURI,  
id-NID,  
id-NPNSupportInfo,  
id-NPNBroadcastInformation,  
id-AvailableSNPN-ID-List,  
id-SIB10-message,  
id-RequestedP-MaxFR2,  
id-DLCarrierList,  
id-ExtendedTAISliceSupportList,  
id-E-CID-MeasurementQuantities-Item,  
id-ConfiguredTACIndication,

id-NRCGI,  
id-SFN-Offset,  
id-TransmissionStopIndicator,  
id-SrsFrequency,  
id-EstimatedArrivalProbability,  
id-Supported-MBS-FSA-ID-List,  
id-TRPType,  
id-SRSSpatialRelationPerSRSResource,  
id-MBS-Broadcast-NeighbourCellList,  
id-PDCPTerminatingNodeDLTNLAddrInfo,  
id-ENBDLTNLAddress,  
id-PRS-Resource-ID,  
id-LocationMeasurementInformation,  
id-SliceRadioResourceStatus,  
id-CompositeAvailableCapacity-SUL,  
id-NR-U,  
id-NR-U-Channel-List,  
id-MIMOPRUsageInformation,  
id-IngressNonF1terminatingTopologyIndicator,  
id-NonF1terminatingTopologyIndicator,  
id-EgressNonF1terminatingTopologyIndicator,  
id-rBSetConfiguration,  
id-frequency-Domain-HSNA-Configuration-List,  
id-child-IAB-Nodes-NA-Resource-List,  
id-Parent-IAB-Nodes-NA-Resource-Configuration-List,  
id-uL-FreqInfo,  
id-uL-Transmission-Bandwidth,  
id-dL-FreqInfo,  
id-dL-Transmission-Bandwidth,  
id-uL-NR-Carrier-List,  
id-dL-NR-Carrier-List,  
id-nRFreqInfo,  
id-transmission-Bandwidth,  
id-nR-Carrier-List,  
id-permutation,  
id-M5ReportAmount,  
id-M6ReportAmount,  
id-M7ReportAmount,  
id-SurvivalTime,  
id-PDCMeasurementQuantities-Item,  
id-OnDemandPRS,  
id-AoA-SearchWindow,  
id-ZoAInformation,  
id-ARPLocationInfo,  
id-ARP-ID,  
id-MultipleULAoA,  
id-UL-SRS-RSRPP,  
id-SRSResourcetype,  
id-ExtendedAdditionalPathList,  
id-LoS-NLoSInformation,  
id-NumberOfTRPRxTEG,  
id-NumberOfTRPRxTxTEG,  
id-TRPTxTEGAssociation,  
id-TRPTEGInformation,

id-TRPRx-TEGInformation,  
id-TRPBeamAntennaInformation,  
id-Redcap-Bcast-Information,  
id-NR-TADV,  
id-SDT-MAC-PHY-CG-Config,  
id-CG-SDTindicatorSetup,  
id-CG-SDTindicatorMod,  
id-SDTRLCBearerConfiguration,  
id-SRBMappingInfo,  
id-DRBMappingInfo,  
id-LastUsedCellIndication,  
id-Recommended-SSBs-List,  
id-SSBs-withinTheCell-to-be-Activated-List,  
id-SIB17-message,  
id-MUSIM-GapConfig,  
id-SIB20-message,  
id-pathPower,  
id-DU-RX-MT-RX-Extend,  
id-DU-TX-MT-TX-Extend,  
id-DU-RX-MT-TX-Extend,  
id-DU-TX-MT-RX-Extend,  
id-TAINSAGSupportList,  
id-SL-RLC-ChannelToAddModList,  
id-SIB15-message,  
id-InterFrequencyConfig-NoGap,  
id-MBSInterestIndication,  
id-L571Info,  
id-L1151Info,  
id-SCS-480,  
id-SCS-960,  
id-SRSPortIndex,  
id-PEISubgroupingSupportIndication,  
id-NeedForGapsInfoNR,  
id-NeedForGapNCSGInfoNR,  
id-NeedForGapNCSGInfoEUTRA,  
id-Source-MRB-ID,  
id-RedCapIndication,  
id-UL-GapFR2-Config,  
id-ConfigRestrictInfoDAPS,  
id-MulticastF1UContextReferenceCU,  
id-TwoPHRModeMCG,  
id-TwoPHRModeSCG,  
id-ncd-SSB-RedCapInitialBWP-SDT,  
id-nrofSymbolsExtended,  
id-repetitionFactorExtended,  
id-startRBHopping,  
id-startRBIndex,  
id-transmissionCombn8,  
id-ServCellInfoList,  
id-Preconfigured-measurement-GAP-Request,  
id-BWP-Id,  
id-ExtendedResourceSymbolOffset,  
id-MusimCapabilityRestrictionIndication,  
id-duplicationIndication,

id-dRB-List,  
id-ChannelOccupancyTimePercentageUL,  
id-RadioResourceStatusNR-U,  
id-FiveG-ProSeLayer2Multipath,  
id-FiveG-ProSeLayer2UEtoUERelay,  
id-FiveG-ProSeLayer2UEtoUERemote,  
id-TSCTrafficCharacteristicsFeedback,  
id-RANfeedbacktype,  
id-Mobile-TRP-LocationInformation,  
id-Mobile-IAB-MT-UE-ID,  
id-MobileAccessPointLocation,  
id-SIB24-message,  
id-PDUSetQoSParameters,  
id-N6JitterInformation,  
id-ECNMarkingorCongestionInformationReportingRequest,  
id-ECNMarkingorCongestionInformationReportingStatus,  
id-ERedcap-Bcast-Information,  
id-NeedForInterruptionInfoNR,  
id-SCPAC-Request,  
id-MobileIAB-Barred,  
id-F1UTunnelNotEstablished,  
id-S-CPACLowerLayerReferenceConfigRequest,  
id-MusimCandidateBandList,  
id-PSIbasedSDUdiscardUL,  
id-SIB22-message,  
id-U2URLCChannelQoS,  
id-SL-PHY-MAC-RLC-ConfigExt,  
id-UL-RSCP,  
id-BW-Aggregation-Request-Indication,  
id-ReportingGranularitykminus1,  
id-ReportingGranularitykminus1additionalpath,  
id-ReportingGranularitykminus2,  
id-ReportingGranularitykminus2additionalpath,  
id-ReportingGranularitykminus3,  
id-ReportingGranularitykminus3additionalpath,  
id-ReportingGranularitykminus4,  
id-ReportingGranularitykminus4additionalpath,  
id-ReportingGranularitykminus5,  
id-ReportingGranularitykminus5additionalpath,  
id-ReportingGranularitykminus6,  
id-ReportingGranularitykminus6additionalpath,  
id-TimingReportingGranularityFactorExtended,  
id-PosValidityAreaCellList,  
id-SymbolIndex,  
id-AggregatedPosSRSResourceIDList,  
id-PhaseQuality,  
id-PRSBWAggregationRequestInfoList,  
id-AggregatedPRSResourceSetList,  
id-MeasuredFrequencyHops,  
id-TxHoppingConfiguration,  
id-AggregatedPosSRSResourceSetList,  
id-ValidityAreaSpecificSRSInformation,  
id-PeerUE-ID,  
id-MeasBasedOnAggregatedResources,

id-SIB23-message,  
id-PointA,  
id-SCS-SpecificCarrier,  
id-NR-PCI,  
id-E-CID-MeasuredResultsAssociatedInfoList,  
id-XR-Bcast-Information,  
id-MaxDataBurstVolume,  
id-BarringExemptionforEmerCallInfo,  
id-SIB17bis-message,  
id-ReportingIntervalIMS,  
id-Transmission-Bandwidth-asymmetric,  
id-TagIDPointer,  
id-LocalOrigin,  
id-SRSPosPeriodicConfigHyperSFNIndex,  
id-candidatePSCellsToCancel,  
id-ValidityAreaSpecificSRSInformationExtended,  
maxNRARFCN,  
maxnoofErrors,  
maxnoofBPLMNs,  
maxnoofBPLMNsNR,  
maxnoofDLUPTNLInformation,  
maxnoofNrCellBands,  
maxnoofULUPTNLInformation,  
maxnoofQoSFlows,  
maxnoofSliceItems,  
maxnoofSIBTypes,  
maxnoofSITypes,  
maxCelllineNB,  
maxnoofExtendedBPLMNs,  
maxnoofAdditionalSIBs,  
maxnoofUACPLMNs,  
maxnoofUACperPLMN,  
maxCellingNBDU,  
maxnoofTLAs,  
maxnoofGTPTLAs,  
maxnoofslots,  
maxnoofNonUPTrafficMappings,  
maxnoofServingCells,  
maxnoofServedCellsIAB,  
maxnoofChildIABNodes,  
maxnoofIABSTCInfo,  
maxnoofDUFSlots,  
maxnoofHSNASlots,  
maxnoofEgressLinks,  
maxnoofMappingEntries,  
maxnoofDSInfo,  
maxnoofQoSParaSets,  
maxnoofPC5QoSFlows,  
maxnoofSSBAreas,  
maxnoofNRSCSS,  
maxnoofPhysicalResourceBlocks,  
maxnoofPhysicalResourceBlocks-1,  
maxnoofPRACHconfigs,  
maxnoofRAREports,



maxnoofRLFReports,  
maxnoofAdditionalPDCPDuplicationTNL,  
maxnoofRLCDuplicationState,  
maxnoofCHOcells,  
maxnoofMDTPLMNs,  
maxnoofCAGsupported,  
maxnoofNIDsupported,  
maxnoofExtSliceItems,  
maxnoofPosMeas,  
maxnoofTRPInfoTypes,  
maxnoofSRSTriggerStates,  
maxnoofSpatialRelations,  
maxnoBcastCell,  
maxnoofTRPs,  
maxnooflcs-gcs-translation,  
maxnoofPath,  
maxnoofMeasE-CID,  
maxnoofSSBs,  
maxnoSRS-ResourceSets,  
maxnoSRS-ResourcePerSet,  
maxnoSRS-Carriers,  
maxnoSCSs,  
maxnoSRS-Resources,  
maxnoSRS-PosResources,  
maxnoSRS-PosResourceSets,  
maxnoSRS-PosResourcePerSet,  
maxnoofPRS-ResourceSets,  
maxnoofPRS-ResourcesPerSet,  
maxNoOfMeasTRPs,  
maxnoofPRSresourceSets,  
maxnoofPRSresources,  
maxnoofSuccessfulH0Reports,  
maxnoofNR-UChannelIDs,  
maxServedCellforSON,  
maxNeighbourCellforSON,  
maxAffectedCells,  
maxnoofMBSQoSFlows,  
maxnoofMBSFSAs,  
maxnoofMBSAreaSessionIDs,  
maxnoofMBSServiceAreaInformation,  
maxnoofTAIforMBS,  
maxnoofCellsforMBS,  
maxnoofIABCongInd,  
maxnoofBHRLCChannels,  
maxnoofTLAsIAB,  
maxnoofRBsetsPerCell,  
maxnoofRBsetsPerCell-1,  
maxnoofNeighbourNodeCellsIAB,  
maxnoofMeasPDC,  
maxnoARPs,  
maxnoofULAoAs,  
maxNoPathExtended,  
maxnoTRPTEGs,  
maxFreqLayers,

maxNumResourcesPerAngle,  
maxnoAzimuthAngles,  
maxnoElevationAngles,  
maxnoofPRSTRPs,  
maxnoofQoEInformation,  
maxnoofUuRLCChannels,  
maxnoofPC5RLCChannels,  
maxnoofSMBRValues,  
maxnoofMBSSessionsofUE,  
maxnoofSLdestinations,  
maxnoofNSAGs,  
maxnoofSDTBearers,  
maxnoofPosSITypes,  
maxnoofMRBs,  
maxNrofBWPs,  
maxnoofUETypes,  
maxnoofLTMCells,  
maxnoofLTMgNB-DUs,  
maxnoofTAList,  
maxnoofDRBs,  
maxnoofUEsInQMCTransferControlMessage,  
maxnoofUEsforRARReportIndications,  
maxnoofSuccessfulPSCellChangeReports,  
maxnoofPeriodicities,  
maxnoofThresholdMBS-1,  
maxMBSSessionsinSessionInfoList,  
maxnoofLBTFailureInformation,  
maxnoofRSPPQoSFlows,  
maxnoVACell,  
maxnoAggregatedSRS-Resources,  
maxnoAggregatedPosSRSResourceSets,  
maxnoAggregatedPosPRSResourceSets,  
maxnoofTimeWindowSRS,  
maxnoofTimeWindowMea,  
maxnoPreconfiguredSRS,  
maxnoHopsMinusOne,  
maxnoAggCombinations,  
maxnoAggregatedPosSRSCombinations,  
maxnoofCandidateCells,  
maxnoofSSBIndices

FROM F1AP-Constants

Criticality,  
ProcedureCode,  
ProtocolIE-ID,  
TriggeringMessage

FROM F1AP-CommonDataTypes

```

    ProtocolExtensionContainer{},
    F1AP-PROTOCOL-EXTENSION,
    ProtocolIE-SingleContainer{},
    F1AP-PROTOCOL-IES

FROM F1AP-Containers;

-- A

AbortTransmission ::= CHOICE {
    srsResourceSetID      SRSResourceSetID,
    releaseALL            NULL,
    choice-extension      ProtocolIE-SingleContainer { { AbortTransmission-ExtIEs } }
}

AbortTransmission-ExtIEs F1AP-PROTOCOL-IES ::= {
    { ID id-AggregatedPosSRSResourceSetList CRITICALITY ignore TYPE AggregatedPosSRSResourceSetList PRESENCE mandatory },
    ...
}

AccessPointPosition ::= SEQUENCE {
    latitudeSign          ENUMERATED {north, south},
    latitude              INTEGER (0..8388607),
    longitude              INTEGER (-8388608..8388607),
    directionOfAltitude   ENUMERATED {height, depth},
    altitude              INTEGER (0..32767),
    uncertaintySemi-major INTEGER (0..127),
    uncertaintySemi-minor INTEGER (0..127),
    orientationOfMajorAxis INTEGER (0..179),
    uncertaintyAltitude    INTEGER (0..127),
    confidence            INTEGER (0..100),
    iE-Extensions         ProtocolExtensionContainer { { AccessPointPosition-ExtIEs } } OPTIONAL
}

AccessPointPosition-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Activated-Cells-Mapping-List-Item ::= SEQUENCE {
    nRCGIforTargetLogicalDU NRCGI,
    nRCGIforSourceLogicalDU NRCGI,
    iE-Extensions          ProtocolExtensionContainer { { Activated-Cells-Mapping-List-ItemExtIEs } } OPTIONAL,
    ...
}

Activated-Cells-Mapping-List-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Activated-Cells-to-be-Updated-List ::= SEQUENCE (SIZE(1..maxnoofServedCellsIAB)) OF Activated-Cells-to-be-Updated-List-Item

Activated-Cells-to-be-Updated-List-Item ::= SEQUENCE{
    nRCGI          NRCGI,
    iAB-DU-Cell-Resource-Configuration-Mode-Info IAB-DU-Cell-Resource-Configuration-Mode-Info,

```

```

    iE-Extensions          ProtocolExtensionContainer { { Activated-Cells-to-be-Updated-List-Item-ExtIEs} } OPTIONAL
}

```

```

Activated-Cells-to-be-Updated-List-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

ActivationRequestType ::= ENUMERATED {activate, deactivate, ...}

```

```

ActiveULBWP ::= SEQUENCE {
    locationAndBandwidth      INTEGER (0..37949,...),
    subcarrierSpacing         ENUMERATED {kHz15, kHz30, kHz60, kHz120,..., kHz480, kHz960},
    cyclicPrefix              ENUMERATED {normal, extended},
    txDirectCurrentLocation   INTEGER (0..3301,...),
    shift7dot5kHz             ENUMERATED {true, ...} OPTIONAL,
    sRSConfig                 SRSConfig,
    iE-Extensions             ProtocolExtensionContainer { { ActiveULBWP-ExtIEs} } OPTIONAL
}

```

```

ActiveULBWP-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

AdditionalDuplicationIndication ::= ENUMERATED {
    three,
    four,
    ...
}

```

```

AdditionalPath-List ::= SEQUENCE (SIZE(1..maxnoofPath)) OF AdditionalPath-Item

```

```

AdditionalPath-Item ::= SEQUENCE {
    relativePathDelay      RelativePathDelay,
    pathQuality             TRPMeasurementQuality OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { AdditionalPath-Item-ExtIEs } } OPTIONAL
}

```

```

AdditionalPath-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-MultipleULAoA   CRITICALITY ignore EXTENSION MultipleULAoA      PRESENCE optional}|
    { ID id-pathPower       CRITICALITY ignore EXTENSION UL-SRS-RSRPP        PRESENCE optional},
    ...
}

```

```

ExtendedAdditionalPathList ::= SEQUENCE (SIZE (1.. maxNoPathExtended)) OF ExtendedAdditionalPathList-Item

```

```

ExtendedAdditionalPathList-Item ::= SEQUENCE {
    relativeTimeOfPath      RelativePathDelay,
    pathQuality             TRPMeasurementQuality OPTIONAL,
    multipleULAoA           MultipleULAoA OPTIONAL,
    pathPower               UL-SRS-RSRPP OPTIONAL,
    iE-Extensions           ProtocolExtensionContainer { { ExtendedAdditionalPathList-Item-ExtIEs} } OPTIONAL,
    ...
}

```

```

}

ExtendedAdditionalPathList-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

AdditionalPDCPDuplicationTNL-List ::= SEQUENCE (SIZE(1..maxnoofAdditionalPDCPDuplicationTNL)) OF AdditionalPDCPDuplicationTNL-Item

AdditionalPDCPDuplicationTNL-Item ::=SEQUENCE {
    additionalPDCPDuplicationUPTNLInformation    UPTransportLayerInformation,
    iE-Extensions    ProtocolExtensionContainer { { AdditionalPDCPDuplicationTNL-ItemExtIEs } } OPTIONAL,
    ...
}

AdditionalPDCPDuplicationTNL-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
{ ID id-BHInfo    CRITICALITY ignore    EXTENSION BHInfo    PRESENCE optional    },
    ...
}

AdditionalSIBMessageList ::= SEQUENCE (SIZE(1..maxnoofAdditionalSIBs)) OF AdditionalSIBMessageList-Item

AdditionalSIBMessageList-Item ::= SEQUENCE {
    additionalSIB    OCTET STRING,
    iE-Extensions    ProtocolExtensionContainer { { AdditionalSIBMessageList-Item-ExtIEs } } OPTIONAL
}

AdditionalSIBMessageList-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

AdditionalRRMPriorityIndex ::= BIT STRING (SIZE(32))

AffectedCellsAndBeams-List ::= SEQUENCE (SIZE (1.. maxAffectedCells)) OF AffectedCellsAndBeams-Item

AffectedCellsAndBeams-Item::= SEQUENCE {
    nRCGI    NRCGI,
    affectedSSB-List    AffectedSSB-List OPTIONAL,
    iE-Extensions    ProtocolExtensionContainer { { AffectedCellsAndBeams-Item-ExtIEs } } OPTIONAL,
    ...
}

AffectedCellsAndBeams-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

AffectedSSB-List::= SEQUENCE (SIZE (1..maxnoofSSBAreas)) OF AffectedSSB-Item

AffectedSSB-Item::= SEQUENCE {
    sSB-Index    INTEGER(0..63),
    iE-Extensions    ProtocolExtensionContainer { { AffectedSSB-Item-ExtIEs } } OPTIONAL,
    ...
}

AffectedSSB-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

}

AggregatedPosSRSResourceIDList ::= SEQUENCE (SIZE(2..maxnoAggregatedSRS-Resources)) OF Aggregated-PosSRS-Resource-ID-Item

Aggregated-PosSRS-Resource-ID-Item ::= SEQUENCE {
    positioningSRS          SRSPosResourceID,
    iE-Extensions           ProtocolExtensionContainer { { Aggregated-PosSRS-Resource-ID-Item-ExtIEs} } OPTIONAL,
    ...
}

Aggregated-PosSRS-Resource-ID-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-PointA          CRITICALITY ignore EXTENSION PointA          PRESENCE mandatory}|
    { ID id-SCS-SpecificCarrier CRITICALITY ignore EXTENSION SCS-SpecificCarrier PRESENCE mandatory}|
    { ID id-NR-PCI          CRITICALITY ignore EXTENSION NRPCI          PRESENCE optional},
    ...
}

AggregatedPosSRSResourceSetList ::= SEQUENCE (SIZE(1.. maxnoAggregatedPosSRSCombinations)) OF AggregatedPosSRSResourceSet-Item

AggregatedPosSRSResourceSet-Item ::= SEQUENCE {
    combined-posSRSResourceSet-List Combined-PosSRSResourceSet-List,
    iE-Extensions                   ProtocolExtensionContainer { { AggregatedPosSRSResourceSet-Item-ExtIEs} } OPTIONAL,
    ...
}

AggregatedPosSRSResourceSet-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Combined-PosSRSResourceSet-List ::= SEQUENCE (SIZE (2..maxnoAggregatedPosSRSResourceSets)) OF Combined-PosSRSResourceSet-Item

Combined-PosSRSResourceSet-Item ::= SEQUENCE {
    pointA                     INTEGER (0..3279165),
    nRPCI                      NRPCI                      OPTIONAL,
    posSRSResourceSetID        INTEGER(0..15),
    scs-specificCarrier         SCS-SpecificCarrier,
    iE-Extensions              ProtocolExtensionContainer { { Combined-PosSRSResourceSet-Item-ExtIEs} } OPTIONAL,
    ...
}

Combined-PosSRSResourceSet-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

AggregatedPRSResourceSetList ::= SEQUENCE (SIZE (1..maxnoAggCombinations)) OF AggregatedPRSResourceSet-Item

AggregatedPRSResourceSet-Item ::= SEQUENCE {
    dl-PRS-ResourceSet-List    DL-PRS-ResourceSet-List,
    iE-Extensions              ProtocolExtensionContainer { { AggregatedPRSResourceSet-Item-ExtIEs} } OPTIONAL,
    ...
}

```

```

AggregatedPRSResourceSet-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

DL-PRS-ResourceSet-List ::= SEQUENCE (SIZE (1..maxnoAggregatedPosPRSResourceSets)) OF DL-PRS-ResourceSet-Item

```

```

DL-PRS-ResourceSet-Item ::= SEQUENCE {
    dl-prs-ResourceSetIndex      INTEGER (1..8),
    iE-Extensions                ProtocolExtensionContainer { { DL-PRS-ResourceSet-Item-ExtIEs } } OPTIONAL,
    ...
}

```

```

DL-PRS-ResourceSet-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

AggressorCellList ::= SEQUENCE (SIZE(1..maxCellingNBDU)) OF AggressorCellList-Item

```

```

AggressorCellList-Item ::= SEQUENCE {
    aggressorCell-ID            NRCGI,
    iE-Extensions                ProtocolExtensionContainer { { AggressorCellList-Item-ExtIEs } } OPTIONAL
}

```

```

AggressorCellList-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

AggressororgNBSetID ::= SEQUENCE {
    aggressorgNBSetID           GNBSetID,
    iE-Extensions                ProtocolExtensionContainer { { AggressororgNBSetID-ExtIEs } } OPTIONAL
}

```

```

AggressororgNBSetID-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

AllocationAndRetentionPriority ::= SEQUENCE {
    priorityLevel                PriorityLevel,
    pre-emptionCapability        Pre-emptionCapability,
    pre-emptionVulnerability     Pre-emptionVulnerability,
    iE-Extensions                ProtocolExtensionContainer { {AllocationAndRetentionPriority-ExtIEs} } OPTIONAL,
    ...
}

```

```

AllocationAndRetentionPriority-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

AlternativeQoSParaSetList ::= SEQUENCE (SIZE(1..maxnoofQoSParaSets)) OF AlternativeQoSParaSetItem

```

```

AlternativeQoSParaSetItem ::= SEQUENCE {
    alternativeQoSParaSetIndex   QoSParaSetIndex,

```

```

    guaranteedFlowBitRateDL      BitRate      OPTIONAL,
    guaranteedFlowBitRateUL      BitRate      OPTIONAL,
    packetDelayBudget            PacketDelayBudget  OPTIONAL,
    packetErrorRate              PacketErrorRate  OPTIONAL,
    iE-Extensions                ProtocolExtensionContainer { {AlternativeQoSParaSetItem-ExtIEs} } OPTIONAL,
    ...
}

AlternativeQoSParaSetItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-MaxDataBurstVolume CRITICALITY ignore EXTENSION MaxDataBurstVolume PRESENCE optional },
    ...
}

AngleMeasurementQuality ::= SEQUENCE {
    azimuthQuality  INTEGER(0..255),
    zenithQuality   INTEGER(0..255) OPTIONAL,
    resolution      ENUMERATED{deg0dot1,...},
    iE-Extensions   ProtocolExtensionContainer { { AngleMeasurementQuality-ExtIEs } } OPTIONAL
}

AngleMeasurementQuality-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

AperiodicSRSResourceTriggerList ::= SEQUENCE (SIZE(1..maxnoofSRSTriggerStates)) OF AperiodicSRSResourceTrigger
AperiodicSRSResourceTrigger ::= INTEGER (1..3)

Associated-SCell-Item ::= SEQUENCE {
    sCell-ID        NRCGI,
    iE-Extensions   ProtocolExtensionContainer { { Associated-SCell-ItemExtIEs } } OPTIONAL
}

Associated-SCell-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

AssociatedSessionID ::= OCTET STRING

AvailablePLMNList ::= SEQUENCE (SIZE(1..maxnoofBPLMNs)) OF AvailablePLMNList-Item
AvailablePLMNList-Item ::= SEQUENCE {
    plMNIdentity     PLMN-Identity,
    iE-Extensions    ProtocolExtensionContainer { { AvailablePLMNList-Item-ExtIEs } } OPTIONAL
}

AvailablePLMNList-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

AvailableSNPN-ID-List ::= SEQUENCE (SIZE(1..maxnoofNIDsupported)) OF AvailableSNPN-ID-List-Item

```



```

AvailableSNPN-ID-List-Item ::= SEQUENCE {
    pLMN-Identity          PLMN-Identity,
    availableNIDList       BroadcastNIDList,
    iE-Extensions          ProtocolExtensionContainer { { AvailableSNPN-ID-List-ItemExtIEs } } OPTIONAL,
    ...
}

AvailableSNPN-ID-List-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

AveragingWindow ::= INTEGER (0..4095, ...)

AreaScope ::= ENUMERATED {true, ...}

AoA-AssistanceInfo ::= SEQUENCE {
    angleMeasurement      AngleMeasurementType,
    LCS-to-GCS-Translation LCS-to-GCS-Translation OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { AoA-AssistanceInfo-ExtIEs } } OPTIONAL,
    ...
}

AoA-AssistanceInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

AngleMeasurementType ::= CHOICE {
    expected-ULAoA        Expected-UL-AoA,
    expected-ZoA          Expected-ZoA-only,
    choice-extension      ProtocolIE-SingleContainer { { AngleMeasurementType-ExtIEs } }
}

AngleMeasurementType-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

AppLayerBufferLevelList ::= OCTET STRING

ARP-ID ::= INTEGER (1..16, ...)

ARPLocationInformation ::= SEQUENCE (SIZE (1..maxnoARPs)) OF ARPLocationInformation-Item

ARPLocationInformation-Item ::= SEQUENCE {
    aRP-ID                ARP-ID,
    aRPLocationType        ARPLocationType,
    iE-Extensions          ProtocolExtensionContainer { { ARPLocationInformation-ExtIEs } } OPTIONAL,
    ...
}

ARPLocationInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

ARPLocationType ::= CHOICE {
    arPPositionRelativeGeodetic      RelativeGeodeticLocation,
    arPPositionRelativeCartesian     RelativeCartesianLocation,
    choice-extension                 ProtocolIE-SingleContainer { { ARPLocationType-ExtIEs } }
}

ARPLocationType-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

-- B

BAP-Header-Rewriting-Added-List-Item ::= SEQUENCE {
    ingressBAPRoutingID      BAPRoutingID,
    egressBAPRoutingID       BAPRoutingID,
    nonF1terminatingTopologyIndicator NonF1terminatingTopologyIndicator OPTIONAL,
    iE-Extensions            ProtocolExtensionContainer { { BAP-Header-Rewriting-Added-List-Item-ExtIEs } } OPTIONAL
}

BAP-Header-Rewriting-Added-List-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BAP-Header-Rewriting-Removed-List-Item ::= SEQUENCE {
    ingressBAPRoutingID      BAPRoutingID,
    iE-Extensions            ProtocolExtensionContainer { { BAP-Header-Rewriting-Removed-List-Item-ExtIEs } } OPTIONAL
}

BAP-Header-Rewriting-Removed-List-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BandwidthSRS ::= CHOICE {
    fR1                      FR1-Bandwidth,
    fR2                      FR2-Bandwidth,
    choice-extension         ProtocolIE-SingleContainer {{ BandwidthSRS-ExtIEs }}
}

BandwidthSRS-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

BAPAddress ::= BIT STRING (SIZE(10))

BAPCtrlPDUChannel ::= ENUMERATED {true, ...}

BAPlayerBHRLCchannelMappingInfo ::= SEQUENCE {
    bAPlayerBHRLCchannelMappingInfoToAdd      BAPlayerBHRLCchannelMappingInfoList OPTIONAL,
    bAPlayerBHRLCchannelMappingInfoToRemove   MappingInformationToRemove OPTIONAL,
    iE-Extensions                             ProtocolExtensionContainer { { BAPlayerBHRLCchannelMappingInfo-ExtIEs } } OPTIONAL,
    ...
}

```

```

}

BAPlayerBHRLCchannelMappingInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BAPlayerBHRLCchannelMappingInfoList ::= SEQUENCE (SIZE(1..maxnoofMappingEntries)) OF BAPlayerBHRLCchannelMappingInfo-Item

BAPlayerBHRLCchannelMappingInfo-Item ::= SEQUENCE {
    mappingInformationIndex      MappingInformationIndex,
    priorHopBAPAddress           BAPAddress OPTIONAL,
    ingressBHRLCchannelID        BHRLCchannelID OPTIONAL,
    nextHopBAPAddress            BAPAddress OPTIONAL,
    egressBHRLCchannelID         BHRLCchannelID OPTIONAL,
    iE-Extensions                ProtocolExtensionContainer { { BAPlayerBHRLCchannelMappingInfo-ItemExtIEs } } OPTIONAL,
    ...
}

BAPlayerBHRLCchannelMappingInfo-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-IngressNonF1terminatingTopologyIndicator CRITICALITY ignore EXTENSION IngressNonF1terminatingTopologyIndicator PRESENCE optional},
    { ID id-EgressNonF1terminatingTopologyIndicator CRITICALITY ignore EXTENSION EgressNonF1terminatingTopologyIndicator PRESENCE optional},
    ...
}

BAPPathID ::= BIT STRING (SIZE(10))

BAPRoutingID ::= SEQUENCE {
    bAPAddress      BAPAddress,
    bAPPathID       BAPPathID,
    iE-Extensions   ProtocolExtensionContainer { { BAPRoutingIDExtIEs } } OPTIONAL
}

BAPRoutingIDExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BarringExemptionforEmerCallInfo ::= ENUMERATED {true, ...}

BCBearerContextF1U-TNLInfo ::= CHOICE {
    locationindependent      MBSF1UInformation,
    locationdependent        LocationDependentMBSF1UInformation,
    choice-extension         ProtocolIE-SingleContainer {{BCBearerContextF1U-TNLInfo-ExtIEs}}
}

BCBearerContextF1U-TNLInfo-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

BitRate ::= INTEGER (0..4000000000000, ...)

BearerTypeChange ::= ENUMERATED {true, ...}

BHRLCchannelID ::= BIT STRING (SIZE(16))

```

```

BHChannels-FailedToBeModified-Item ::= SEQUENCE {
    bHRLCChannelID      BHRLCChannelID,
    cause               Cause      OPTIONAL,
    iE-Extensions       ProtocolExtensionContainer { { BHChannels-FailedToBeModified-ItemExtIEs } } OPTIONAL
}

BHChannels-FailedToBeModified-ItemExtIEs      F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BHChannels-FailedToBeSetup-Item ::= SEQUENCE {
    bHRLCChannelID      BHRLCChannelID,
    cause               Cause      OPTIONAL,
    iE-Extensions       ProtocolExtensionContainer { { BHChannels-FailedToBeSetup-ItemExtIEs } }      OPTIONAL
}

BHChannels-FailedToBeSetup-ItemExtIEs      F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BHChannels-FailedToBeSetupMod-Item ::= SEQUENCE {
    bHRLCChannelID      BHRLCChannelID,
    cause               Cause      OPTIONAL ,
    iE-Extensions       ProtocolExtensionContainer { { BHChannels-FailedToBeSetupMod-ItemExtIEs } } OPTIONAL
}

BHChannels-FailedToBeSetupMod-ItemExtIEs      F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BHChannels-Modified-Item ::= SEQUENCE {
    bHRLCChannelID      BHRLCChannelID,
    iE-Extensions       ProtocolExtensionContainer { { BHChannels-Modified-ItemExtIEs } }      OPTIONAL
}

BHChannels-Modified-ItemExtIEs      F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BHChannels-Required-ToBeReleased-Item ::= SEQUENCE {
    bHRLCChannelID      BHRLCChannelID,
    iE-Extensions       ProtocolExtensionContainer { { BHChannels-Required-ToBeReleased-ItemExtIEs } }      OPTIONAL
}

BHChannels-Required-ToBeReleased-ItemExtIEs      F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BHChannels-Setup-Item ::= SEQUENCE {
    bHRLCChannelID      BHRLCChannelID,
    iE-Extensions       ProtocolExtensionContainer { { BHChannels-Setup-ItemExtIEs } }      OPTIONAL
}

```

```

BHChannels-Setup-ItemExtIEs      F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BHChannels-SetupMod-Item ::= SEQUENCE {
    bHRLCChannelID          BHRLCChannelID,
    iE-Extensions    ProtocolExtensionContainer { { BHChannels-SetupMod-ItemExtIEs } }    OPTIONAL
}

BHChannels-SetupMod-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BHChannels-ToBeModified-Item ::= SEQUENCE {
    bHRLCChannelID          BHRLCChannelID,
    bHQoSInformation        BHQoSInformation,
    rLCmode                RLCMode OPTIONAL,
    bAPCtrlPDUChannel      BAPCtrlPDUChannel    OPTIONAL,
    trafficMappingInfo      TrafficMappingInfo    OPTIONAL,
    iE-Extensions    ProtocolExtensionContainer { { BHChannels-ToBeModified-ItemExtIEs } }    OPTIONAL
}

BHChannels-ToBeModified-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BHChannels-ToBeReleased-Item ::= SEQUENCE {
    bHRLCChannelID          BHRLCChannelID,
    iE-Extensions    ProtocolExtensionContainer { { BHChannels-ToBeReleased-ItemExtIEs } }    OPTIONAL
}

BHChannels-ToBeReleased-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BHChannels-ToBeSetup-Item ::= SEQUENCE {
    bHRLCChannelID          BHRLCChannelID,
    bHQoSInformation        BHQoSInformation,
    rLCmode                RLCMode,
    bAPCtrlPDUChannel      BAPCtrlPDUChannel    OPTIONAL,
    trafficMappingInfo      TrafficMappingInfo    OPTIONAL,
    iE-Extensions    ProtocolExtensionContainer { { BHChannels-ToBeSetup-ItemExtIEs } }    OPTIONAL
}

BHChannels-ToBeSetup-ItemExtIEs      F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BHChannels-ToBeSetupMod-Item ::= SEQUENCE {
    bHRLCChannelID          BHRLCChannelID,
    bHQoSInformation        BHQoSInformation,
    rLCmode                RLCMode,
    bAPCtrlPDUChannel      BAPCtrlPDUChannel    OPTIONAL,
    trafficMappingInfo      TrafficMappingInfo    OPTIONAL,

```

```

    iE-Extensions      ProtocolExtensionContainer { { BHChannels-ToBeSetupMod-ItemExtIEs } }    OPTIONAL
}

BHChannels-ToBeSetupMod-ItemExtIEs  F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BHInfo ::= SEQUENCE {
    bAProutingID          BAPRoutingID    OPTIONAL,
    egressBHRLCCHList     EgressBHRLCCHList  OPTIONAL,
    iE-Extensions         ProtocolExtensionContainer { { BHInfo-ExtIEs} } OPTIONAL
}

BHInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-NonF1terminatingTopologyIndicator    CRITICALITY ignore  EXTENSION NonF1terminatingTopologyIndicator    PRESENCE optional },
    ...
}

BHQoSInformation ::= CHOICE {
    bHRLCCHQoS                QoSFlowLevelQoSParameters,
    eUTRANBHRLCCHQoS          EUTRANQoS,
    cPTrafficType              CPTrafficType,
    choice-extension           ProtocolIE-SingleContainer { { BHQoSInformation-ExtIEs} }
}

BHQoSInformation-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

BHRLCCHList ::= SEQUENCE (SIZE(1..maxnoofBHRLCChannels)) OF BHRLCCHItem

BHRLCCHItem ::= SEQUENCE {
    bHRLCChannelID          BHRLCChannelID,
    iE-Extensions           ProtocolExtensionContainer {{BHRLCCHItemExtIEs }}    OPTIONAL
}

BHRLCCHItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BH-Routing-Information-Added-List-Item ::= SEQUENCE {
    bAPRoutingID            BAPRoutingID,
    nextHopBAPAddress        BAPAddress,
    iE-Extensions           ProtocolExtensionContainer { { BH-Routing-Information-Added-List-ItemExtIEs} }    OPTIONAL
}

BH-Routing-Information-Added-List-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    {ID id-NonF1terminatingTopologyIndicator    CRITICALITY ignore  EXTENSION NonF1terminatingTopologyIndicator    PRESENCE optional},
    ...
}

BH-Routing-Information-Removed-List-Item ::= SEQUENCE {
    bAPRoutingID            BAPRoutingID,
    iE-Extensions           ProtocolExtensionContainer { { BH-Routing-Information-Removed-List-ItemExtIEs} } OPTIONAL
}

```

```

}

BH-Routing-Information-Removed-List-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BPLMN-ID-Info-List ::= SEQUENCE (SIZE(1..maxnoofBPLMNsNR)) OF BPLMN-ID-Info-Item

BPLMN-ID-Info-Item ::= SEQUENCE {
    pLMN-Identity-List AvailablePLMNList,
    extended-PLMN-Identity-List ExtendedAvailablePLMN-List OPTIONAL,
    fiveGS-TAC FiveGS-TAC OPTIONAL,
    nr-cell-ID NRCellIdentity,
    ranac RANAC OPTIONAL,
    iE-Extensions ProtocolExtensionContainer { { BPLMN-ID-Info-ItemExtIEs } } OPTIONAL,
    ...
}

BPLMN-ID-Info-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-ConfiguredTACIndication CRITICALITY ignore EXTENSION ConfiguredTACIndication PRESENCE optional }|
    { ID id-NPNBroadcastInformation CRITICALITY reject EXTENSION NPNBroadcastInformation PRESENCE optional},
    ...
}

ServedPLMNs-List ::= SEQUENCE (SIZE(1..maxnoofBPLMNs)) OF ServedPLMNs-Item

ServedPLMNs-Item ::= SEQUENCE {
    pLMN-Identity PLMN-Identity,
    iE-Extensions ProtocolExtensionContainer { { ServedPLMNs-ItemExtIEs } } OPTIONAL,
    ...
}

ServedPLMNs-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-TAISliceSupportList CRITICALITY ignore EXTENSION SliceSupportList PRESENCE optional }|
    { ID id-NPNSupportInfo CRITICALITY reject EXTENSION NPNSupportInfo PRESENCE optional }|
    { ID id-ExtendedTAISliceSupportList CRITICALITY reject EXTENSION ExtendedSliceSupportList PRESENCE optional }|
    { ID id-TAINSAGSupportList CRITICALITY ignore EXTENSION NSAGSupportList PRESENCE optional},
    ...
}

BroadcastCAGList ::= SEQUENCE (SIZE(1..maxnoofCAGsupported)) OF CAGID

BroadcastMRBs-FailedToBeModified-Item ::= SEQUENCE {
    mRB-ID MRB-ID,
    cause Cause OPTIONAL,
    iE-Extensions ProtocolExtensionContainer { { BroadcastMRBs-FailedtoBeModified-Item-ExtIEs } } OPTIONAL,
    ...
}

BroadcastMRBs-FailedtoBeModified-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

BroadcastMRBs-FailedToBeSetup-Item ::= SEQUENCE {
    mRB-ID                MRB-ID,
    cause                  Cause OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { BroadcastMRBs-FailedToBeSetup-Item-ExtIEs } } OPTIONAL,
    ...
}

BroadcastMRBs-FailedToBeSetup-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BroadcastMRBs-FailedToBeSetupMod-Item ::= SEQUENCE {
    mRB-ID                MRB-ID,
    cause                  Cause OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { BroadcastMRBs-FailedToBeSetupMod-Item-ExtIEs } } OPTIONAL,
    ...
}

BroadcastMRBs-FailedToBeSetupMod-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BroadcastMRBs-Modified-Item ::= SEQUENCE {
    mRB-ID                MRB-ID,
    bcBearerCtxtF1U-TNLInfoatDU BCBearerContextF1U-TNLInfo OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { BroadcastMRBs-Modified-Item-ExtIEs } } OPTIONAL,
    ...
}

BroadcastMRBs-Modified-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BroadcastMRBs-Setup-Item ::= SEQUENCE {
    mRB-ID                MRB-ID,
    bcBearerCtxtF1U-TNLInfoatDU BCBearerContextF1U-TNLInfo,
    iE-Extensions          ProtocolExtensionContainer { { BroadcastMRBs-Setup-Item-ExtIEs } } OPTIONAL,
    ...
}

BroadcastMRBs-Setup-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BroadcastMRBs-SetupMod-Item ::= SEQUENCE {
    mRB-ID                MRB-ID,
    bcBearerCtxtF1U-TNLInfoatDU BCBearerContextF1U-TNLInfo,
    iE-Extensions          ProtocolExtensionContainer { { BroadcastMRBs-SetupMod-Item-ExtIEs } } OPTIONAL,
    ...
}

BroadcastMRBs-SetupMod-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```



```

BroadcastMRBs-ToBeModified-Item ::= SEQUENCE {
    mRB-ID                MRB-ID,
    mRB-QoSInformation     QoSFlowLevelQoSParameters    OPTIONAL,
    mBS-Flows-Mapped-To-MRB-List MBS-Flows-Mapped-To-MRB-List OPTIONAL,
    bcBearerCtxtF1U-TNLInfoatCU BCBearerContextF1U-TNLInfo OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { BroadcastMRBs-ToBeModified-Item-ExtIEs } } OPTIONAL,
    ...
}

BroadcastMRBs-ToBeModified-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BroadcastMRBs-ToBeReleased-Item ::= SEQUENCE {
    mRB-ID                MRB-ID,
    iE-Extensions          ProtocolExtensionContainer { { BroadcastMRBs-ToBeReleased-ItemExtIEs } } OPTIONAL,
    ...
}

BroadcastMRBs-ToBeReleased-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BroadcastMRBs-ToBeSetup-Item ::= SEQUENCE {
    mRB-ID                MRB-ID,
    mRB-QoSInformation     QoSFlowLevelQoSParameters,
    mBS-Flows-Mapped-To-MRB-List MBS-Flows-Mapped-To-MRB-List,
    bcBearerCtxtF1U-TNLInfoatCU BCBearerContextF1U-TNLInfo ,
    iE-Extensions          ProtocolExtensionContainer { { BroadcastMRBs-ToBeSetup-Item-ExtIEs } } OPTIONAL,
    ...
}

BroadcastMRBs-ToBeSetup-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BroadcastMRBs-ToBeSetupMod-Item ::= SEQUENCE {
    mRB-ID                MRB-ID,
    mRB-QoSInformation     QoSFlowLevelQoSParameters,
    mBS-Flows-Mapped-To-MRB-List MBS-Flows-Mapped-To-MRB-List,
    bcBearerCtxtF1U-TNLInfoatCU BCBearerContextF1U-TNLInfo,
    iE-Extensions          ProtocolExtensionContainer { { BroadcastMRBs-ToBeSetupMod-Item-ExtIEs } } OPTIONAL,
    ...
}

BroadcastMRBs-ToBeSetupMod-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BroadcastNIDList ::= SEQUENCE (SIZE(1..maxnoofNIDsupported)) OF NID

BroadcastSNPN-ID-List ::= SEQUENCE (SIZE(1..maxnoofNIDsupported)) OF BroadcastSNPN-ID-List-Item

```

```

BroadcastSNPN-ID-List-Item ::= SEQUENCE {
    pLMN-Identity          PLMN-Identity,
    broadcastNIDList       BroadcastNIDList,
    iE-Extensions          ProtocolExtensionContainer { { BroadcastSNPN-ID-List-ItemExtIEs } } OPTIONAL,
    ...
}

BroadcastSNPN-ID-List-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BroadcastPNI-NPN-ID-List ::= SEQUENCE (SIZE(1..maxnoofCAGsupported)) OF BroadcastPNI-NPN-ID-List-Item

BroadcastPNI-NPN-ID-List-Item ::= SEQUENCE {
    pLMN-Identity          PLMN-Identity,
    broadcastCAGList       BroadcastCAGList,
    iE-Extensions          ProtocolExtensionContainer { { BroadcastPNI-NPN-ID-List-ItemExtIEs } } OPTIONAL,
    ...
}

BroadcastPNI-NPN-ID-List-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BroadcastAreaScope ::= CHOICE {
    completeSuccess        NULL,
    partialSuccess         PartialSuccessCell,
    choice-extension       ProtocolIE-SingleContainer { { BroadcastAreaScope-ExtIEs } }
}

BroadcastAreaScope-ExtIEs F1AP-PROTOCOL-IES::={
    ...
}

BroadcastCellList ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF Broadcast-Cell-List-Item
Broadcast-Cell-List-Item ::= SEQUENCE {
    cellID                 NRCGI,
    iE-Extensions          ProtocolExtensionContainer { { Broadcast-Cell-List-ItemExtIEs } } OPTIONAL,
    ...
}

Broadcast-Cell-List-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

BufferSizeThresh ::= INTEGER(0..16777215)

BurstArrivalTime ::= OCTET STRING

BW-Aggregation-Request-Indication ::= ENUMERATED {true, ...}

BWP-Id ::= INTEGER (0..4)

```

```

BurstArrivalTimeWindow ::= SEQUENCE {
    burstArrivalTimeWindowStart    INTEGER (0..640000, ...),
    burstArrivalTimeWindowEnd      INTEGER (0..640000, ...),
    iE-Extension                    ProtocolExtensionContainer { {BurstArrivalTimeWindow-ExtIEs} } OPTIONAL,
    ...
}

BurstArrivalTimeWindow-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Broadcast-MRBs-Transport-Request-Item ::= SEQUENCE {
    mRB-ID                        MRB-ID,
    bcBearerCtxtF1U-TNLInfoatDU  BCBearerContextF1U-TNLInfo,
    iE-Extensions                  ProtocolExtensionContainer { {Broadcast-MRBs-Transport-Request-Item-ExtIEs} } OPTIONAL,
    ...
}

Broadcast-MRBs-Transport-Request-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

-- C
CAGID ::= BIT STRING (SIZE(32))

Cancel-all-Warning-Messages-Indicator ::= ENUMERATED {true, ...}

Candidate-SpCell-Item ::= SEQUENCE {
    candidate-SpCell-ID           NRCGI ,
    iE-Extensions                  ProtocolExtensionContainer { { Candidate-SpCell-ItemExtIEs } } OPTIONAL,
    ...
}

Candidate-SpCell-ItemExtIEs      F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

CandidateCellwithBeamInfo ::= SEQUENCE {
    nRCGI                        NRCGI,
    ssbIndex                     SSBIndex,
    iE-Extensions                  ProtocolExtensionContainer { { CandidateCellwithBeamInfo-ExtIEs } } OPTIONAL
}

CandidateCellwithBeamInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

CandidateCellwithBeamInfoList ::= SEQUENCE (SIZE(1..maxnoofCandidateCells)) OF CandidateCellwithBeamInfo-Item

CandidateCellwithBeamInfo-Item ::= SEQUENCE {
    nRCGI                        NRCGI,

```

```

    SSBIndexList      SSBIndexList,
    iE-Extensions      ProtocolExtensionContainer { { CandidateCellwithBeamInfo-Item-ExtIEs } } OPTIONAL
}

CandidateCellwithBeamInfo-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

CandidateCellwithMeasurementsList ::= SEQUENCE (SIZE(1..maxnoofCandidateCells)) OF CandidateCellwithMeasurements-Item

CandidateCellwithMeasurements-Item ::= SEQUENCE {
    nRCGI              NRCGI,
    SSBIndexwithMeasurementsList SSBIndexwithMeasurementsList,
    iE-Extensions      ProtocolExtensionContainer { { CandidateCellwithMeasurements-Item-ExtIEs } } OPTIONAL
}

CandidateCellwithMeasurements-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

CapacityValue ::= SEQUENCE {
    capacityValue      INTEGER (0..100),
    SSBAreaCapacityValueList SSBAreaCapacityValueList OPTIONAL,
    iE-Extensions      ProtocolExtensionContainer { { CapacityValue-ExtIEs } } OPTIONAL
}

CapacityValue-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Cause ::= CHOICE {
    radioNetwork      CauseRadioNetwork,
    transport          CauseTransport,
    protocol           CauseProtocol,
    misc               CauseMisc,
    choice-extension   ProtocolIE-SingleContainer { { Cause-ExtIEs } }
}

Cause-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

CauseMisc ::= ENUMERATED {
    control-processing-overload,
    not-enough-user-plane-processing-resources,
    hardware-failure,
    om-intervention,
    unspecified,
    ...
}

CauseProtocol ::= ENUMERATED {
    transfer-syntax-error,

```

```
    abstract-syntax-error-reject,  
    abstract-syntax-error-ignore-and-notify,  
    message-not-compatible-with-receiver-state,  
    semantic-error,  
    abstract-syntax-error-falsely-constructed-message,  
    unspecified,  
    ...  
}
```

```
CauseRadioNetwork ::= ENUMERATED {  
    unspecified,  
    rl-failure-rlc,  
    unknown-or-already-allocated-gnb-cu-ue-f1ap-id,  
    unknown-or-already-allocated-gnb-du-ue-f1ap-id,  
    unknown-or-inconsistent-pair-of-ue-f1ap-id,  
    interaction-with-other-procedure,  
    not-supported-qci-Value,  
    action-desirable-for-radio-reasons,  
    no-radio-resources-available,  
    procedure-cancelled,  
    normal-release,  
    ...,  
    cell-not-available,  
    rl-failure-others,  
    ue-rejection,  
    resources-not-available-for-the-slice,  
    amf-initiated-abnormal-release,  
    release-due-to-pre-emption,  
    plmn-not-served-by-the-gNB-CU,  
    multiple-drb-id-instances,  
    unknown-drb-id,  
    multiple-bh-rlc-ch-id-instances,  
    unknown-bh-rlc-ch-id,  
    cho-cpc-resources-to-be-changed,  
    nPN-not-supported,  
    nPN-access-denied,  
    gNB-CU-Cell-Capacity-Exceeded,  
    report-characteristics-empty,  
    existing-measurement-ID,  
    measurement-temporarily-not-available,  
    measurement-not-supported-for-the-object,  
    unknown-bh-address,  
    unknown-bap-routing-id,  
    insufficient-ue-capabilities,  
    scg-activation-deactivation-failure,  
    scg-deactivation-failure-due-to-data-transmission,  
    requested-item-not-supported-on-time,  
    unknown-or-already-allocated-gNB-CU-MBS-F1AP-ID,  
    unknown-or-already-allocated-gNB-DU-MBS-F1AP-ID,  
    unknown-or-inconsistent-pair-of-MBS-F1AP-ID,  
    unknown-or-inconsistent-MRB-ID,  
    tat-sdt-expiry,  
    ltm-command-triggered,  
    sSB-not-available
```

```

}

CauseTransport ::= ENUMERATED {
    unspecified,
    transport-resource-unavailable,
    ...,
    unknown-TNL-address-for-IAB,
    unknown-UP-TNL-information-for-IAB
}

CellGroupConfig ::= OCTET STRING

CellCapacityClassValue ::= INTEGER (1..100,...)

Cell-Direction ::= ENUMERATED {dl-only, ul-only}

CellMeasurementResultList ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF CellMeasurementResultItem

CellMeasurementResultItem ::= SEQUENCE {
    cellID NRCGI,
    radioResourceStatus RadioResourceStatus OPTIONAL,
    compositeAvailableCapacityGroup CompositeAvailableCapacityGroup OPTIONAL,
    sliceAvailableCapacity SliceAvailableCapacity OPTIONAL,
    numberOfActiveUEs NumberOfActiveUEs OPTIONAL,
    iE-Extensions ProtocolExtensionContainer { { CellMeasurementResultItem-ExtIEs} } OPTIONAL
}

CellMeasurementResultItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-NR-U-Channel-List CRITICALITY ignore EXTENSION NR-U-Channel-List PRESENCE optional },
    ...
}

Cell-Portion-ID ::= INTEGER (0..4095,...)

CellsForSON-List ::= SEQUENCE (SIZE(1.. maxServedCellforSON)) OF CellsForSON-Item

CellsForSON-Item ::= SEQUENCE {
    nRCGI NRCGI,
    neighbourNR-CellsForSON-List NeighbourNR-CellsForSON-List OPTIONAL,
    iE-Extensions ProtocolExtensionContainer { { CellsForSON-Item-ExtIEs} } OPTIONAL,
    ...
}

CellsForSON-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Cells-Failed-to-be-Activated-List-Item ::= SEQUENCE {
    nRCGI NRCGI,
    cause Cause,
    iE-Extensions ProtocolExtensionContainer { { Cells-Failed-to-be-Activated-List-ItemExtIEs } } OPTIONAL,
    ...
}

```

```
Cells-Failed-to-be-Activated-List-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {  
    ...  
}  
  
Cells-Status-Item ::= SEQUENCE {  
    nRCGI          NRCGI,  
    service-status Service-Status,  
    iE-Extensions  ProtocolExtensionContainer { { Cells-Status-ItemExtIEs } } OPTIONAL,  
    ...  
}  
  
Cells-Status-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {  
    ...  
}  
  
Cells-To-Be-Broadcast-Item ::= SEQUENCE {  
    nRCGI          NRCGI,  
    iE-Extensions  ProtocolExtensionContainer { { Cells-To-Be-Broadcast-ItemExtIEs } } OPTIONAL,  
    ...  
}  
  
Cells-To-Be-Broadcast-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {  
    ...  
}  
  
Cells-Broadcast-Completed-Item ::= SEQUENCE {  
    nRCGI          NRCGI,  
    iE-Extensions  ProtocolExtensionContainer { { Cells-Broadcast-Completed-ItemExtIEs } } OPTIONAL,  
    ...  
}  
  
Cells-Broadcast-Completed-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {  
    ...  
}  
  
Broadcast-To-Be-Cancelled-Item ::= SEQUENCE {  
    nRCGI          NRCGI,  
    iE-Extensions  ProtocolExtensionContainer { { Broadcast-To-Be-Cancelled-ItemExtIEs } } OPTIONAL,  
    ...  
}  
  
Broadcast-To-Be-Cancelled-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {  
    ...  
}  
  
Cells-Broadcast-Cancelled-Item ::= SEQUENCE {  
    nRCGI          NRCGI,  
    numberOfBroadcasts NumberOfBroadcasts,  
    iE-Extensions  ProtocolExtensionContainer { { Cells-Broadcast-Cancelled-ItemExtIEs } } OPTIONAL,  
    ...  
}
```

```

Cells-Broadcast-Cancelled-ItemExtIEs      F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Cells-to-be-Activated-List-Item ::= SEQUENCE {
    nRCGI          NRCGI,
    nRPCI          NRPCI,          OPTIONAL,
    iE-Extensions  ProtocolExtensionContainer { { Cells-to-be-Activated-List-ItemExtIEs } } OPTIONAL,
    ...
}

Cells-to-be-Activated-List-ItemExtIEs      F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-gNB-CUSystemInformation          CRITICALITY reject EXTENSION GNB-CUSystemInformation          PRESENCE optional }|
    { ID id-AvailablePLMNList                CRITICALITY ignore EXTENSION AvailablePLMNList                PRESENCE optional }|
    { ID id-ExtendedAvailablePLMN-List       CRITICALITY ignore EXTENSION ExtendedAvailablePLMN-List       PRESENCE optional }|
    { ID id-IAB-Info-IAB-donor-CU            CRITICALITY ignore EXTENSION IAB-Info-IAB-donor-CU            PRESENCE optional }|
    { ID id-AvailableSNPN-ID-List            CRITICALITY ignore EXTENSION AvailableSNPN-ID-List            PRESENCE optional }|
    { ID id-MBS-Broadcast-NeighbourCellList  CRITICALITY ignore EXTENSION MBS-Broadcast-NeighbourCellList  PRESENCE optional }|
    { ID id-SSBs-withinTheCell-to-be-Activated-List  CRITICALITY reject EXTENSION SSBs-toBeActivated-List  PRESENCE optional },
    ...
}

Cells-With-SSBs-Activated-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF Cells-With-SSBs-Activated-List-Item

Cells-With-SSBs-Activated-List-Item ::= SEQUENCE {
    nRCGI          NRCGI,
    SSBs-activated-List  SSBs-activated-List,
    iE-Extensions  ProtocolExtensionContainer { { Cells-With-SSBs-Activated-List-Item-ExtIEs } } OPTIONAL
}

Cells-With-SSBs-Activated-List-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Cells-Allowed-to-be-Deactivated-List-Item ::= SEQUENCE {
    nRCGI          NRCGI,
    iE-Extensions  ProtocolExtensionContainer { { Cells-Allowed-to-be-Deactivated-List-ItemExtIEs } } OPTIONAL,
    ...
}

Cells-Allowed-to-be-Deactivated-List-ItemExtIEs      F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Cells-to-be-Deactivated-List-Item ::= SEQUENCE {
    nRCGI          NRCGI,
    iE-Extensions  ProtocolExtensionContainer { { Cells-to-be-Deactivated-List-ItemExtIEs } } OPTIONAL,
    ...
}

Cells-to-be-Deactivated-List-ItemExtIEs      F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```



```

Cells-to-be-Barred-Item ::= SEQUENCE {
    nRCGI          NRCGI,
    cellBarred     CellBarred,
    iE-Extensions  ProtocolExtensionContainer { { Cells-to-be-Barred-Item-ExtIEs } } OPTIONAL
}

Cells-to-be-Barred-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-IAB-Barred CRITICALITY ignore EXTENSION IAB-Barred PRESENCE optional }|
    { ID id-MobileIAB-Barred CRITICALITY ignore EXTENSION MobileIAB-Barred PRESENCE optional },
    ...
}

CellBarred ::= ENUMERATED {barred, not-barred, ...}

CellSize ::= ENUMERATED {verysmall, small, medium, large, ...}

CellToReportList ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF CellToReportItem

CellToReportItem ::= SEQUENCE {
    cellID          NRCGI,
    sSBToReportList SSBToReportList OPTIONAL,
    sliceToReportList SliceToReportList OPTIONAL,
    iE-Extensions  ProtocolExtensionContainer { { CellToReportItem-ExtIEs } } OPTIONAL
}

CellToReportItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

CellType ::= SEQUENCE {
    cellSize          CellSize,
    iE-Extensions     ProtocolExtensionContainer { {CellType-ExtIEs} } OPTIONAL,
    ...
}

CellType-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

CellULConfigured ::= ENUMERATED {none, ul, sul, ul-and-sul, ...}

CG-SDTQueryIndication ::= ENUMERATED {true, ...}

CG-SDTKeptIndicator ::= ENUMERATED {true, ...}

CG-SDTindicatorSetup ::= ENUMERATED {true, ...}

CG-SDTindicatorMod ::= ENUMERATED {true, false, ...}

CG-SDTSessionInfo ::= SEQUENCE {
    gNB-CU-UE-F1AP-ID          GNB-CU-UE-F1AP-ID,
    gNB-DU-UE-F1AP-ID          GNB-DU-UE-F1AP-ID,
    iE-Extensions              ProtocolExtensionContainer {{CG-SDTSessionInfo-ExtIEs}} OPTIONAL,

```

```

    ...
}

CG-SDTSessionInfo-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

ChannelOccupancyTimePercentage ::= INTEGER (0..100,...)

Child-IAB-Nodes-NA-Resource-List ::= SEQUENCE (SIZE(1..maxnoofChildIABNodes)) OF Child-IAB-Nodes-NA-Resource-List-Item

Child-IAB-Nodes-NA-Resource-List-Item ::= SEQUENCE {
    gNB-CU-UE-F1AP-ID    GNB-CU-UE-F1AP-ID,
    gNB-DU-UE-F1AP-ID    GNB-DU-UE-F1AP-ID,
    nA-Resource-Configuration-List    NA-Resource-Configuration-List    OPTIONAL,
    iE-Extensions        ProtocolExtensionContainer { { Child-IAB-Nodes-NA-Resource-List-Item-ExtIEs} } OPTIONAL
}

Child-IAB-Nodes-NA-Resource-List-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Child-Node-Cells-List ::= SEQUENCE (SIZE(1..maxnoofChildIABNodes)) OF Child-Node-Cells-List-Item

Child-Node-Cells-List-Item ::= SEQUENCE{
    nRCGI                    NRCGI,
    iAB-DU-Cell-Resource-Configuration-Mode-Info    IAB-DU-Cell-Resource-Configuration-Mode-Info    OPTIONAL,
    iAB-STC-Info              IAB-STC-Info              OPTIONAL,
    rACH-Config-Common        RACH-Config-Common        OPTIONAL,
    rACH-Config-Common-IAB    RACH-Config-Common-IAB    OPTIONAL,
    cSI-RS-Configuration       OCTET STRING              OPTIONAL,
    sR-Configuration          OCTET STRING              OPTIONAL,
    pDCCH-ConfigSIB1          OCTET STRING              OPTIONAL,
    sCS-Common                OCTET STRING              OPTIONAL,
    multiplexingInfo           MultiplexingInfo           OPTIONAL,
    iE-Extensions              ProtocolExtensionContainer {{Child-Node-Cells-List-Item-ExtIEs}}    OPTIONAL
}

Child-Node-Cells-List-Item-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Child-Nodes-List ::= SEQUENCE (SIZE(1..maxnoofChildIABNodes)) OF Child-Nodes-List-Item

Child-Nodes-List-Item ::= SEQUENCE{
    gNB-CU-UE-F1AP-ID    GNB-CU-UE-F1AP-ID,
    gNB-DU-UE-F1AP-ID    GNB-DU-UE-F1AP-ID,
    child-Node-Cells-List    Child-Node-Cells-List    OPTIONAL,
    iE-Extensions            ProtocolExtensionContainer {{Child-Nodes-List-Item-ExtIEs}}    OPTIONAL
}

Child-Nodes-List-Item-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {

```

```

    ...
}

CHOtrigger-InterDU ::= ENUMERATED {
    cho-initiation,
    cho-replace,
    ...
}

CHOtrigger-IntraDU ::= ENUMERATED {
    cho-initiation,
    cho-replace,
    cho-cancel,
    ...
}

CNSubgroupID ::= INTEGER (0..7, ...)

CNUEPagingIdentity ::= CHOICE {
    fiveG-S-TMSI          BIT STRING (SIZE(48)),
    choice-extension      ProtocolIE-SingleContainer { { CNUEPagingIdentity-ExtIEs } }
}

CNUEPagingIdentity-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

CompositeAvailableCapacityGroup ::= SEQUENCE {
    compositeAvailableCapacityDownlink CompositeAvailableCapacity,
    compositeAvailableCapacityUplink   CompositeAvailableCapacity,
    iE-Extensions                      ProtocolExtensionContainer { { CompositeAvailableCapacityGroup-ExtIEs } } OPTIONAL
}

CompositeAvailableCapacityGroup-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-CompositeAvailableCapacity-SUL          CRITICALITY ignore EXTENSION CompositeAvailableCapacity PRESENCE optional },
    ...
}

CompositeAvailableCapacity ::= SEQUENCE {
    cellCapacityClassValue CellCapacityClassValue OPTIONAL,
    capacityValue           CapacityValue,
    iE-Extensions           ProtocolExtensionContainer { { CompositeAvailableCapacity-ExtIEs } } OPTIONAL
}

CompositeAvailableCapacity-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

CHO-Probability ::= INTEGER (1..100)

ConditionalInterDUMobilityInformation ::= SEQUENCE {
    cho-trigger          CHOtrigger-InterDU,
    targetqNB-DUUEF1APID GNB-DU-UE-F1AP-ID OPTIONAL
    -- The above IE shall be present if the cho-trigger IE is present and set to "cho-replace" --,

```

```

    iE-Extensions          ProtocolExtensionContainer { { ConditionalInterDUMobilityInformation-ExtIEs } } OPTIONAL,
    ...
}

ConditionalInterDUMobilityInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-EstimatedArrivalProbability      CRITICALITY ignore      EXTENSION CHO-Probability      PRESENCE optional } |
    { ID id-SCPAC-Request                    CRITICALITY reject      EXTENSION SCPAC-Request      PRESENCE optional } |
    { ID id-S-CPACLowerLayerReferenceConfigRequest CRITICALITY reject      EXTENSION S-CPACLowerLayerReferenceConfigRequest PRESENCE optional },
    ...
}

ConditionalIntraDUMobilityInformation ::= SEQUENCE {
    cho-trigger              CHOtrigger-IntraDU,
    targetCellsToCancel      TargetCellList
    -- The above IE shall be present if the cho-trigger IE is present and set to "cho-cancel"
    iE-Extensions          ProtocolExtensionContainer { { ConditionalIntraDUMobilityInformation-ExtIEs } } OPTIONAL,
    ...
}

ConditionalIntraDUMobilityInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-EstimatedArrivalProbability      CRITICALITY ignore      EXTENSION CHO-Probability      PRESENCE optional } |
    { ID id-SCPAC-Request                    CRITICALITY reject      EXTENSION SCPAC-Request      PRESENCE optional } |
    { ID id-S-CPACLowerLayerReferenceConfigRequest CRITICALITY reject      EXTENSION S-CPACLowerLayerReferenceConfigRequest PRESENCE optional },
    ...
}

ConfigRestrictInfoDAPS ::= OCTET STRING

ConfiguredTACIndication ::= ENUMERATED {
    true,
    ...
}

Configured-BWP-List ::= SEQUENCE (SIZE(1.. maxNrofBWPs)) OF Configured-BWP-Item

Configured-BWP-Item ::= SEQUENCE {
    bWP-Id                  BWP-Id,
    bWP-Location-and-bandwidth INTEGER (0..37949),
    iE-Extensions          ProtocolExtensionContainer { { Configured-BWP-Item-ExtIEs } } OPTIONAL,
    ...
}

Configured-BWP-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

CoordinateID ::= INTEGER (0..511, ...)

Coverage-Modification-Notification ::= SEQUENCE {
    coverage-Modification-List Coverage-Modification-List,
    iE-Extensions          ProtocolExtensionContainer { { Coverage-Modification-Notification-ExtIEs } } OPTIONAL,
    ...
}

```

```

Coverage-Modification-Notification-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Coverage-Modification-List ::= SEQUENCE (SIZE (1..maxCellingNBDU)) OF Coverage-Modification-Item

Coverage-Modification-Item ::= SEQUENCE {
    nRCGI                               NRCGI,
    cellCoverageState                   CellCoverageState,
    sSBCoverageModificationList         SSBCoverageModification-List OPTIONAL,
    iE-Extension                        ProtocolExtensionContainer { { Coverage-Modification-Item-ExtIEs } } OPTIONAL,
    ...
}

Coverage-Modification-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-Coverage-Modification-Cause CRITICALITY ignore EXTENSION CCO-issue-detection PRESENCE optional },
    ...
}

CellCoverageState ::= INTEGER (0..63, ...)

CCO-Assistance-Information ::= SEQUENCE {
    cCO-issue-detection                 CCO-issue-detection OPTIONAL,
    affectedCellsAndBeams-List          AffectedCellsAndBeams-List OPTIONAL,
    iE-Extensions                       ProtocolExtensionContainer { { CCO-Assistance-Information-ExtIEs } } OPTIONAL,
    ...
}

CCO-Assistance-Information-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

CCO-issue-detection ::= ENUMERATED {
    coverage,
    cell-edge-capacity,
    ...,
    network-energy-saving}

CP-TransportLayerAddress ::= CHOICE {
    endpoint-IP-address                 TransportLayerAddress,
    endpoint-IP-address-and-port        Endpoint-IP-address-and-port,
    choice-extension                     ProtocolIE-SingleContainer { { CP-TransportLayerAddress-ExtIEs } }
}

CP-TransportLayerAddress-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

CPACMCGInformation ::= SEQUENCE {
    cpac-trigger                        CPAC-trigger,

```

```

    pscellid                NRCGI,
    iE-Extensions            ProtocolExtensionContainer { { CPACMCGInformation-ExtIEs} } OPTIONAL,
    ...
}

CPACMCGInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-candidatePSCellsToCancel          CRITICALITY ignore  EXTENSION PSCellList          PRESENCE optional },
    -- The above IE shall be present if the cpac-trigger IE is present and set to "cpac-cancel"
    ...
}

CPAC-trigger ::= ENUMERATED {
    cpac-preparation,
    cpac-executed,
    ... ,
    cpac-cancel
}

CPTrafficType ::= INTEGER (1..3,...)

CriticalityDiagnostics ::= SEQUENCE {
    procedureCode            ProcedureCode                                OPTIONAL,
    triggeringMessage        TriggeringMessage                          OPTIONAL,
    procedureCriticality     Criticality                                OPTIONAL,
    transactionID            TransactionID                              OPTIONAL,
    iEsCriticalityDiagnostics CriticalityDiagnostics-IE-List           OPTIONAL,
    iE-Extensions            ProtocolExtensionContainer {{CriticalityDiagnostics-ExtIEs}} OPTIONAL,
    ...
}

CriticalityDiagnostics-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

CriticalityDiagnostics-IE-List ::= SEQUENCE (SIZE (1.. maxnoofErrors)) OF CriticalityDiagnostics-IE-Item

CriticalityDiagnostics-IE-Item ::= SEQUENCE {
    iECriticality            Criticality,
    iE-ID                    ProtocolIE-ID,
    typeOfError              TypeOfError,
    iE-Extensions            ProtocolExtensionContainer {{CriticalityDiagnostics-IE-Item-ExtIEs}} OPTIONAL,
    ...
}

CriticalityDiagnostics-IE-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

C-RNTI ::= INTEGER (0..65535, ...)

CUDURadioInformationType ::= CHOICE {
    rIM                      CUDURIMInformation,
    choice-extension          ProtocolIE-SingleContainer { { CUDURadioInformationType-ExtIEs} }
}

```

```

CUDURadioInformationType-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

CUDURIMInformation ::= SEQUENCE {
    victimgNBSetID          GNBSetID,
    rIMRSDetectionStatus    RIMRSDetectionStatus,
    iE-Extensions           ProtocolExtensionContainer { { CUDURIMInformation-ExtIEs} } OPTIONAL
}

CUDURIMInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

CutoDURRCInformation ::= SEQUENCE {
    cG-ConfigInfo          CG-ConfigInfo          OPTIONAL,
    uE-CapabilityRAT-ContainerList UE-CapabilityRAT-ContainerList OPTIONAL,
    measConfig             MeasConfig             OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { CutoDURRCInformation-ExtIEs} } OPTIONAL,
    ...
}

CutoDURRCInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-HandoverPreparationInformation CRITICALITY ignore EXTENSION HandoverPreparationInformation PRESENCE optional }|
    { ID id-CellGroupConfig                CRITICALITY ignore EXTENSION CellGroupConfig          PRESENCE optional }|
    { ID id-MeasurementTimingConfiguration CRITICALITY ignore EXTENSION MeasurementTimingConfiguration PRESENCE optional }|
    { ID id-UEAssistanceInformation         CRITICALITY ignore EXTENSION UEAssistanceInformation         PRESENCE optional }|
    { ID id-CG-Config                      CRITICALITY ignore EXTENSION CG-Config                      PRESENCE optional }|
    { ID id-UEAssistanceInformationEUTRA    CRITICALITY ignore EXTENSION UEAssistanceInformationEUTRA    PRESENCE optional }|
    { ID id-LocationMeasurementInformation CRITICALITY ignore EXTENSION LocationMeasurementInformation PRESENCE optional }|
    { ID id-MUSIM-GapConfig                 CRITICALITY reject  EXTENSION MUSIM-GapConfig                 PRESENCE optional }|
    { ID id-SDT-MAC-PHY-CG-Config           CRITICALITY ignore EXTENSION SDT-MAC-PHY-CG-Config           PRESENCE optional }|
    { ID id-MBSInterestIndication           CRITICALITY ignore EXTENSION MBSInterestIndication           PRESENCE optional }|
    { ID id-NeedForGapsInfoNR               CRITICALITY ignore EXTENSION NeedForGapsInfoNR               PRESENCE optional }|
    { ID id-NeedForGapNCSGInfoNR            CRITICALITY ignore EXTENSION NeedForGapNCSGInfoNR            PRESENCE optional }|
    { ID id-NeedForGapNCSGInfoEUTRA         CRITICALITY ignore EXTENSION NeedForGapNCSGInfoEUTRA         PRESENCE optional }|
    { ID id-ConfigRestrictInfoDAPS          CRITICALITY ignore EXTENSION ConfigRestrictInfoDAPS          PRESENCE optional }|
    { ID id-Preconfigured-measurement-GAP-Request CRITICALITY ignore EXTENSION Preconfigured-measurement-GAP-Request PRESENCE optional }|
    { ID id-NeedForInterruptionInfoNR       CRITICALITY ignore EXTENSION NeedForInterruptionInfoNR       PRESENCE optional }|
    { ID id-MusimCapabilityRestrictionIndication CRITICALITY ignore EXTENSION MusimCapabilityRestrictionIndication PRESENCE optional }|
    { ID id-MusimCandidateBandList          CRITICALITY ignore EXTENSION MusimCandidateBandList          PRESENCE optional },
    ...
}

CutoDUTAIInformation-List ::= SEQUENCE (SIZE(1.. maxnoofTAList)) OF CutoDUTAIInformation-Item

CutoDUTAIInformation-Item ::= SEQUENCE {
    nRCGI          NRCGI,
    tAValue        TAValue,
    preambleIndex  PreambleIndex,
    rA-RNTI        RA-RNTI,

```

```

        tagIDPointer      TagIDPointer      OPTIONAL,
        iE-Extensions      ProtocolExtensionContainer { { CutoDUTAIInformation-Item-ExtIes} } OPTIONAL,
        ...
    }

CutoDUTAIInformation-Item-ExtIes F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

CSIResourceConfiguration ::= SEQUENCE {
    cSIResourceConfigToAddModList      OCTET STRING      OPTIONAL,
    cSIResourceConfigToReleaseList      OCTET STRING      OPTIONAL,
    iE-Extensions      ProtocolExtensionContainer { { CSIResourceConfiguration-ExtIes} } OPTIONAL
}

CSIResourceConfiguration-ExtIes F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

-- D

DAPS-HO-Status ::= ENUMERATED{initiation,... }

DCBasedDuplicationConfigured ::= ENUMERATED{true,..., false}

DeactivationIndication ::= CHOICE {
    perUE      DeactivationIndicationList,
    deactivateAll      NULL,
    choice-extension      ProtocolIE-SingleContainer { { DeactivationIndication-ExtIes} }
}

DeactivationIndication-ExtIes F1AP-PROTOCOL-IES ::= {
    ...
}

DeactivationIndicationList ::= SEQUENCE (SIZE(1..maxnoofUEsInQMCTransferControlMessage)) OF DeactivationIndicationList-Item

DeactivationIndicationList-Item ::= SEQUENCE {
    gNB-CU-UE-F1AP-ID      GNB-CU-UE-F1AP-ID,
    gNB-DU-UE-F1AP-ID      GNB-DU-UE-F1AP-ID,
    iE-Extensions      ProtocolExtensionContainer { { DeactivationIndicationList-Item-ExtIes} } OPTIONAL,
    ...
}

DeactivationIndicationList-Item-ExtIes F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Dedicated-SIDelivery-NeededUE-Item ::= SEQUENCE {
    gNB-CU-UE-F1AP-ID      GNB-CU-UE-F1AP-ID,
    nRCGI      NRCGI,
    iE-Extensions      ProtocolExtensionContainer { { DedicatedSIDeliveryNeededUE-Item-ExtIes} } OPTIONAL,

```



```

    ...
}

DedicatedSIDeliveryNeededUE-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

DedicatedSIDeliveryIndication ::= ENUMERATED{true, ...}

DL-PRS ::= SEQUENCE {
    prsid                INTEGER (0..255),
    dl-PRSResourceSetID  PRS-Resource-Set-ID,
    dl-PRSResourceID     PRS-Resource-ID OPTIONAL,
    iE-Extensions        ProtocolExtensionContainer { {DL-PRS-ExtIEs} } OPTIONAL
}

DL-PRS-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

DL-PRSMutingPattern ::= CHOICE {
    two                BIT STRING (SIZE(2)),
    four               BIT STRING (SIZE(4)),
    six                BIT STRING (SIZE(6)),
    eight              BIT STRING (SIZE(8)),
    sixteen             BIT STRING (SIZE(16)),
    thirty-two         BIT STRING (SIZE(32)),
    choice-extension    ProtocolIE-SingleContainer { { DL-PRSMutingPattern-ExtIEs } }
}

DL-PRSMutingPattern-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

DLPRSResourceCoordinates ::= SEQUENCE {
    listofDL-PRSResourceSetARP SEQUENCE (SIZE(1.. maxnoofPRS-ResourceSets)) OF DLPRSResourceSetARP,
    iE-Extensions              ProtocolExtensionContainer { { DLPRSResourceCoordinates-ExtIEs } } OPTIONAL
}

DLPRSResourceCoordinates-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

DLPRSResourceSetARP ::= SEQUENCE {
    dl-PRSResourceSetID PRS-Resource-Set-ID,
    dl-PRSResourceSetARPLocation DL-PRSResourceSetARPLocation,
    listofDL-PRSResourceARP SEQUENCE (SIZE(1.. maxnoofPRS-ResourcesPerSet)) OF DLPRSResourceARP,
    iE-Extensions          ProtocolExtensionContainer { { DLPRSResourceSetARP-ExtIEs } } OPTIONAL
}

DLPRSResourceSetARP-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```
DL-PRSResourceSetARPLocation ::= CHOICE {
    relativeGeodeticLocation      RelativeGeodeticLocation,
    relativeCartesianLocation     RelativeCartesianLocation,
    choice-Extension              ProtocolIE-SingleContainer { { DL-PRSResourceSetARPLocation-ExtIEs } }
}
```

```
DL-PRSResourceSetARPLocation-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}
```

```
DLPRSResourceARP ::= SEQUENCE {
    dl-PRSResourceID              PRS-Resource-ID,
    dl-PRSResourceARPLocation     DL-PRSResourceARPLocation,
    iE-Extensions                 ProtocolExtensionContainer { { DLPRSResourceARP-ExtIEs } } OPTIONAL
}
```

```
DLPRSResourceARP-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
DL-PRSResourceARPLocation ::= CHOICE {
    relativeGeodeticLocation      RelativeGeodeticLocation,
    relativeCartesianLocation     RelativeCartesianLocation,
    choice-Extension              ProtocolIE-SingleContainer { { DL-PRSResourceARPLocation-ExtIEs } }
}
```

```
DL-PRSResourceARPLocation-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}
```

```
DL-UP-TNL-Address-to-Update-List-Item ::= SEQUENCE {
    oldIPAddress                  TransportLayerAddress,
    newIPAddress                  TransportLayerAddress,
    iE-Extensions                 ProtocolExtensionContainer { { DL-UP-TNL-Address-to-Update-List-ItemExtIEs } } OPTIONAL,
    ...
}
```

```
DL-UP-TNL-Address-to-Update-List-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
DLUPTNLInformation-ToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofDLUPTNLInformation)) OF DLUPTNLInformation-ToBeSetup-Item
```

```
DLUPTNLInformation-ToBeSetup-Item ::= SEQUENCE {
    dLUPTNLInformation            UPTransportLayerInformation,
    iE-Extensions                 ProtocolExtensionContainer { { DLUPTNLInformation-ToBeSetup-ItemExtIEs } } OPTIONAL,
    ...
}
```

```
DLUPTNLInformation-ToBeSetup-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```

DRB-Activity-Item ::= SEQUENCE {
    dRBID          DRBID,
    dRB-Activity    DRB-Activity          OPTIONAL,
    iE-Extensions   ProtocolExtensionContainer { { DRB-Activity-ItemExtIEs } } OPTIONAL,
    ...
}

DRB-Activity-ItemExtIEs      F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

DRB-Activity ::= ENUMERATED {active, not-active}

DRBID ::= INTEGER (1..32, ...)

DRBs-FailedToBeModified-Item ::= SEQUENCE {
    dRBID          DRBID,
    cause          Cause,
    iE-Extensions   ProtocolExtensionContainer { { DRBs-FailedToBeModified-ItemExtIEs } } OPTIONAL,
    ...
}

DRBs-FailedToBeModified-ItemExtIEs      F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

DRBs-FailedToBeSetup-Item ::= SEQUENCE {
    dRBID          DRBID,
    cause          Cause,
    iE-Extensions   ProtocolExtensionContainer { { DRBs-FailedToBeSetup-ItemExtIEs } } OPTIONAL,
    ...
}

DRBs-FailedToBeSetup-ItemExtIEs      F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

DRBs-FailedToBeSetupMod-Item ::= SEQUENCE {
    dRBID          DRBID,
    cause          Cause,
    iE-Extensions   ProtocolExtensionContainer { { DRBs-FailedToBeSetupMod-ItemExtIEs } } OPTIONAL,
    ...
}

DRBs-FailedToBeSetupMod-ItemExtIEs      F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

DRB-Information ::= SEQUENCE {
    dRB-QoS          QoSFlowLevelQoSParameters,
    sNSSAI           sNSSAI,
    notificationControl NotificationControl OPTIONAL,

```

```

    flows-Mapped-To-DRB-List    Flows-Mapped-To-DRB-List,
    iE-Extensions    ProtocolExtensionContainer { { DRB-Information-ItemExtIEs } }    OPTIONAL
}

DRB-Information-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-ECNMarkingorCongestionInformationReportingRequest    CRITICALITY ignore    EXTENSION ECNMarkingorCongestionInformationReportingRequest
      PRESENCE optional    }|
    { ID id-PSIbasedSDUdiscardUL    CRITICALITY ignore    EXTENSION PSIbasedSDUdiscardUL    PRESENCE optional    },
    ...
}

DRBs-Modified-Item    ::= SEQUENCE {
    dRBID    DRBID,
    lCID    LCID    OPTIONAL,
    dLUPTNLInformation-ToBeSetup-List    DLUPTNLInformation-ToBeSetup-List,
    iE-Extensions    ProtocolExtensionContainer { { DRBs-Modified-ItemExtIEs } }    OPTIONAL,
    ...
}

DRBs-Modified-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-RLC-Status    CRITICALITY ignore    EXTENSION RLC-Status    PRESENCE optional }|
    { ID id-AdditionalPDCPDuplicationTNL-List    CRITICALITY ignore    EXTENSION AdditionalPDCPDuplicationTNL-List    PRESENCE optional }|
    { ID id-CurrentQoSParaSetIndex    CRITICALITY ignore    EXTENSION QoSParaSetIndex    PRESENCE optional }|
    { ID id-TSCTrafficCharacteristicsFeedback    CRITICALITY ignore    EXTENSION TSCTrafficCharacteristicsFeedback    PRESENCE optional }|
    { ID id-ECNMarkingorCongestionInformationReportingStatus    CRITICALITY ignore    EXTENSION ECNMarkingorCongestionInformationReportingStatus
      PRESENCE optional },
    ...
}

DRBs-ModifiedConf-Item    ::= SEQUENCE {
    dRBID    DRBID,
    uLUPTNLInformation-ToBeSetup-List    ULUPTNLInformation-ToBeSetup-List    ,
    iE-Extensions    ProtocolExtensionContainer { { DRBs-ModifiedConf-ItemExtIEs } }    OPTIONAL,
    ...
}

DRBs-ModifiedConf-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-AdditionalPDCPDuplicationTNL-List    CRITICALITY ignore    EXTENSION AdditionalPDCPDuplicationTNL-List    PRESENCE optional },
    ...
}

DRB-Notify-Item    ::= SEQUENCE {
    dRBID    DRBID,
    notification-Cause    Notification-Cause,
    iE-Extensions    ProtocolExtensionContainer { { DRB-Notify-ItemExtIEs } }    OPTIONAL,
    ...
}

DRB-Notify-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-CurrentQoSParaSetIndex    CRITICALITY ignore    EXTENSION QoSParaSetNotifyIndex    PRESENCE optional }|
    { ID id-TSCTrafficCharacteristicsFeedback    CRITICALITY ignore    EXTENSION TSCTrafficCharacteristicsFeedback    PRESENCE optional },
    ...
}

```

```

DRBs-Required-ToBeModified-Item ::= SEQUENCE {
    dRBID                DRBID,
    dLUPTNLInformation-ToBeSetup-List  DLUPTNLInformation-ToBeSetup-List ,
    iE-Extensions        ProtocolExtensionContainer { { DRBs-Required-ToBeModified-ItemExtIEs } }    OPTIONAL,
    ...
}

DRBs-Required-ToBeModified-ItemExtIEs  F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-RLC-Status                CRITICALITY ignore          EXTENSION RLC-Status                PRESENCE optional }|
    { ID id-AdditionalPDCPDuplicationTNL-List  CRITICALITY ignore  EXTENSION AdditionalPDCPDuplicationTNL-List  PRESENCE optional },
    ...
}

DRBs-Required-ToBeReleased-Item ::= SEQUENCE {
    dRBID                DRBID,
    iE-Extensions        ProtocolExtensionContainer { { DRBs-Required-ToBeReleased-ItemExtIEs } }    OPTIONAL,
    ...
}

DRBs-Required-ToBeReleased-ItemExtIEs  F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

DRBs-Setup-Item ::= SEQUENCE {
    dRBID                DRBID,
    lCID                LCID                OPTIONAL,
    dLUPTNLInformation-ToBeSetup-List  DLUPTNLInformation-ToBeSetup-List ,
    iE-Extensions        ProtocolExtensionContainer { { DRBs-Setup-ItemExtIEs } }    OPTIONAL,
    ...
}

DRBs-Setup-ItemExtIEs  F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-AdditionalPDCPDuplicationTNL-List  CRITICALITY ignore  EXTENSION AdditionalPDCPDuplicationTNL-List  PRESENCE optional }|
    { ID id-CurrentQoSParaSetIndex            CRITICALITY ignore  EXTENSION QoSParaSetIndex            PRESENCE optional }|
    { ID id-TSCTrafficCharacteristicsFeedback CRITICALITY ignore  EXTENSION TSCTrafficCharacteristicsFeedback PRESENCE optional }|
    { ID id-ECNMarkingorCongestionInformationReportingStatus  CRITICALITY ignore  EXTENSION ECNMarkingorCongestionInformationReportingStatus
        PRESENCE optional },
    ...
}

DRBs-SetupMod-Item ::= SEQUENCE {
    dRBID                DRBID,
    lCID                LCID                OPTIONAL,
    dLUPTNLInformation-ToBeSetup-List  DLUPTNLInformation-ToBeSetup-List ,
    iE-Extensions        ProtocolExtensionContainer { { DRBs-SetupMod-ItemExtIEs } }    OPTIONAL,
    ...
}

DRBs-SetupMod-ItemExtIEs  F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-AdditionalPDCPDuplicationTNL-List  CRITICALITY ignore  EXTENSION AdditionalPDCPDuplicationTNL-List  PRESENCE optional }|
    { ID id-CurrentQoSParaSetIndex            CRITICALITY ignore  EXTENSION QoSParaSetIndex            PRESENCE optional }|
    { ID id-TSCTrafficCharacteristicsFeedback CRITICALITY ignore  EXTENSION TSCTrafficCharacteristicsFeedback PRESENCE optional }|
    { ID id-ECNMarkingorCongestionInformationReportingStatus  CRITICALITY ignore  EXTENSION ECNMarkingorCongestionInformationReportingStatus
        PRESENCE optional },

```

```

}
...
}

DRBs-ToBeModified-Item ::= SEQUENCE {
    drbID                DRbID,
    qosInformation        QoSInformation OPTIONAL,
    ulUPTNLInformation-ToBeSetup-List  ULUPTNLInformation-ToBeSetup-List ,
    ulConfiguration      ULConfiguration OPTIONAL,
    iE-Extensions        ProtocolExtensionContainer { { DRBs-ToBeModified-ItemExtIEs } } OPTIONAL,
    ...
}

DRBs-ToBeModified-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-DLPDCPSNLength          CRITICALITY ignore EXTENSION PDCPSNLength          PRESENCE optional }|
    { ID id-ULPDCPSNLength          CRITICALITY ignore EXTENSION PDCPSNLength          PRESENCE optional }|
    { ID id-BearerTypeChange        CRITICALITY ignore EXTENSION BearerTypeChange        PRESENCE optional }|
    { ID id-RLCMode                  CRITICALITY ignore EXTENSION RLCMode                  PRESENCE optional }|
    { ID id-Duplication-Activation   CRITICALITY reject EXTENSION DuplicationActivation   PRESENCE optional }|
    { ID id-DC-Based-Duplication-Configured CRITICALITY reject EXTENSION DCBasedDuplicationConfigured PRESENCE optional }|
    { ID id-DC-Based-Duplication-Activation CRITICALITY reject EXTENSION DuplicationActivation   PRESENCE optional }|
    { ID id-AdditionalPDCPDuplicationTNL-List CRITICALITY ignore EXTENSION AdditionalPDCPDuplicationTNL-List PRESENCE optional }|
    { ID id-RLCDuplicationInformation CRITICALITY ignore EXTENSION RLCDuplicationInformation PRESENCE optional }|
    { ID id-TransmissionStopIndicator CRITICALITY ignore EXTENSION TransmissionStopIndicator PRESENCE optional }|
    { ID id-CG-SDTIndicatorMod       CRITICALITY reject EXTENSION CG-SDTIndicatorMod       PRESENCE optional },
    ...
}

DRBs-ToBeReleased-Item ::= SEQUENCE {
    drbID                DRbID,
    iE-Extensions        ProtocolExtensionContainer { { DRBs-ToBeReleased-ItemExtIEs } } OPTIONAL,
    ...
}

DRBs-ToBeReleased-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

DRBs-ToBeSetup-Item ::= SEQUENCE {
    drbID                DRbID,
    qosInformation        QoSInformation,
    ulUPTNLInformation-ToBeSetup-List  ULUPTNLInformation-ToBeSetup-List ,
    rLCMode              RLCMode,
    ulConfiguration      ULConfiguration OPTIONAL,
    duplicationActivation DuplicationActivation OPTIONAL,
    iE-Extensions        ProtocolExtensionContainer { { DRBs-ToBeSetup-ItemExtIEs } } OPTIONAL,
    ...
}

DRBs-ToBeSetup-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-DC-Based-Duplication-Configured CRITICALITY reject EXTENSION DCBasedDuplicationConfigured PRESENCE optional }|
    { ID id-DC-Based-Duplication-Activation CRITICALITY reject EXTENSION DuplicationActivation   PRESENCE optional }|
    { ID id-DLPDCPSNLength          CRITICALITY ignore EXTENSION PDCPSNLength          PRESENCE mandatory }|
    { ID id-ULPDCPSNLength          CRITICALITY ignore EXTENSION PDCPSNLength          PRESENCE optional }|

```

```

    { ID id-AdditionalPDCPDuplicationTNL-List CRITICALITY ignore EXTENSION AdditionalPDCPDuplicationTNL-List PRESENCE optional }|
    { ID id-RLCDuplicationInformation CRITICALITY ignore EXTENSION RLCDuplicationInformation PRESENCE optional }|
    { ID id-SDTRLCBearerConfiguration CRITICALITY ignore EXTENSION SDTRLCBearerConfiguration PRESENCE optional },
    ...
}

DRBs-ToBeSetupMod-Item ::= SEQUENCE {
    drbID DRBID,
    qosInformation QoSInformation,
    uLUPTNLInformation-ToBeSetup-List ULUPTNLInformation-ToBeSetup-List,
    rLCMode RLCMode,
    uLConfiguration ULConfiguration OPTIONAL,
    duplicationActivation DuplicationActivation OPTIONAL,
    iE-Extensions ProtocolExtensionContainer { { DRBs-ToBeSetupMod-ItemExtIEs } } OPTIONAL,
    ...
}

DRBs-ToBeSetupMod-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-DC-Based-Duplication-Configured CRITICALITY reject EXTENSION DCBasedDuplicationConfigured PRESENCE optional }|
    { ID id-DC-Based-Duplication-Activation CRITICALITY reject EXTENSION DuplicationActivation PRESENCE optional }|
    { ID id-DLPDCPSNLength CRITICALITY ignore EXTENSION PDCPSNLength PRESENCE optional }|
    { ID id-ULPDCPSNLength CRITICALITY ignore EXTENSION PDCPSNLength PRESENCE optional }|
    { ID id-AdditionalPDCPDuplicationTNL-List CRITICALITY ignore EXTENSION AdditionalPDCPDuplicationTNL-List PRESENCE optional }|
    { ID id-RLCDuplicationInformation CRITICALITY ignore EXTENSION RLCDuplicationInformation PRESENCE optional }|
    { ID id-CG-SDTIndicatorSetup CRITICALITY reject EXTENSION CG-SDTIndicatorSetup PRESENCE optional },
    ...
}

DRB-List ::= SEQUENCE (SIZE(1.. maxnoofDRBs)) OF DRB-List-Item

DRB-List-Item ::= SEQUENCE {
    drbID DRBID,
    iE-Extensions ProtocolExtensionContainer { { DRB-List-Item-ExtIEs } } OPTIONAL
}

DRB-List-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

DRXCycle ::= SEQUENCE {
    longDRXCycleLength LongDRXCycleLength,
    shortDRXCycleLength ShortDRXCycleLength OPTIONAL,
    shortDRXCycleTimer ShortDRXCycleTimer OPTIONAL,
    iE-Extensions ProtocolExtensionContainer { { DRXCycle-ExtIEs } } OPTIONAL,
    ...
}

DRXCycle-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

NonIntegerDRXCycle ::= SEQUENCE {
    longNonIntegerDRXCycleLength LongNonIntegerDRXCycleLength,

```

```

    shortNonIntegerDRXCycleLength  ShortNonIntegerDRXCycleLength  OPTIONAL,
    shortDRXCycleTimer             ShortDRXCycleTimer OPTIONAL,
    iE-Extensions                  ProtocolExtensionContainer { { NonIntegerDRXCycle-ExtIEs} } OPTIONAL,
    ...
}

NonIntegerDRXCycle-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

DRX-Config ::= OCTET STRING

DRXConfigurationIndicator ::= ENUMERATED{ release, ...}

DRX-LongCycleStartOffset ::= INTEGER (0..10239)

DSInformationList ::= SEQUENCE (SIZE(0..maxnoofDSInfo)) OF DSCP

DSCP ::= BIT STRING (SIZE (6))

DutoCURRCContainer ::= OCTET STRING

DUCURadioInformationType ::= CHOICE {
    rIM                DUCURIMInformation,
    choice-extension    ProtocolIE-SingleContainer { { DUCURadioInformationType-ExtIEs} }
}

DUCURadioInformationType-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

DUCURIMInformation ::= SEQUENCE {
    victimgNBSetID      GNBSetID,
    rIMRSDetectionStatus RIMRSDetectionStatus,
    aggressorCellList    AggressorCellList,
    iE-Extensions        ProtocolExtensionContainer { { DUCURIMInformation-ExtIEs} }    OPTIONAL
}

DUCURIMInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

DUF-Slot-Config-Item ::= CHOICE {
    explicitFormat      ExplicitFormat,
    implicitFormat      ImplicitFormat,
    choice-extension     ProtocolIE-SingleContainer { { DUF-Slot-Config-Item-ExtIEs} }
}

DUF-Slot-Config-Item-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

DUF-Slot-Config-List ::= SEQUENCE (SIZE(1..maxnoofDUFSlots)) OF DUF-Slot-Config-Item

DUFSlotformatIndex ::= INTEGER(0..254)

```



DUFTransmissionPeriodicity ::= ENUMERATED { ms0p5, ms0p625, ms1, ms1p25, ms2, ms2p5, ms5, ms10, ... }

DU-RX-MT-RX ::= ENUMERATED {supported, not-supported }

DU-TX-MT-TX ::= ENUMERATED {supported, not-supported }

DU-RX-MT-TX ::= ENUMERATED {supported, not-supported }

DU-TX-MT-RX ::= ENUMERATED {supported, not-supported }

DU-RX-MT-RX-Extend ::= ENUMERATED {supported, not-supported, supported-and-FDM-required, ... }

DU-TX-MT-TX-Extend ::= ENUMERATED {supported, not-supported, supported-and-FDM-required, ... }

DU-RX-MT-TX-Extend ::= ENUMERATED {supported, not-supported, supported-and-FDM-required, ... }

DU-TX-MT-RX-Extend ::= ENUMERATED {supported, not-supported, supported-and-FDM-required, ... }

```
DUToCURRCInformation ::= SEQUENCE {
    cellGroupConfig      CellGroupConfig,
    measGapConfig         MeasGapConfig OPTIONAL,
    requestedP-MaxFR1     OCTET STRING OPTIONAL,
    iE-Extensions         ProtocolExtensionContainer { { DUToCURRCInformation-ExtIEs } } OPTIONAL,
    ...
}
```

```
DUToCURRCInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-DRX-LongCycleStartOffset          CRITICALITY ignore EXTENSION DRX-LongCycleStartOffset          PRESENCE optional } |
    { ID id-SelectedBandCombinationIndex       CRITICALITY ignore EXTENSION SelectedBandCombinationIndex       PRESENCE optional } |
    { ID id-SelectedFeatureSetEntryIndex       CRITICALITY ignore EXTENSION SelectedFeatureSetEntryIndex       PRESENCE optional } |
    { ID id-Ph-InfoSCG                         CRITICALITY ignore EXTENSION Ph-InfoSCG                         PRESENCE optional } |
    { ID id-RequestedBandCombinationIndex      CRITICALITY ignore EXTENSION RequestedBandCombinationIndex      PRESENCE optional } |
    { ID id-RequestedFeatureSetEntryIndex      CRITICALITY ignore EXTENSION RequestedFeatureSetEntryIndex      PRESENCE optional } |
    { ID id-DRX-Config                         CRITICALITY ignore EXTENSION DRX-Config                         PRESENCE optional } |
    { ID id-PDCCH-BlindDetectionSCG            CRITICALITY ignore EXTENSION PDCCH-BlindDetectionSCG            PRESENCE optional } |
    { ID id-Requested-PDCCH-BlindDetectionSCG  CRITICALITY ignore EXTENSION Requested-PDCCH-BlindDetectionSCG  PRESENCE optional } |
    { ID id-Ph-InfoMCG                         CRITICALITY ignore EXTENSION Ph-InfoMCG                         PRESENCE optional } |
    { ID id-MeasGapSharingConfig               CRITICALITY ignore EXTENSION MeasGapSharingConfig               PRESENCE optional } |
    { ID id-SL-PHY-MAC-RLC-Config              CRITICALITY ignore EXTENSION SL-PHY-MAC-RLC-Config              PRESENCE optional } |
    { ID id-SL-ConfigDedicatedEUTRA-Info      CRITICALITY ignore EXTENSION SL-ConfigDedicatedEUTRA-Info      PRESENCE optional } |
    { ID id-RequestedP-MaxFR2                  CRITICALITY ignore EXTENSION RequestedP-MaxFR2                  PRESENCE optional } |
    { ID id-SDT-MAC-PHY-CG-Config              CRITICALITY ignore EXTENSION SDT-MAC-PHY-CG-Config              PRESENCE optional } |
    { ID id-MUSIM-GapConfig                    CRITICALITY ignore EXTENSION MUSIM-GapConfig                    PRESENCE optional } |
    { ID id-SL-RLC-ChannelToAddModList         CRITICALITY ignore EXTENSION SL-RLC-ChannelToAddModList         PRESENCE optional } |
    { ID id-InterFrequencyConfig-NoGap         CRITICALITY ignore EXTENSION InterFrequencyConfig-NoGap         PRESENCE optional } |
    { ID id-UL-GapFR2-Config                   CRITICALITY ignore EXTENSION UL-GapFR2-Config                   PRESENCE optional } |
    { ID id-TwoPHRModeMCG                     CRITICALITY ignore EXTENSION TwoPHRModeMCG                     PRESENCE optional } |
    { ID id-TwoPHRModeSCG                     CRITICALITY ignore EXTENSION TwoPHRModeSCG                     PRESENCE optional } |
    { ID id-ncd-SSB-RedCapInitialBWP-SDT      CRITICALITY ignore EXTENSION Ncd-SSB-RedCapInitialBWP-SDT      PRESENCE optional } |
    { ID id-ServCellInfoList                   CRITICALITY ignore EXTENSION ServCellInfoList                   PRESENCE optional } |
    { ID id-SL-PHY-MAC-RLC-ConfigExt           CRITICALITY ignore EXTENSION SL-PHY-MAC-RLC-ConfigExt           PRESENCE optional } |
    ...
}
```

DutoCUTAIInformation-List ::= SEQUENCE (SIZE(1.. maxnoofTAList)) OF DutoCUTAIInformation-Item

```
DutoCUTAIInformation-Item ::= SEQUENCE {
    nRCGI                NRCGI,
    tAValue              TAValue,
    preambleIndex        PreambleIndex,
    rA-RNTI              RA-RNTI,
    sourceGNB-DU-ID      GNB-DU-ID,
    tagIDPointer          TagIDPointer OPTIONAL,
    iE-Extensions         ProtocolExtensionContainer { { DutoCUTAIInformation-Item-ExtIEs } } OPTIONAL,
    ...
}
```

```
DutoCUTAIInformation-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
```

DuplicationActivation ::= ENUMERATED{active,inactive,... }

DuplicationIndication ::= ENUMERATED {true, ... , false }

```
DuplicationState ::= ENUMERATED {
    active,
    inactive,
    ...
}
```

```
Dynamic5QIDescriptor ::= SEQUENCE {
    qoSPriorityLevel      INTEGER (1..127),
    packetDelayBudget     PacketDelayBudget,
    packetErrorRate       PacketErrorRate,
    fiveQI                INTEGER (0..255, ...) OPTIONAL,
    delayCritical          ENUMERATED {delay-critical, non-delay-critical} OPTIONAL,
    -- The above IE shall be present if the GBR QoS Flow Information IE is present in the QoS Flow Level QoS Parameters IE.
    averagingWindow       AveragingWindow OPTIONAL,
    -- The above IE shall be present if the GBR QoS Flow Information IE is present in the QoS Flow Level QoS Parameters IE.
    maxDataBurstVolume    MaxDataBurstVolume OPTIONAL,
    iE-Extensions         ProtocolExtensionContainer { { Dynamic5QIDescriptor-ExtIEs } } OPTIONAL
}
```

```
Dynamic5QIDescriptor-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-ExtendedPacketDelayBudget      CRITICALITY ignore EXTENSION ExtendedPacketDelayBudget PRESENCE optional }|
    { ID id-CNPacketDelayBudgetDownlink     CRITICALITY ignore EXTENSION ExtendedPacketDelayBudget PRESENCE optional }|
    { ID id-CNPacketDelayBudgetUplink       CRITICALITY ignore EXTENSION ExtendedPacketDelayBudget PRESENCE optional },
    ...
}
```

```
DynamicPQIDescriptor ::= SEQUENCE {
    resourceType          ENUMERATED {gbr, non-gbr, delay-critical-grb, ...} OPTIONAL,
    qoSPriorityLevel       INTEGER (1..8, ...),
    packetDelayBudget      PacketDelayBudget,
    packetErrorRate        PacketErrorRate,
    averagingWindow        AveragingWindow OPTIONAL,
}
```

```

-- The above IE shall be present if the GBR QoS Flow Information IE is present in the QoS Flow Level QoS Parameters IE.
maxDataBurstVolume      MaxDataBurstVolume      OPTIONAL,
iE-Extensions            ProtocolExtensionContainer { { DynamicPQIDescriptor-ExtIEs } } OPTIONAL
}

DynamicPQIDescriptor-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

DLLBTFailureInformationRequest ::= ENUMERATED {inquiry, ...}
DLLBTFailureInformationList ::= SEQUENCE (SIZE(1.. maxnoofLBTFailureInformation)) OF DLLBTFailureInformationList-Item

DLLBTFailureInformationList-Item ::= SEQUENCE {
    uEAssistantIdentifier      GNB-CU-UE-F1AP-ID,
    numberOfDLLBTFailures      INTEGER (1..1000,...)      OPTIONAL,
    iE-Extensions              ProtocolExtensionContainer { { DLLBTFailureInformationList-Item-ExtIEs } } OPTIONAL,
    ...
}

DLLBTFailureInformationList-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

-- E

EarlyULSyncConfig ::= SEQUENCE {
    rach      RACHConfiguration,
    lTMgNB-DU-IDs-PreambleIndexList      LTMgNB-DU-IDs-PreambleIndexList      OPTIONAL,
    iE-Extensions      ProtocolExtensionContainer { { EarlyULSyncConfig-ExtIEs } } OPTIONAL,
    ...
}

EarlyULSyncConfig-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

EarlySyncInformation-Request ::= SEQUENCE {
    requestforRACHConfiguration      RequestforRACHConfiguration,
    lTMgNB-DU-IDsList      LTMgNB-DU-IDsList,
    iE-Extensions      ProtocolExtensionContainer { { EarlySyncInformation-Request-ExtIEs } } OPTIONAL,
    ...
}

EarlySyncInformation-Request-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

EarlySyncInformation ::= SEQUENCE {
    tCIStatesConfigurationsList      TCISStatesConfigurationsList,

```

```

    earlyULSyncConfig          EarlyULSyncConfig          OPTIONAL,
    earlyULSyncConfigSUL       EarlyULSyncConfig          OPTIONAL,
    iE-Extensions              ProtocolExtensionContainer { { EarlySyncInformation-ExtIEs } } OPTIONAL,
    ...
}

EarlySyncInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

EarlySyncCandidateCellInformation-List ::= SEQUENCE (SIZE (1.. maxnoofLTMCells)) OF EarlySyncCandidateCellInformation-Item

EarlySyncCandidateCellInformation-Item ::= SEQUENCE {
    nRCGI                      NRCGI,
    tCISStatesConfigurationsList TCISStatesConfigurationsList          OPTIONAL,
    earlyULSyncConfig          EarlyULSyncConfig          OPTIONAL,
    earlyULSyncConfigSUL       EarlyULSyncConfig          OPTIONAL,
    tAAssistanceInfo           TAAssistanceInfo           OPTIONAL,
    uEbasedTAMeasurementConfig OCTET STRING              OPTIONAL,
    iE-Extensions              ProtocolExtensionContainer { { EarlySyncCandidateCellInformation-Item-ExtIEs } } OPTIONAL,
    ...
}

EarlySyncCandidateCellInformation-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-SSB-PositionsInBurst CRITICALITY ignore EXTENSION SSB-PositionsInBurst PRESENCE optional },
    -- The above IE shall be present if the earlyULSyncConfig IE or the earlyULSyncConfigSUL IE is present
    ...
}

EarlySyncServingCellInformation ::= SEQUENCE {
    uEbasedTAMeasurementConfig OCTET STRING              OPTIONAL,
    iE-Extensions              ProtocolExtensionContainer { { EarlySyncServingCellInformation-ExtIEs } } OPTIONAL,
    ...
}

EarlySyncServingCellInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

E-CID-MeasurementQuantities ::= SEQUENCE (SIZE (1.. maxnoofMeasE-CID)) OF ProtocolIE-SingleContainer { {E-CID-MeasurementQuantities-ItemIEs} }

E-CID-MeasurementQuantities-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-E-CID-MeasurementQuantities-Item CRITICALITY reject TYPE E-CID-MeasurementQuantities-Item PRESENCE mandatory}
}

E-CID-MeasurementQuantities-Item ::= SEQUENCE {
    e-CIDmeasurementQuantitiesValue E-CID-MeasurementQuantitiesValue,
    iE-Extensions                  ProtocolExtensionContainer { { E-CID-MeasurementQuantitiesValue-ExtIEs } } OPTIONAL
}

E-CID-MeasurementQuantitiesValue-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

```

```

    ...
}

E-CID-MeasurementQuantitiesValue ::= ENUMERATED {
    default,
    angleOfArrivalNR,
    ... ,
    timingAdvanceNR
}

E-CID-MeasurementResult ::= SEQUENCE {
    geographicalCoordinates      GeographicalCoordinates      OPTIONAL,
    measuredResults-List        E-CID-MeasuredResults-List  OPTIONAL,
    iE-Extensions                ProtocolExtensionContainer { { E-CID-MeasurementResult-ExtIEs} } OPTIONAL
}

E-CID-MeasurementResult-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-MobileAccessPointLocation CRITICALITY ignore EXTENSION Mobile-TRP-LocationInformation PRESENCE optional }|
    { ID id-E-CID-MeasuredResultsAssociatedInfoList CRITICALITY ignore EXTENSION E-CID-MeasuredResultsAssociatedInfoList PRESENCE optional},
    ...
}

E-CID-MeasuredResults-List ::= SEQUENCE (SIZE(1..maxnoofMeasE-CID)) OF E-CID-MeasuredResults-Item

E-CID-MeasuredResults-Item ::= SEQUENCE {
    e-CID-MeasuredResults-Value E-CID-MeasuredResults-Value,
    iE-Extensions                ProtocolExtensionContainer {{ E-CID-MeasuredResults-Item-ExtIEs }} OPTIONAL
}

E-CID-MeasuredResults-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

E-CID-MeasuredResults-Value ::= CHOICE {
    valueAngleofArrivalNR      UL-AoA,
    choice-extension            ProtocolIE-SingleContainer { { E-CID-MeasuredResults-Value-ExtIEs} }
}

E-CID-MeasuredResults-Value-ExtIEs F1AP-PROTOCOL-IES ::= {
    { ID id-NR-TADV CRITICALITY ignore TYPE NR-TADV PRESENCE mandatory },
    ...
}

E-CID-MeasuredResultsAssociatedInfoList ::= SEQUENCE (SIZE (1..maxnoofMeasE-CID)) OF E-CID-MeasuredResultsAssociatedInfoItem

E-CID-MeasuredResultsAssociatedInfoItem ::= SEQUENCE {
    timeStamp                  TimeStamp OPTIONAL,
    measurementQuality          TRPMeasurementQuality OPTIONAL,
    iE-Extensions                ProtocolExtensionContainer { { E-CID-MeasuredResultsAssociatedInfoItem-ExtIEs} } OPTIONAL,
    ...
}

E-CID-MeasuredResultsAssociatedInfoItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

}

E-CID-ReportCharacteristics ::= ENUMERATED {
    onDemand,
    periodic,
    ...
}

EgressBHRLCCHList ::= SEQUENCE (SIZE(1..maxnoofEgressLinks)) OF EgressBHRLCCHItem

EgressBHRLCCHItem ::= SEQUENCE {
    nextHopBAPAddress      BAPAddress,
    bHRLCChannelID         BHRLCChannelID,
    iE-Extensions          ProtocolExtensionContainer {{EgressBHRLCCHItemExtIEs }} OPTIONAL
}

EgressBHRLCCHItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

EgressNonFilterterminatingTopologyIndicator ::= ENUMERATED {true, ...}

Endpoint-IP-address-and-port ::=SEQUENCE {
    endpointIPAddress TransportLayerAddress,
    iE-Extensions          ProtocolExtensionContainer { { Endpoint-IP-address-and-port-ExtIEs} } OPTIONAL
}

Endpoint-IP-address-and-port-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-portNumber CRITICALITY reject EXTENSION PortNumber PRESENCE optional},
    ...
}

EnergyDetectionThreshold ::= INTEGER (-100..-50, ...)

ExtendedAvailablePLMN-List ::= SEQUENCE (SIZE(1..maxnoofExtendedBPLMNs)) OF ExtendedAvailablePLMN-Item

ExtendedAvailablePLMN-Item ::= SEQUENCE {
    pLMNIdentity          PLMN-Identity,
    iE-Extensions          ProtocolExtensionContainer { { ExtendedAvailablePLMN-Item-ExtIEs} } OPTIONAL
}

ExplicitFormat ::= SEQUENCE {
    permutation            Permutation,
    noofDownlinkSymbols    NoofDownlinkSymbols OPTIONAL,
    noofUplinkSymbols      NoofUplinkSymbols OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { ExplicitFormat-ExtIEs} } OPTIONAL
}

ExplicitFormat-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

ExtendedAvailablePLMN-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

}

ExtendedServedPLMNs-List ::= SEQUENCE (SIZE(1.. maxnoofExtendedBPLMNs)) OF ExtendedServedPLMNs-Item

ExtendedServedPLMNs-Item ::= SEQUENCE {
    pLMN-Identity          PLMN-Identity,
    tAISliceSupportList    SliceSupportList OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { ExtendedServedPLMNs-ItemExtIEs } } OPTIONAL,
    ...
}

ExtendedServedPLMNs-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-NPNSupportInfo          CRITICALITY reject EXTENSION NPNSupportInfo          PRESENCE optional }|
    { ID id-ExtendedTAISliceSupportList CRITICALITY reject EXTENSION ExtendedSliceSupportList PRESENCE optional }|
    { ID id-TAINSAGSupportList       CRITICALITY ignore  EXTENSION NSAGSupportList       PRESENCE optional},
    ...
}

ExtendedSliceSupportList ::= SEQUENCE (SIZE(1.. maxnoofExtSliceItems)) OF SliceSupportItem

ExtendedUEIdentityIndexValue ::= BIT STRING (SIZE(16))

EUTRACells-List ::= SEQUENCE (SIZE (1.. maxCellineNB)) OF EUTRACells-List-item

EUTRACells-List-item ::= SEQUENCE {
    eUTRA-Cell-ID          EUTRA-Cell-ID,
    served-EUTRA-Cells-Information Served-EUTRA-Cells-Information,
    iE-Extensions          ProtocolExtensionContainer { { EUTRACells-List-itemExtIEs } } OPTIONAL
}

EUTRACells-List-itemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

EUTRA-Cell-ID ::= BIT STRING (SIZE(28))

EUTRA-Coex-FDD-Info ::= SEQUENCE {
    uL-EARFCN          ExtendedEARFCN          OPTIONAL,
    dL-EARFCN          ExtendedEARFCN,
    uL-Transmission-Bandwidth EUTRA-Transmission-Bandwidth OPTIONAL,
    dL-Transmission-Bandwidth EUTRA-Transmission-Bandwidth,
    iE-Extensions          ProtocolExtensionContainer { {EUTRA-Coex-FDD-Info-ExtIEs} } OPTIONAL,
    ...
}

EUTRA-Coex-FDD-Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

EUTRA-Coex-Mode-Info ::= CHOICE {
    fDD      EUTRA-Coex-FDD-Info,
    tDD      EUTRA-Coex-TDD-Info,
    ...
}

```

```

}

EUTRA-Coex-TDD-Info ::= SEQUENCE {
    eARFCN                      ExtendedEARFCN,
    transmission-Bandwidth      EUTRA-Transmission-Bandwidth,
    subframeAssignment          EUTRA-SubframeAssignment,
    specialSubframe-Info        EUTRA-SpecialSubframe-Info,
    iE-Extensions                ProtocolExtensionContainer { {EUTRA-Coex-TDD-Info-ExtIEs} } OPTIONAL,
    ...
}

EUTRA-Coex-TDD-Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

EUTRA-CyclicPrefixDL ::= ENUMERATED {
    normal,
    extended,
    ...
}

EUTRA-CyclicPrefixUL ::= ENUMERATED {
    normal,
    extended,
    ...
}

EUTRA-PRACH-Configuration ::= SEQUENCE {
    rootSequenceIndex          INTEGER (0..837),
    zeroCorrelationIndex        INTEGER (0..15),
    highSpeedFlag               BOOLEAN,
    prach-FreqOffset            INTEGER (0..94),
    prach-ConfigIndex           INTEGER (0..63) OPTIONAL,
    -- The above IE shall be present if the EUTRA-Mode-Info IE in the Resource Coordination E-UTRA Cell Information IE is set to the value "TDD"
    iE-Extensions                ProtocolExtensionContainer { {EUTRA-PRACH-Configuration-ExtIEs} } OPTIONAL,
    ...
}

EUTRA-PRACH-Configuration-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

EUTRA-SpecialSubframe-Info ::= SEQUENCE {
    specialSubframePatterns      EUTRA-SpecialSubframePatterns,
    cyclicPrefixDL               EUTRA-CyclicPrefixDL,
    cyclicPrefixUL               EUTRA-CyclicPrefixUL,
    iE-Extensions                ProtocolExtensionContainer { { EUTRA-SpecialSubframe-Info-ExtIEs} } OPTIONAL,
    ...
}

EUTRA-SpecialSubframe-Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

EUTRA-SpecialSubframePatterns ::= ENUMERATED {

```



```

    ssp0,
    ssp1,
    ssp2,
    ssp3,
    ssp4,
    ssp5,
    ssp6,
    ssp7,
    ssp8,
    ssp9,
    ssp10,
    ...
}

EUTRA-SubframeAssignment ::= ENUMERATED {
    sa0,
    sa1,
    sa2,
    sa3,
    sa4,
    sa5,
    sa6,
    ...
}

EUTRA-Transmission-Bandwidth ::= ENUMERATED {
    bw6,
    bw15,
    bw25,
    bw50,
    bw75,
    bw100,
    ...
}

EUTRANQoS ::= SEQUENCE {
    qCI                               QCI,
    allocationAndRetentionPriority    AllocationAndRetentionPriority,
    gbrQoSInformation                GBR-QoSInformation OPTIONAL,
    iE-Extensions                    ProtocolExtensionContainer { { EUTRANQoS-ExtIEs } } OPTIONAL,
    ...
}

EUTRANQoS-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-ENBDLTNLAddress          CRITICALITY ignore   EXTENSION TransportLayerAddress PRESENCE optional },
    ...
}

ExecutedDuplication ::= ENUMERATED{true,...}

ExtendedEARFCN ::= INTEGER (0..262143)

EUTRA-Mode-Info ::= CHOICE {
    eUTRAFDD          EUTRA-FDD-Info,

```

```

    eUTRATDD      EUTRA-TDD-Info,
    choice-extension ProtocolIE-SingleContainer { { EUTRA-Mode-Info-ExtIEs} }
}

EUTRA-Mode-Info-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

EUTRA-NR-CellResourceCoordinationReq-Container ::= OCTET STRING

EUTRA-NR-CellResourceCoordinationReqAck-Container ::= OCTET STRING

EUTRA-FDD-Info ::= SEQUENCE {
    uL-offsetToPointA      OffsetToPointA,
    dL-offsetToPointA      OffsetToPointA,
    iE-Extensions          ProtocolExtensionContainer { {EUTRA-FDD-Info-ExtIEs} } OPTIONAL,
    ...
}

EUTRA-FDD-Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

EUTRA-TDD-Info ::= SEQUENCE {
    offsetToPointA      OffsetToPointA,
    iE-Extensions          ProtocolExtensionContainer { {EUTRA-TDD-Info-ExtIEs} } OPTIONAL,
    ...
}

EUTRA-TDD-Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

EventType ::= ENUMERATED {
    on-demand,
    periodic,
    stop,
    ...
}

ExtendedPacketDelayBudget ::= INTEGER (1..65535, ..., 65536..109999)

Expected-UL-AoA ::= SEQUENCE {
    expected-Azimuth-AoA      Expected-Azimuth-AoA,
    expected-Zenith-AoA      Expected-Zenith-AoA OPTIONAL,
    iE-extensions          ProtocolExtensionContainer { { Expected-UL-AoA-ExtIEs } } OPTIONAL,
    ...
}

Expected-UL-AoA-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Expected-ZoA-only ::= SEQUENCE {
    expected-ZoA-only      Expected-Zenith-AoA,

```

```

    iE-extensions      ProtocolExtensionContainer { { Expected-ZoA-only-ExtIEs } } OPTIONAL,
    ...
}

Expected-ZoA-only-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Expected-Azimuth-AoA ::= SEQUENCE {
    expected-Azimuth-AoA-value      Expected-Value-AoA,
    expected-Azimuth-AoA-uncertainty Uncertainty-range-AoA,
    iE-Extensions                  ProtocolExtensionContainer { { Expected-Azimuth-AoA-ExtIEs } } OPTIONAL,
    ...
}

Expected-Azimuth-AoA-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Expected-Zenith-AoA ::= SEQUENCE {
    expected-Zenith-AoA-value      Expected-Value-ZoA,
    expected-Zenith-AoA-uncertainty Uncertainty-range-ZoA,
    iE-Extensions                  ProtocolExtensionContainer { { Expected-Zenith-AoA-ExtIEs } } OPTIONAL,
    ...
}

Expected-Zenith-AoA-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Expected-Value-AoA ::= INTEGER (0..3599)

Expected-Value-ZoA ::= INTEGER (0..1799)

ECNMarkingorCongestionInformationReportingRequest ::= CHOICE {
    ecnMarking      ECNmarkingRequest,
    congestionInformation CongestionInformationRequest,
    choice-extension ProtocolIE-SingleContainer { { ECNMarkingorCongestionInformationReportingRequest-ExtIEs } }
}

ECNMarkingorCongestionInformationReportingRequest-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

ECNmarkingRequest ::= ENUMERATED { ul, dl, both, stop, ... }
CongestionInformationRequest ::= ENUMERATED { ul, dl, both, stop, ... }
ECNMarkingorCongestionInformationReportingStatus ::= ENUMERATED { active, not-active, ...}

-- F

F1CPathNSA ::= ENUMERATED {lte, nr, both}

F1CTransferPath ::= SEQUENCE {
    f1CPathNSA      F1CPathNSA,
    iE-Extensions    ProtocolExtensionContainer { { F1CTransferPath-ExtIEs } } OPTIONAL,

```

```

    ...
}

F1CTransferPath-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

F1CPathNRDC ::= ENUMERATED {mcg, scg, both}

F1CTransferPathNRDC ::= SEQUENCE {
    f1CPathNRDC          F1CPathNRDC,
    iE-Extensions        ProtocolExtensionContainer { { F1CTransferPathNRDC-ExtIEs } } OPTIONAL,
    ...
}

F1CTransferPathNRDC-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

F1U-PathFailure ::= ENUMERATED {
    true,
    ...
}

F1UTunnelNotEstablished ::= ENUMERATED {
    true,
    ...
}

FDD-Info ::= SEQUENCE {
    uL-NRFreqInfo          NRFreqInfo,
    dL-NRFreqInfo          NRFreqInfo,
    uL-Transmission-Bandwidth Transmission-Bandwidth,
    dL-Transmission-Bandwidth Transmission-Bandwidth,
    iE-Extensions          ProtocolExtensionContainer { {FDD-Info-ExtIEs} } OPTIONAL,
    ...
}

FDD-Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-ULCarrierList          CRITICALITY ignore EXTENSION NRCarrierList          PRESENCE optional }|
    { ID id-DLCarrierList          CRITICALITY ignore EXTENSION NRCarrierList          PRESENCE optional },
    ...
}

FDD-InfoRel16 ::= SEQUENCE {
    uL-FreqInfo          FreqInfoRel16          OPTIONAL,
    sUL-FreqInfo          FreqInfoRel16          OPTIONAL,
    iE-Extensions        ProtocolExtensionContainer { {FDD-InfoRel16-ExtIEs} }          OPTIONAL,
    ...
}

FDD-InfoRel16-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

}

FiveG-ProSeAuthorized ::= SEQUENCE {
    fiveG-proSeDirectDiscovery          FiveG-ProSeDirectDiscovery          OPTIONAL,
    fiveG-proSeDirectCommunication      FiveG-ProSeDirectCommunication      OPTIONAL,
    fiveG-ProSeLayer2UEtoNetworkRelay   FiveG-ProSeLayer2UEtoNetworkRelay   OPTIONAL,
    fiveG-ProSeLayer3UEtoNetworkRelay   FiveG-ProSeLayer3UEtoNetworkRelay   OPTIONAL,
    fiveG-ProSeLayer2RemoteUE           FiveG-ProSeLayer2RemoteUE           OPTIONAL,
    iE-Extensions                       ProtocolExtensionContainer { {FiveG-ProSeAuthorized-ExtIEs} } OPTIONAL,
    ...
}

FiveG-ProSeAuthorized-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-FiveG-ProSeLayer2Multipath CRITICALITY ignore EXTENSION FiveG-ProSeLayer2Multipath PRESENCE optional }|
    { ID id-FiveG-ProSeLayer2UEtoUERelay CRITICALITY ignore EXTENSION FiveG-ProSeLayer2UEtoUERelay PRESENCE optional }|
    { ID id-FiveG-ProSeLayer2UEtoUERemote CRITICALITY ignore EXTENSION FiveG-ProSeLayer2UEtoUERemote PRESENCE optional },
    ...
}

FiveG-ProSeDirectDiscovery ::= ENUMERATED {
    authorized,
    not-authorized,
    ...
}

FiveG-ProSeDirectCommunication ::= ENUMERATED {
    authorized,
    not-authorized,
    ...
}

FiveG-ProSeLayer2UEtoNetworkRelay ::= ENUMERATED {
    authorized,
    not-authorized,
    ...
}

FiveG-ProSeLayer3UEtoNetworkRelay ::= ENUMERATED {
    authorized,
    not-authorized,
    ...
}

FiveG-ProSeLayer2RemoteUE ::= ENUMERATED {
    authorized,
    not-authorized,
    ...
}

FiveG-ProSeLayer2Multipath ::= ENUMERATED {
    authorized,
    not-authorized,
    ...
}

```

```

FiveG-ProSeLayer2UEtoUERelay ::= ENUMERATED {
    authorized,
    not-authorized,
    ...
}

FiveG-ProSeLayer2UEtoUERemote ::= ENUMERATED {
    authorized,
    not-authorized,
    ...
}

FiveQI ::= INTEGER (0..255, ...)

Flows-Mapped-To-DRB-List ::= SEQUENCE (SIZE(1.. maxnoofQoSFlows)) OF Flows-Mapped-To-DRB-Item

Flows-Mapped-To-DRB-Item ::= SEQUENCE {
    qoSFlowIdentifier          QoSFlowIdentifier,
    qoSFlowLevelQoSParameters QoSFlowLevelQoSParameters,
    iE-Extensions              ProtocolExtensionContainer { { Flows-Mapped-To-DRB-ItemExtIEs} } OPTIONAL
}

Flows-Mapped-To-DRB-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    {ID id-QoSFlowMappingIndication    CRITICALITY ignore  EXTENSION QoSFlowMappingIndication    PRESENCE optional}|
    {ID id-TSCTrafficCharacteristics   CRITICALITY ignore  EXTENSION TSCTrafficCharacteristics   PRESENCE optional},
    ...
}

FR1-Bandwidth ::= ENUMERATED {bw5, bw10, bw20, bw40, bw50, bw80, bw100, ..., bw160, bw200, bw15, bw25, bw30, bw60, bw35, bw45, bw70, bw90}

FR2-Bandwidth ::= ENUMERATED {bw50, bw100, bw200, bw400, ..., bw800, bw1600, bw2000, bw600}

FreqBandNrItem ::= SEQUENCE {
    freqBandIndicatorNr      INTEGER (1..1024,...),
    supportedSULBandList     SEQUENCE (SIZE(0..maxnoofNrCellBands)) OF SupportedSULFreqBandItem,
    iE-Extensions            ProtocolExtensionContainer { {FreqBandNrItem-ExtIEs} } OPTIONAL,
    ...
}

FreqBandNrItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

FreqDomainLength ::= CHOICE {
    l839          L839Info,
    l139          L139Info,
    choice-extension ProtocolIE-SingleContainer { {FreqDomainLength-ExtIEs} }
}

FreqDomainLength-ExtIEs F1AP-PROTOCOL-IES ::= {
    { ID id-L571Info    CRITICALITY reject  TYPE L571Info PRESENCE mandatory}|
    { ID id-L1151Info   CRITICALITY reject  TYPE L1151Info PRESENCE mandatory},

```

```

    ...
}

FreqInfoRel16 ::= SEQUENCE {
    nRARFCN                INTEGER (0..maxNRARFCN)                OPTIONAL,
    frequencyShift7p5khz   FrequencyShift7p5khz                OPTIONAL,
    carrierList             NRCarrierList                        OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { FreqInfoRel16-ExtIEs} } OPTIONAL,
    ...
}

FreqInfoRel16-ExtIEs      F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

FrequencyShift7p5khz ::= ENUMERATED {false, true, ...}

Frequency-Domain-HSNA-Configuration-List ::= SEQUENCE (SIZE(1..maxnoofRBsetsPerCell)) OF Frequency-Domain-HSNA-Configuration-Item

Frequency-Domain-HSNA-Configuration-Item ::= SEQUENCE {
    rBSetIndex             INTEGER (0..maxnoofRBsetsPerCell-1, ...),
    frequency-Domain-HSNA-Slot-Configuration-List Frequency-Domain-HSNA-Slot-Configuration-List,
    iE-Extensions          ProtocolExtensionContainer { { Frequency-Domain-HSNA-Configuration-Item-ExtIEs} } OPTIONAL
}

Frequency-Domain-HSNA-Configuration-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Frequency-Domain-HSNA-Slot-Configuration-List ::= SEQUENCE (SIZE(1..maxnoofHSNASlots)) OF Frequency-Domain-HSNA-Slot-Configuration-Item

Frequency-Domain-HSNA-Slot-Configuration-Item ::= SEQUENCE {
    slotIndex              INTEGER (0..5119)                OPTIONAL,
    hSNADownlink            HSNADownlink                    OPTIONAL,
    hSNAUplink              HSNAUplink                      OPTIONAL,
    hSNAFlexible            HSNAFlexible                    OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { Frequency-Domain-HSNA-Slot-Configuration-Item-ExtIEs } } OPTIONAL
}

Frequency-Domain-HSNA-Slot-Configuration-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

FullConfiguration ::= ENUMERATED {full, ...}

FlowsMappedToSLDRB-List ::= SEQUENCE (SIZE(1.. maxnoofPC5QoSFlows)) OF FlowsMappedToSLDRB-Item

FlowsMappedToSLDRB-Item ::= SEQUENCE {
    pc5QoSFlowIdentifier    PC5QoSFlowIdentifier,
    iE-Extensions          ProtocolExtensionContainer { {FlowsMappedToSLDRB-Item-ExtIEs} } OPTIONAL,
    ...
}

```

```

FlowsMappedToSLDRB-Item-ExtIEs  F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

-- G

GBR-QosInformation ::= SEQUENCE {
    e-RAB-MaximumBitrateDL      BitRate,
    e-RAB-MaximumBitrateUL      BitRate,
    e-RAB-GuaranteedBitrateDL   BitRate,
    e-RAB-GuaranteedBitrateUL   BitRate,
    iE-Extensions               ProtocolExtensionContainer { { GBR-QosInformation-ExtIEs } } OPTIONAL,
    ...
}

GBR-QosInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

GBR-QoSFlowInformation ::= SEQUENCE {
    maxFlowBitRateDownlink      BitRate,
    maxFlowBitRateUplink        BitRate,
    guaranteedFlowBitRateDownlink BitRate,
    guaranteedFlowBitRateUplink  BitRate,
    maxPacketLossRateDownlink    MaxPacketLossRate OPTIONAL,
    maxPacketLossRateUplink      MaxPacketLossRate OPTIONAL,
    iE-Extensions               ProtocolExtensionContainer { { GBR-QoSFlowInformation-ExtIEs } } OPTIONAL,
    ...
}

GBR-QoSFlowInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-AlternativeQoSParaSetList CRITICALITY ignore EXTENSION AlternativeQoSParaSetList PRESENCE optional },
    ...
}

CG-Config ::= OCTET STRING

GeographicalCoordinates ::= SEQUENCE {
    trpPositionDefinitionType TRPPositionDefinitionType,
    dlPRSResourceCoordinates  DLPRSResourceCoordinates OPTIONAL,
    iE-Extensions             ProtocolExtensionContainer { { GeographicalCoordinates-ExtIEs } } OPTIONAL
}

GeographicalCoordinates-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-ARPLocationInfo CRITICALITY ignore EXTENSION ARPLocationInformation PRESENCE optional },
    ...
}

GlobalGNB-ID ::= SEQUENCE {
    pLMNIdentity PLMN-Identity,
    gNB-ID       GNB-ID,
    iE-Extensions ProtocolExtensionContainer { {GlobalGNB-ID-ExtIEs} } OPTIONAL,
    ...
}

```



```

}

GlobalGNB-ID-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
GNB-ID ::= CHOICE {
    gNB-ID                BIT STRING (SIZE(22..32)),
    choice-Extensions     ProtocolIE-SingleContainer { {GNB-ID-ExtIEs} }
}

GNB-ID-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

GNB-CU-MBS-F1AP-ID      ::= INTEGER (0..4294967295)

GNBCUMeasurementID ::= INTEGER (0.. 4095, ...)

GNBDUMeasurementID ::= INTEGER (0.. 4095, ...)

GNB-CUSystemInformation ::= SEQUENCE {
    sibtypetobeupdatedlist SEQUENCE (SIZE(1.. maxnoofSIBTypes)) OF SibtypetobeupdatedListItem,
    iE-Extensions          ProtocolExtensionContainer { { GNB-CUSystemInformation-ExtIEs} } OPTIONAL,
    ...
}

GNB-CUSystemInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    {ID id-systemInformationAreaID CRITICALITY ignore EXTENSION SystemInformationAreaID PRESENCE optional},
    ...
}

GNB-CU-TNL-Association-Setup-Item ::= SEQUENCE {
    tNLAssociationTransportLayerAddress CP-TransportLayerAddress ,
    iE-Extensions                      ProtocolExtensionContainer { { GNB-CU-TNL-Association-Setup-Item-ExtIEs} } OPTIONAL
}

GNB-CU-TNL-Association-Setup-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

GNB-CU-TNL-Association-Failed-To-Setup-Item ::= SEQUENCE {
    tNLAssociationTransportLayerAddress CP-TransportLayerAddress ,
    cause                             Cause,
    iE-Extensions                      ProtocolExtensionContainer { { GNB-CU-TNL-Association-Failed-To-Setup-Item-ExtIEs} } OPTIONAL
}

GNB-CU-TNL-Association-Failed-To-Setup-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

GNB-CU-TNL-Association-To-Add-Item ::= SEQUENCE {
    tNLAssociationTransportLayerAddress CP-TransportLayerAddress ,

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```

    tNLAssociationUsage          TNLAssociationUsage,
    iE-Extensions                ProtocolExtensionContainer { { GNB-CU-TNL-Association-To-Add-Item-ExtIEs} } OPTIONAL
}

GNB-CU-TNL-Association-To-Add-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

GNB-CU-TNL-Association-To-Remove-Item ::= SEQUENCE {
    tNLAssociationTransportLayerAddress CP-TransportLayerAddress ,
    iE-Extensions                      ProtocolExtensionContainer { { GNB-CU-TNL-Association-To-Remove-Item-ExtIEs} } OPTIONAL
}

GNB-CU-TNL-Association-To-Remove-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    {ID id-TNLAssociationTransportLayerAddresssgNBdu CRITICALITY reject EXTENSION CP-TransportLayerAddress PRESENCE optional},
    ...
}

GNB-CU-TNL-Association-To-Update-Item ::= SEQUENCE {
    tNLAssociationTransportLayerAddress CP-TransportLayerAddress ,
    tNLAssociationUsage                TNLAssociationUsage OPTIONAL,
    iE-Extensions                      ProtocolExtensionContainer { { GNB-CU-TNL-Association-To-Update-Item-ExtIEs} } OPTIONAL
}

GNB-CU-TNL-Association-To-Update-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

GNB-CU-UE-F1AP-ID                ::= INTEGER (0..4294967295)

GNB-DU-Cell-Resource-Configuration ::= SEQUENCE {
    subcarrierSpacing              SubcarrierSpacing,
    dUFTxPeriodicity                DUFTransmissionPeriodicity OPTIONAL,
    dUF-Slot-Config-List            DUF-Slot-Config-List OPTIONAL,
    hSNATxPeriodicity               HSNATransmissionPeriodicity,
    hNSASlotConfigList              HSNASlotConfigList OPTIONAL,
    iE-Extensions                  ProtocolExtensionContainer { { GNB-DU-Cell-Resource-Configuration-ExtIEs } } OPTIONAL
}

GNB-DU-Cell-Resource-Configuration-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    {ID id-rBSetConfiguration CRITICALITY reject EXTENSION RBSetsConfiguration PRESENCE optional}|
    {ID id-frequency-Domain-HSNA-Configuration-List CRITICALITY reject EXTENSION Frequency-Domain-HSNA-Configuration-List PRESENCE optional}|
    {ID id-child-IAB-Nodes-NA-Resource-List CRITICALITY reject EXTENSION Child-IAB-Nodes-NA-Resource-List PRESENCE optional}|
    {ID id-Parent-IAB-Nodes-NA-Resource-Configuration-List CRITICALITY reject EXTENSION Parent-IAB-Nodes-NA-Resource-Configuration-List
    PRESENCE optional},
    ...
}

GNB-DU-MBS-F1AP-ID              ::= INTEGER (0..4294967295)

GNB-DU-UE-F1AP-ID                ::= INTEGER (0..4294967295)

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GNB-DU-ID          ::= INTEGER (0..68719476735)

GNB-CU-Name ::= PrintableString(SIZE(1..150,...))

GNB-DU-Name ::= PrintableString(SIZE(1..150,...))

Extended-GNB-CU-Name ::= SEQUENCE {
    gNB-CU-NameVisibleString  GNB-CU-NameVisibleString          OPTIONAL,
    gNB-CU-NameUTF8String     GNB-CU-NameUTF8String             OPTIONAL,
    iE-Extensions             ProtocolExtensionContainer { { Extended-GNB-CU-Name-ExtIEs } } OPTIONAL,
    ...
}

Extended-GNB-CU-Name-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

GNB-CU-NameVisibleString ::= VisibleString(SIZE(1..150,...))

GNB-CU-NameUTF8String ::= UTF8String(SIZE(1..150,...))

Extended-GNB-DU-Name ::= SEQUENCE {
    gNB-DU-NameVisibleString  GNB-DU-NameVisibleString          OPTIONAL,
    gNB-DU-NameUTF8String     GNB-DU-NameUTF8String             OPTIONAL,
    iE-Extensions             ProtocolExtensionContainer { { Extended-GNB-DU-Name-ExtIEs } } OPTIONAL,
    ...
}

Extended-GNB-DU-Name-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

GNB-DU-NameVisibleString ::= VisibleString(SIZE(1..150,...))

GNB-DU-NameUTF8String ::= UTF8String(SIZE(1..150,...))

GNB-DU-Served-Cells-Item ::= SEQUENCE {
    served-Cell-Information  Served-Cell-Information,
    gNB-DU-System-Information GNB-DU-System-Information OPTIONAL,
    iE-Extensions            ProtocolExtensionContainer { { GNB-DU-Served-Cells-ItemExtIEs } } OPTIONAL,
    ...
}

GNB-DU-Served-Cells-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

GNB-DU-System-Information ::= SEQUENCE {
    mIB-message      MIB-message,
    sIB1-message     SIB1-message,
    iE-Extensions    ProtocolExtensionContainer { { GNB-DU-System-Information-ExtIEs } } OPTIONAL,
    ...
}

```

```

GNB-DU-System-Information-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  { ID id-SIB12-message      CRITICALITY ignore EXTENSION SIB12-message      PRESENCE optional}|
  { ID id-SIB13-message      CRITICALITY ignore EXTENSION SIB13-message      PRESENCE optional}|
  { ID id-SIB14-message      CRITICALITY ignore EXTENSION SIB14-message      PRESENCE optional}|
  { ID id-SIB10-message      CRITICALITY ignore EXTENSION SIB10-message      PRESENCE optional}|
  { ID id-SIB17-message      CRITICALITY ignore EXTENSION SIB17-message      PRESENCE optional}|
  { ID id-SIB20-message      CRITICALITY ignore EXTENSION SIB20-message      PRESENCE optional}|
  { ID id-SIB15-message      CRITICALITY ignore EXTENSION SIB15-message      PRESENCE optional}|
  { ID id-SIB24-message      CRITICALITY ignore EXTENSION SIB24-message      PRESENCE optional}|
  { ID id-SIB22-message      CRITICALITY ignore EXTENSION SIB22-message      PRESENCE optional}|
  { ID id-SIB23-message      CRITICALITY ignore EXTENSION SIB23-message      PRESENCE optional}|
  { ID id-SIB17bis-message   CRITICALITY ignore EXTENSION SIB17bis-message   PRESENCE optional},
  ...
}

GNB-DUConfigurationQuery ::= ENUMERATED {true, ...}

GNBDUOverloadInformation ::= ENUMERATED {overloaded, not-overloaded}

GNB-DU-TNL-Association-To-Remove-Item ::= SEQUENCE {
  tNLAssociationTransportLayerAddress CP-TransportLayerAddress ,
  tNLAssociationTransportLayerAddresssgNBCU CP-TransportLayerAddress OPTIONAL,
  iE-Extensions ProtocolExtensionContainer { { GNB-DU-TNL-Association-To-Remove-Item-ExtIEs} } OPTIONAL
}

GNB-DU-TNL-Association-To-Remove-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  ...
}

GNBDUUESliceMaximumBitRateList ::= SEQUENCE (SIZE(1.. maxnoofSMBRValues)) OF GNBDUUESliceMaximumBitRateItem

GNBDUUESliceMaximumBitRateItem ::= SEQUENCE {
  sNSSAI SNSSAI,
  uESliceMaximumBitRateUL BitRate,
  iE-Extensions ProtocolExtensionContainer { { GNBDUUESliceMaximumBitRateItem-ExtIEs} } OPTIONAL,
  ...
}

GNBDUUESliceMaximumBitRateItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  ...
}

GNB-RxTxTimeDiff ::= SEQUENCE {
  rxTxTimeDiff GNB-RxTxTimeDiffMeas,
  additionalPath-List AdditionalPath-List OPTIONAL,
  iE-Extensions ProtocolExtensionContainer { { GNB-RxTxTimeDiff-ExtIEs} } OPTIONAL
}

GNB-RxTxTimeDiff-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  { ID id-ExtendedAdditionalPathList CRITICALITY ignore EXTENSION ExtendedAdditionalPathList PRESENCE optional}|
  { ID id-TRPTEGInformation CRITICALITY ignore EXTENSION TRPTEGInformation PRESENCE optional },
  ...
}

```

```

GNBRxTxTimeDiffMeas ::= CHOICE {
    k0          INTEGER (0.. 1970049),
    k1          INTEGER (0.. 985025),
    k2          INTEGER (0.. 492513),
    k3          INTEGER (0.. 246257),
    k4          INTEGER (0.. 123129),
    k5          INTEGER (0.. 61565),
    choice-extension  ProtocolIE-SingleContainer { { GNBRxTxTimeDiffMeas-ExtIEs } }
}

GNBRxTxTimeDiffMeas-ExtIEs F1AP-PROTOCOL-IES ::= {
    {ID id-ReportingGranularitykminus1 CRITICALITY ignore TYPE ReportingGranularitykminus1 PRESENCE mandatory}|
    {ID id-ReportingGranularitykminus2 CRITICALITY ignore TYPE ReportingGranularitykminus2 PRESENCE mandatory}|
    {ID id-ReportingGranularitykminus3 CRITICALITY ignore TYPE ReportingGranularitykminus3 PRESENCE mandatory}|
    {ID id-ReportingGranularitykminus4 CRITICALITY ignore TYPE ReportingGranularitykminus4 PRESENCE mandatory }|
    {ID id-ReportingGranularitykminus5 CRITICALITY ignore TYPE ReportingGranularitykminus5 PRESENCE mandatory}|
    {ID id-ReportingGranularitykminus6 CRITICALITY ignore TYPE ReportingGranularitykminus6 PRESENCE mandatory },
    ...
}

GNBSetID ::= BIT STRING (SIZE(22))

GTP-TEID          ::= OCTET STRING (SIZE (4))

GTPTLAs ::= SEQUENCE (SIZE(1.. maxnoofGTPTLAs)) OF  GTPTLA-Item

GTPTLA-Item ::= SEQUENCE {
    gTPTransportLayerAddress      TransportLayerAddress,
    iE-Extensions  ProtocolExtensionContainer { { GTPTLA-Item-ExtIEs } }          OPTIONAL
}

GTPTLA-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

GTPTunnel          ::= SEQUENCE {
    transportLayerAddress      TransportLayerAddress,
    gTP-TEID          GTP-TEID,
    iE-Extensions      ProtocolExtensionContainer { { GTPTunnel-ExtIEs } } OPTIONAL,
    ...
}

GTPTunnel-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

-- H

HandoverPreparationInformation ::= OCTET STRING

HardwareLoadIndicator ::= SEQUENCE {
    dLHardwareLoadIndicator      INTEGER (0..100, ...),

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```

        uLHardwareLoadIndicator      INTEGER (0..100, ...),
        iE-Extensions                ProtocolExtensionContainer { { HardwareLoadIndicator-ExtIEs } } OPTIONAL,
        ...
    }

HardwareLoadIndicator-ExtIEs      F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

HSNASlotConfigList ::= SEQUENCE (SIZE(1..maxnoofHSNASlots)) OF HSNASlotConfigItem

HSNASlotConfigItem ::= SEQUENCE {
    hSNADownlink      HSNADownlink      OPTIONAL,
    hSNAUplink        HSNAUplink        OPTIONAL,
    hSNAFlexible       hSNAFlexible      OPTIONAL,
    iE-Extensions     ProtocolExtensionContainer { { HSNASlotConfigItem-ExtIEs } } OPTIONAL
}

HSNASlotConfigItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

HSNADownlink ::= ENUMERATED { hard, soft, notavailable }

hSNAFlexible ::= ENUMERATED { hard, soft, notavailable }

HSNAUplink ::= ENUMERATED { hard, soft, notavailable }

HSNATransmissionPeriodicity ::= ENUMERATED { ms0p5, ms0p625, ms1, ms1p25, ms2, ms2p5, ms5, ms10, ms20, ms40, ms80, ms160, ...}

HashedUEIdentityIndexValue ::= BIT STRING (SIZE(13, ...))

-- I

IAB-Barred ::= ENUMERATED {barred, not-barred, ...}

IABConditionalRRCMessageDeliveryIndication ::= ENUMERATED {true, ...}

IABCongestionIndication ::= SEQUENCE {
    iAB-Congestion-Indication-List      IAB-Congestion-Indication-List,
    iE-Extensions      ProtocolExtensionContainer { { IAB-Congestion-Indication-List-ExtIEs } } OPTIONAL
}

IAB-Congestion-Indication-List-ExtIEs      F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

IAB-Congestion-Indication-List ::= SEQUENCE (SIZE(1..maxnoofIABCongInd)) OF IAB-Congestion-Indication-Item

IAB-Congestion-Indication-Item ::= SEQUENCE {
    childNodeIdentifier      BAPAddress,
    bHRLCCHList              BHRLCCHList      OPTIONAL,
    iE-Extensions            ProtocolExtensionContainer { { IAB-Congestion-Indication-ItemExtIEs } } OPTIONAL
}

```

```

IAB-Congestion-Indication-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

IAB-Info-IAB-donor-CU ::= SEQUENCE{
    iAB-STC-Info      IAB-STC-Info      OPTIONAL,
    iE-Extensions     ProtocolExtensionContainer { { IAB-Info-IAB-donor-CU-ExtIEs } } OPTIONAL
}

IAB-Info-IAB-donor-CU-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

IAB-Info-IAB-DU ::= SEQUENCE{
    multiplexingInfo      MultiplexingInfo      OPTIONAL,
    iAB-STC-Info          IAB-STC-Info          OPTIONAL,
    iE-Extensions         ProtocolExtensionContainer { { IAB-Info-IAB-DU-ExtIEs } } OPTIONAL
}

IAB-Info-IAB-DU-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

IAB-MT-Cell-List ::= SEQUENCE (SIZE(1..maxnoofServingCells)) OF IAB-MT-Cell-List-Item

IAB-MT-Cell-List-Item ::= SEQUENCE {
    nRCellIdentity      NRCCellIdentity,
    dU-RX-MT-RX          DU-RX-MT-RX,
    dU-TX-MT-TX          DU-TX-MT-TX,
    dU-RX-MT-TX          DU-RX-MT-TX,
    dU-TX-MT-RX          DU-TX-MT-RX,
    iE-Extensions        ProtocolExtensionContainer { { IAB-MT-Cell-List-Item-ExtIEs } } OPTIONAL
}

IAB-MT-Cell-List-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-DU-RX-MT-RX-Extend      CRITICALITY ignore EXTENSION DU-RX-MT-RX-Extend      PRESENCE optional }|
    { ID id-DU-TX-MT-TX-Extend      CRITICALITY ignore EXTENSION DU-TX-MT-TX-Extend      PRESENCE optional }|
    { ID id-DU-RX-MT-TX-Extend      CRITICALITY ignore EXTENSION DU-RX-MT-TX-Extend      PRESENCE optional }|
    { ID id-DU-TX-MT-RX-Extend      CRITICALITY ignore EXTENSION DU-TX-MT-RX-Extend      PRESENCE optional },
    ...
}

IAB-MT-Cell-NA-Resource-Configuration-Mode-Info ::= CHOICE {
    fDD      IAB-MT-Cell-NA-Resource-Configuration-FDD-Info,
    tDD      IAB-MT-Cell-NA-Resource-Configuration-TDD-Info,
    choice-extension      ProtocolIE-SingleContainer { { IAB-MT-Cell-NA-Resource-Configuration-Mode-Info-ExtIEs } }
}

IAB-MT-Cell-NA-Resource-Configuration-Mode-Info-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

```

```

}

IAB-MT-Cell-NA-Resource-Configuration-FDD-Info ::= SEQUENCE {
    gNB-DU-Cell-NA-Resource-Configuration-FDD-UL          GNB-DU-Cell-Resource-Configuration,
    gNB-DU-Cell-NA-Resource-Configuration-FDD-DL          GNB-DU-Cell-Resource-Configuration,
    uL-FreqInfo      NRFreqInfo      OPTIONAL,
    uL-Transmission-Bandwidth      Transmission-Bandwidth      OPTIONAL,
    uL-NR-Carrier-List      NRCarrierList      OPTIONAL,
    dL-FreqInfo      NRFreqInfo      OPTIONAL,
    dL-Transmission-Bandwidth      Transmission-Bandwidth      OPTIONAL,
    dL-NR-Carrier-List      NRCarrierList      OPTIONAL,
    iE-Extensions      ProtocolExtensionContainer { {IAB-MT-Cell-NA-Resource-Configuration-FDD-Info-ExtIEs} } OPTIONAL,
    ...
}

IAB-MT-Cell-NA-Resource-Configuration-FDD-Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

IAB-MT-Cell-NA-Resource-Configuration-TDD-Info ::= SEQUENCE {
    gNB-DU-Cell-NA-Resourc-Configuration-TDD          GNB-DU-Cell-Resource-Configuration,
    nRFreqInfo      NRFreqInfo      OPTIONAL,
    transmission-Bandwidth      Transmission-Bandwidth      OPTIONAL,
    nR-Carrier-List      NRCarrierList      OPTIONAL,
    iE-Extensions      ProtocolExtensionContainer { {IAB-MT-Cell-NA-Resource-Configuration-TDD-Info-ExtIEs} } OPTIONAL,
    ...
}

IAB-MT-Cell-NA-Resource-Configuration-TDD-Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

IAB-STC-Info ::= SEQUENCE{
    iAB-STC-Info-List      IAB-STC-Info-List,
    iE-Extensions      ProtocolExtensionContainer { { IAB-STC-Info-ExtIEs } } OPTIONAL
}

IAB-STC-Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

IAB-STC-Info-List ::= SEQUENCE (SIZE(1..maxnoofIABSTCInfo)) OF IAB-STC-Info-Item

IAB-STC-Info-Item ::= SEQUENCE {
    sSB-freqInfo      SSB-freqInfo,
    sSB-subcarrierSpacing      SSB-subcarrierSpacing,
    sSB-transmissionPeriodicity      SSB-transmissionPeriodicity,
    sSB-transmissionTimingOffset      SSB-transmissionTimingOffset,
    sSB-transmissionBitmap      SSB-transmissionBitmap,
    iE-Extensions      ProtocolExtensionContainer { { IAB-STC-Info-Item-ExtIEs } } OPTIONAL
}

IAB-STC-Info-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```



```

}

IAB-Allocated-TNL-Address-Item ::= SEQUENCE {
    iABTNLAddress          IABTNLAddress,
    iABTNLAddressUsage     IABTNLAddressUsage OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { IAB-Allocated-TNL-Address-Item-ExtIEs } } OPTIONAL
}

IAB-Allocated-TNL-Address-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

IAB-DU-Cell-Resource-Configuration-Mode-Info ::= CHOICE {
    fDD      IAB-DU-Cell-Resource-Configuration-FDD-Info,
    tDD      IAB-DU-Cell-Resource-Configuration-TDD-Info,
    choice-extension      ProtocolIE-SingleContainer { { IAB-DU-Cell-Resource-Configuration-Mode-Info-ExtIEs } }
}

IAB-DU-Cell-Resource-Configuration-Mode-Info-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

IAB-DU-Cell-Resource-Configuration-FDD-Info ::= SEQUENCE {
    gNB-DU-Cell-Resource-Configuration-FDD-UL      GNB-DU-Cell-Resource-Configuration,
    gNB-DU-Cell-Resource-Configuration-FDD-DL      GNB-DU-Cell-Resource-Configuration,
    iE-Extensions          ProtocolExtensionContainer { {IAB-DU-Cell-Resource-Configuration-FDD-Info-ExtIEs} } OPTIONAL,
    ...
}

IAB-DU-Cell-Resource-Configuration-FDD-Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    {ID id-uL-FreqInfo      CRITICALITY reject EXTENSION NRFreqInfo      PRESENCE optional}|
    {ID id-uL-Transmission-Bandwidth CRITICALITY reject EXTENSION Transmission-Bandwidth PRESENCE optional}|
    {ID id-uL-NR-Carrier-List CRITICALITY reject EXTENSION NRCarrierList PRESENCE optional}|
    {ID id-dL-FreqInfo      CRITICALITY reject EXTENSION NRFreqInfo      PRESENCE optional}|
    {ID id-dL-Transmission-Bandwidth CRITICALITY reject EXTENSION Transmission-Bandwidth PRESENCE optional}|
    {ID id-dL-NR-Carrier-List CRITICALITY reject EXTENSION NRCarrierList PRESENCE optional},
    ...
}

IAB-DU-Cell-Resource-Configuration-TDD-Info ::= SEQUENCE {
    gNB-DU-Cell-Resourc-Configuration-TDD      GNB-DU-Cell-Resource-Configuration,
    iE-Extensions          ProtocolExtensionContainer { {IAB-DU-Cell-Resource-Configuration-TDD-Info-ExtIEs} } OPTIONAL,
    ...
}

IAB-DU-Cell-Resource-Configuration-TDD-Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    {ID id-nRFreqInfo      CRITICALITY reject EXTENSION NRFreqInfo      PRESENCE optional}|
    {ID id-transmission-Bandwidth CRITICALITY reject EXTENSION Transmission-Bandwidth PRESENCE optional}|
    {ID id-nR-Carrier-List CRITICALITY reject EXTENSION NRCarrierList PRESENCE optional},
    ...
}

IABIPv6RequestType ::= CHOICE {
    iIPv6Address          IABTNLAddressesRequested,

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    iIPv6Prefix
    choice-extension
  }

  IABTNLAddressesRequested,
  ProtocolIE-SingleContainer { { IABIPv6RequestType-ExtIEs } }

IABIPv6RequestType-ExtIEs F1AP-PROTOCOL-IES ::= {
  ...
}

IABTNLAddress ::= CHOICE {
  iIPv4Address          BIT STRING (SIZE(32)),
  iIPv6Address          BIT STRING (SIZE(128)),
  iIPv6Prefix           BIT STRING (SIZE(64)),
  choice-extension      ProtocolIE-SingleContainer { { IABTNLAddress-ExtIEs } }
}

IABTNLAddress-ExtIEs F1AP-PROTOCOL-IES ::= {
  ...
}

IABTNLAddressesRequested ::= SEQUENCE {
  tNLAddressesOrPrefixesRequestedAllTraffic  INTEGER (1..256)  OPTIONAL,
  tNLAddressesOrPrefixesRequestedF1-C        INTEGER (1..256)  OPTIONAL,
  tNLAddressesOrPrefixesRequestedF1-U        INTEGER (1..256)  OPTIONAL,
  tNLAddressesOrPrefixesRequestedNoNF1       INTEGER (1..256)  OPTIONAL,
  iE-Extensions                             ProtocolExtensionContainer { { IABTNLAddressesRequested-ExtIEs } } OPTIONAL
}

IABTNLAddressesRequested-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  ...
}

IAB-TNL-Addresses-To-Remove-Item ::= SEQUENCE {
  iABTNLAddress          IABTNLAddress,
  iE-Extensions          ProtocolExtensionContainer { { IAB-TNL-Addresses-To-Remove-Item-ExtIEs } } OPTIONAL
}

IAB-TNL-Addresses-To-Remove-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  ...
}

IAB-TNL-Addresses-Exception ::= SEQUENCE {
  iABTNLAddressList      IABTNLAddressList,
  iE-Extensions          ProtocolExtensionContainer { { IAB-TNL-Addresses-Exception-ExtIEs } } OPTIONAL
}

IAB-TNL-Addresses-Exception-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  ...
}

IABTNLAddressList ::= SEQUENCE (SIZE(1.. maxnoofTLAsIAB)) OF IABTNLAddress-Item

IABTNLAddress-Item ::= SEQUENCE {
  iABTNLAddress          IABTNLAddress ,
  iE-Extensions          ProtocolExtensionContainer { { IABTNLAddress-ItemExtIEs } } OPTIONAL
}

```

```

}

IABTNLAddress-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

IABTNLAddressUsage ::= ENUMERATED {
    f1-c,
    f1-u,
    non-f1,
    ...
}

IABv4AddressesRequested ::= SEQUENCE {
    iABv4AddressesRequested    IABTNLAddressesRequested,
    iE-Extensions              ProtocolExtensionContainer { { IABv4AddressesRequested-ExtIEs } } OPTIONAL
}

IABv4AddressesRequested-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Mobile-IAB-MTUserLocationInformation ::= SEQUENCE {
    nRCGI                      NRCGI,
    tAI                        TAI,
    iE-Extensions              ProtocolExtensionContainer { { Mobile-IAB-MTUserLocationInformation-ExtIEs } } OPTIONAL
}

Mobile-IAB-MTUserLocationInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

ImplicitFormat ::= SEQUENCE {
    dUFSslotformatIndex        DUFSslotformatIndex,
    iE-Extensions              ProtocolExtensionContainer { { ImplicitFormat-ExtIEs } } OPTIONAL
}

ImplicitFormat-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

IgnorePRACHConfiguration ::= ENUMERATED { true,...}

IgnoreResourceCoordinationContainer ::= ENUMERATED { yes,...}
InactivityMonitoringRequest ::= ENUMERATED { true,...}
InactivityMonitoringResponse ::= ENUMERATED { not-supported,...}

IndirectPathAddition ::= SEQUENCE {
    targetRelayUEID            BIT STRING(SIZE(24)),
    remoteUELocalID            RemoteUELocalID,
    iE-Extensions              ProtocolExtensionContainer { { IndirectPathAddition-ExtIEs } } OPTIONAL,
    ...
}

```

```

}

IndirectPathAddition-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
InterfacesToTrace ::= BIT STRING (SIZE(8))

IntendedTDD-DL-ULConfig ::= SEQUENCE {
    nRSCS                ENUMERATED { scs15, scs30, scs60, scs120,..., scs480, scs960},
    nRCP                ENUMERATED { normal, extended,...},
    nRDLULTxPeriodicity ENUMERATED { ms0p5, ms0p625, ms1, ms1p25, ms2, ms2p5, ms3, ms4, ms5, ms10, ms20, ms40, ms60, ms80, ms100, ms120,
ms140, ms160, ...},
    slot-Configuration-List Slot-Configuration-List,
    iE-Extensions          ProtocolExtensionContainer { {IntendedTDD-DL-ULConfig-ExtIEs} } OPTIONAL
}

InterFrequencyConfig-NoGap ::= ENUMERATED {
    true,
    ...
}

IngressNonF1terminatingTopologyIndicator ::= ENUMERATED {true, ...}

IntendedTDD-DL-ULConfig-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

IndicationMCInactiveReception ::= ENUMERATED {true, ...}

LTMRResetInformation ::= SEQUENCE {
    servingCellL2ResetConfiguration OCTET STRING OPTIONAL,
    lTML2ResetConfigurationList     LTML2ResetConfigurationList OPTIONAL,
    iE-Extensions                  ProtocolExtensionContainer { { LTMRResetInformation-ItemExtIEs} } OPTIONAL,
    ...
}

LTMRResetInformation-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

LTML2ResetConfigurationList ::= SEQUENCE (SIZE(1.. maxnoofLTMCCells)) OF LTML2ResetConfiguration-Item

LTML2ResetConfiguration-Item ::= SEQUENCE {
    cellID          NRCGI,
    ltml2ResetConfiguration OCTET STRING,
    iE-Extensions    ProtocolExtensionContainer { { LTML2ResetConfiguration-ItemExtIEs } } OPTIONAL
}

LTML2ResetConfiguration-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

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```

IPHeaderInformation ::= SEQUENCE {
    destinationIABTNLAddress      IABTNLAddress,
    dsInformationList              DSInformationList OPTIONAL,
    ipv6FlowLabel                  BIT STRING (SIZE (20)) OPTIONAL,
    iE-Extensions                  ProtocolExtensionContainer { { IPHeaderInformation-ItemExtIEs} } OPTIONAL,
    ...
}

IPHeaderInformation-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

IPtlayer2TrafficMappingInfo ::= SEQUENCE {
    iptlayer2TrafficMappingInfoToAdd      IPtlayer2TrafficMappingInfoList OPTIONAL,
    iptlayer2TrafficMappingInfoToRemove   MappingInformationToRemove OPTIONAL,
    iE-Extensions                          ProtocolExtensionContainer { { IPtlayer2TrafficMappingInfo-ItemExtIEs} } OPTIONAL,
    ...
}

IPtlayer2TrafficMappingInfoList ::= SEQUENCE (SIZE(1..maxnoofMappingEntries)) OF IPtlayer2TrafficMappingInfo-Item

IPtlayer2TrafficMappingInfo-Item ::= SEQUENCE {
    mappingInformationIndex      MappingInformationIndex,
    iPHheaderInformation          IPHeaderInformation,
    bHInfo                        BHInfo, iE-Extensions      ProtocolExtensionContainer { { IPtlayer2TrafficMappingInfo-ItemExtIEs} }
OPTIONAL,
    ...
}

IPtlayer2TrafficMappingInfo-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

-- J

JointorDLTCISStateID ::= OCTET STRING

-- K

-- L

LTEA2XServicesAuthorized ::= SEQUENCE {
    aerialUE                      AerialUE OPTIONAL,
    controllerUE                  ControllerUE OPTIONAL,
    iE-Extensions                  ProtocolExtensionContainer { { LTEA2XServicesAuthorized-ExtIEs} } OPTIONAL
}

LTEA2XServicesAuthorized-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

L139Info ::= SEQUENCE {

```

```

    prachSCS                ENUMERATED {scs15, scs30, scs60, scs120, ..., scs480, scs960},
    rootSequenceIndex        INTEGER (0..137)
    iE-Extension              ProtocolExtensionContainer { {L139Info-ExtIEs} } OPTIONAL,
    ...
}

L139Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

L839Info ::= SEQUENCE {
    rootSequenceIndex        INTEGER (0..837),
    restrictedSetConfig       ENUMERATED {unrestrictedSet, restrictedSetTypeA,
                                         restrictedSetTypeB, ...},
    iE-Extension              ProtocolExtensionContainer { {L839Info-ExtIEs} } OPTIONAL,
    ...
}

L839Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

L571Info ::= SEQUENCE {
    prachSCSForL571          ENUMERATED { scs30, scs120, ... , scs480},
    rootSequenceIndex        INTEGER (0..569),
    iE-Extension              ProtocolExtensionContainer { {L571Info-ExtIEs} } OPTIONAL,
    ...
}

L571Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

L1151Info ::= SEQUENCE {
    prachSCSForL1151         ENUMERATED { scs15, scs120,...},
    rootSequenceIndex        INTEGER (0..1149),
    iE-Extension              ProtocolExtensionContainer { {L1151Info-ExtIEs} } OPTIONAL,
    ...
}

L1151Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

LastUsedCellIndication ::= ENUMERATED {true, ...}

LCID ::= INTEGER (1..32, ...)

LCS-to-GCS-Translation ::= SEQUENCE {
    alpha                    INTEGER (0..3599),
    beta                     INTEGER (0..3599),
    gamma                    INTEGER (0..3599),

```

```

    iE-Extensions      ProtocolExtensionContainer { { LCS-to-GCS-Translation-ExtIEs } } OPTIONAL,
    ...
}

LCS-to-GCS-Translation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

LCStoGCSTranslationList ::= SEQUENCE (SIZE (1.. maxnooflcs-gcs-translation)) OF LCStoGCSTranslation

LCStoGCSTranslation ::= SEQUENCE {
    alpha      INTEGER (0..359),
    alpha-fine  INTEGER (0..9)      OPTIONAL,
    beta       INTEGER (0..359),
    beta-fine   INTEGER (0..9)      OPTIONAL,
    gamma      INTEGER (0..359),
    gamma-fine  INTEGER (0..9)      OPTIONAL,
    iE-Extensions      ProtocolExtensionContainer { { LCStoGCSTranslation-ExtIEs } } OPTIONAL
}

LCStoGCSTranslation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

LMF-MeasurementID ::= INTEGER (1.. 65536, ...)

LMF-UE-MeasurementID ::= INTEGER (1.. 256, ...)

LocationDependentMBSF1UInformation ::= SEQUENCE (SIZE(1..maxnoofMBSAreaSessionIDs)) OF LocationDependentMBSF1UInformation-Item
LocationDependentMBSF1UInformation-Item ::= SEQUENCE {
    mbsAreaSession-ID      MBS-Area-Session-ID,
    mbs-f1u-info-at-CU      UPTransportLayerInformation,
    iE-Extensions          ProtocolExtensionContainer { { LocationDependentMBSF1UInformation-Item-ExtIEs } } OPTIONAL,
    ...
}

LocationDependentMBSF1UInformation-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-F1UTunnelNotEstablished CRITICALITY ignore EXTENSION F1UTunnelNotEstablished PRESENCE optional },
    ...
}

LocationMeasurementInformation ::= OCTET STRING

LocationUncertainty ::= SEQUENCE {
    horizontalUncertainty  INTEGER (0..255),
    horizontalConfidence   INTEGER (0..100),
    verticalUncertainty     INTEGER (0..255),
    verticalConfidence      INTEGER (0..100),
    iE-Extensions          ProtocolExtensionContainer { { LocationUncertainty-ExtIEs } } OPTIONAL
}

LocationUncertainty-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

LongDRXCycleLength ::= ENUMERATED
{ms10, ms20, ms32, ms40, ms60, ms64, ms70, ms80, ms128, ms160, ms256, ms320, ms512, ms640, ms1024, ms1280, ms2048, ms2560, ms5120, ms10240, ...}

LongNonIntegerDRXCycleLength ::= ENUMERATED
{ ms1001over240, ms250over6, ms250over3, ms1001over120, ms1000over9, ms250over2, ms400over3, ms1250over9, ms500over3, ms1001over60, ms1250over6,
ms2000over9, ms2500over9, ms1000over3, ms1001over30, ms750over2, ms1250over3, ms1001over24, ms2000over3, ms1001over15, ms2500over3, ms1001over12,
ms4000over3, ...}

LowerLayerPresenceStatusChange ::= ENUMERATED {
    suspend-lower-layers,
    resume-lower-layers,
    ...
}

LoS-NLoSIndicatorHard ::= ENUMERATED {nLoS, loS}

LoS-NLoSIndicatorSoft ::= INTEGER (0..10)

LoS-NLoSInformation ::= CHOICE {
    loS-NLoSIndicatorSoft      LoS-NLoSIndicatorSoft,
    loS-NLoSIndicatorHard      LoS-NLoSIndicatorHard,
    choice-Extension           ProtocolIE-SingleContainer {{ LoS-NLoSInformation-ExtIEs}}
}

LoS-NLoSInformation-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

LTEUESidelinkAggregateMaximumBitrate ::= SEQUENCE {
    uELTESidelinkAggregateMaximumBitrate      BitRate,
    iE-Extensions                             ProtocolExtensionContainer { {LTEUESidelinkAggregateMaximumBitrate-ExtIEs} } OPTIONAL
}

LTEUESidelinkAggregateMaximumBitrate-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

LTEV2XServicesAuthorized ::= SEQUENCE {
    vehicleUE      VehicleUE                                OPTIONAL,
    pedestrianUE   PedestrianUE                              OPTIONAL,
    iE-Extensions  ProtocolExtensionContainer { {LTEV2XServicesAuthorized-ExtIEs} }    OPTIONAL
}

LTEV2XServicesAuthorized-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

LTMCells-ToBeReleased-List ::= SEQUENCE (SIZE(1..maxnoofLTMCells)) OF LTMCells-ToBeReleased-Item

```



```

LTMCells-ToBeReleased-Item ::= SEQUENCE {
    nRCGI                NRCGI,
    iE-Extensions        ProtocolExtensionContainer { { LTMCells-ToBeReleased-ItemExtIEs } } OPTIONAL,
    ...
}

LTMCells-ToBeReleased-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

LTMInformation-Setup ::= SEQUENCE {
    lTMIndicator          LTMIndicator,
    referenceConfiguration ReferenceConfiguration OPTIONAL,
    cSIResourceConfiguration CSIResourceConfiguration OPTIONAL,
    iE-Extensions        ProtocolExtensionContainer { { LTMInformation-Setup-ExtIEs} } OPTIONAL,
    ...
}

LTMInformation-Setup-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

LTMConfigurationIDMappingList ::= SEQUENCE (SIZE(1..maxnoofLTMCells)) OF LTMConfigurationIDMapping-Item

LTMConfigurationIDMapping-Item ::= SEQUENCE{
    lTMCellID            NRCGI,
    lTMConfigurationID   LTMConfigurationID,
    iE-Extensions        ProtocolExtensionContainer {{ LTMConfigurationIDMapping-Item-ExtIEs}} OPTIONAL
}

LTMConfigurationIDMapping-Item-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

LTMInformation-Modify ::= SEQUENCE {
    lTMIndicator          LTMIndicator,
    referenceConfiguration ReferenceConfiguration OPTIONAL,
    cSIResourceConfiguration CSIResourceConfiguration OPTIONAL,
    iE-Extensions        ProtocolExtensionContainer { { LTMInformation-Modify-ExtIEs} } OPTIONAL,
    ...
}

LTMInformation-Modify-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

LTMIndicator ::= ENUMERATED {true, ...}

CompleteCandidateConfigurationIndicator ::= ENUMERATED {complete, ...}

LTMConfigurationID ::= INTEGER (1..8)
ReferenceConfigurationInformation ::= OCTET STRING

```

```

LTMConfiguration ::= SEQUENCE {
    sSBInformation          SSBInformation,
    referenceConfigurationInformation ReferenceConfigurationInformation OPTIONAL,
    completeCandidateConfigurationIndicator CompleteCandidateConfigurationIndicator OPTIONAL,
    LTMCFRRResourceConfig LTMCFRRResourceConfig OPTIONAL,
    LTMCFRRResourceConfigSUL LTMCFRRResourceConfig OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { LTMConfiguration-ExtIEs } } OPTIONAL,
    ...
}

LTMConfiguration-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

LTMCellSwitchInformation ::= SEQUENCE {
    jointorDLTCISStateID JointorDLTCISStateID,
    uLTCISStateID         ULTCISStateID OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { LTMCellSwitchInformation-ExtIEs } } OPTIONAL,
    ...
}

LTMCellSwitchInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

LTMgNB-DU-IDsList ::= SEQUENCE (SIZE(1..maxnoofLTMgNB-DUS)) OF LTMgNB-DU-IDs-Item

LTMgNB-DU-IDs-Item ::= SEQUENCE{
    LTMgNB-DU-ID          GNB-DU-ID,
    iE-Extensions          ProtocolExtensionContainer {{ LTMgNB-DU-IDs-Item-ExtIEs}} OPTIONAL
}

LTMgNB-DU-IDs-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

LTMgNB-DU-IDs-PreambleIndexList ::= SEQUENCE (SIZE(1..maxnoofLTMgNB-DUS)) OF LTMgNB-DU-IDs-PreambleIndex-Item

LTMgNB-DU-IDs-PreambleIndex-Item ::= SEQUENCE{
    LTMgNB-DU-ID          GNB-DU-ID,
    preambleIndexList      PreambleIndexList OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer {{ LTMgNB-DU-IDs-PreambleIndex-Item-ExtIEs}} OPTIONAL
}

LTMgNB-DU-IDs-PreambleIndex-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

LTMCFRRResourceConfig-List ::= SEQUENCE (SIZE (1.. maxnoofLTMCells)) OF LTMCFRRResourceConfig-Item

LTMCFRRResourceConfig-Item ::= SEQUENCE {
    nRCGI          NRCGI,

```

```

    LTMCFRRResourceConfig          LTMCFRRResourceConfig          OPTIONAL,
    LTMCFRRResourceConfigSUL        LTMCFRRResourceConfig          OPTIONAL,
    iE-Extensions                    ProtocolExtensionContainer { { LTMCFRRResourceConfig-Item-ExtIEs } } OPTIONAL,
    ...
}

LTMCFRRResourceConfig-Item-ExtIEs  F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
LTMCFRRResourceConfig ::= OCTET STRING

-- M

MappingInformationIndex ::= BIT STRING (SIZE (26))

MappingInformationToRemove ::= SEQUENCE (SIZE(1..maxnoofMappingEntries)) OF MappingInformationIndex

MaskedIMEISV ::= BIT STRING (SIZE (64))

MaxDataBurstVolume ::= INTEGER (0..4095, ..., 4096.. 2000000)
MaxPacketLossRate ::= INTEGER (0..1000)

MBS-Broadcast-NeighbourCellList ::= OCTET STRING

MBS-Flows-Mapped-To-MRB-List ::= SEQUENCE (SIZE(1.. maxnoofMBSQoSFlows)) OF MBS-Flows-Mapped-To-MRB-Item

MBS-Flows-Mapped-To-MRB-Item ::= SEQUENCE {
    mBS-QoSFlowIdentifier          QoSFlowIdentifier,
    mbs-QoSFlowLevelQoSParameters QoSFlowLevelQoSParameters,
    iE-Extensions                  ProtocolExtensionContainer { { MBS-Flows-Mapped-To-MRB-Item-ExtIEs } } OPTIONAL
}

MBS-Flows-Mapped-To-MRB-Item-ExtIEs  F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MBSF1UIInformation ::= SEQUENCE {
    mbs-f1u-info                  UPTransportLayerInformation,
    iE-Extensions                  ProtocolExtensionContainer { { MBSF1UIInformation-ExtIEs } } OPTIONAL,
    ...
}

MBSF1UIInformation-ExtIEs  F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-F1UTunnelNotEstablished CRITICALITY ignore EXTENSION F1UTunnelNotEstablished PRESENCE optional },
    ...
}

MBSInterestIndication ::= OCTET STRING

MBS-Session-ID ::= SEQUENCE {
    tMGI                          TMGI,
    nID                           NID,
    ...                          OPTIONAL,
}

```

```

    iE-Extensions          ProtocolExtensionContainer { { MBS-Session-ID-ExtIEs } } OPTIONAL,
    ...
}

MBS-Session-ID-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MBS-Area-Session-ID ::= INTEGER (0..65535, ...)

MBS-CutoDURRCInformation ::= SEQUENCE {
    mBS-Broadcast-Cell-List MBS-Broadcast-Cell-List,
    mBS-Broadcast-MRB-List MBS-Broadcast-MRB-List,
    iE-Extensions          ProtocolExtensionContainer { { MBS-CutoDURRCInformation-ExtIEs } } OPTIONAL,
    ...
}

MBS-CutoDURRCInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MBS-Broadcast-Cell-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF MBS-Broadcast-Cell-Item

MBS-Broadcast-Cell-Item ::= SEQUENCE {
    nRCGI          NRCGI,
    mtch-neighbourCell OCTET STRING OPTIONAL,
    iE-Extensions  ProtocolExtensionContainer { { MBS-Broadcast-Cell-Item-ExtIEs } } OPTIONAL,
    ...
}

MBS-Broadcast-Cell-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MBS-Broadcast-MRB-List ::= SEQUENCE (SIZE(1.. maxnoofMRBs)) OF MBS-Broadcast-MRB-Item

MBS-Broadcast-MRB-Item ::= SEQUENCE {
    mRB-ID          MRB-ID,
    mRB-PDCP-Config-Broadcast OCTET STRING,
    iE-Extensions  ProtocolExtensionContainer { { MBS-Broadcast-MRB-Item-ExtIEs } } OPTIONAL,
    ...
}

MBS-Broadcast-MRB-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MBSMulticastF1UContextDescriptor ::= SEQUENCE {
    multicastF1UContextReferenceF1 MulticastF1UContextReferenceF1,
    mc-F1UContextUsage             ENUMERATED {ptm, ptp, ptp-retransmission, ptp-forwarding, ...},
    mbsAreaSession                 MBS-Area-Session-ID OPTIONAL,
    iE-Extensions                  ProtocolExtensionContainer {{MBSMulticastF1UContextDescriptor-ExtIEs}} OPTIONAL,
    ...
}

```

```

}

MBSMulticastF1UContextDescriptor-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MT-SDT-Information ::= SEQUENCE {
    mt-SDT-Indicator      MT-SDT-Indicator,
    iE-Extensions         ProtocolExtensionContainer { { MT-SDT-Information-ExtIEs } } OPTIONAL,
    ...
}

MT-SDT-Information-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MT-SDT-Indicator ::= ENUMERATED {true, ...}

MBSMulticastSessionReceptionState ::= ENUMERATED {start-monitoring-G-RNTI, stop-monitoring-G-RNTI, ...}

MulticastCU2DURRCInfo ::= SEQUENCE {
    mBS-Multicast-CU2DU-Cell-List      MBS-Multicast-CU2DU-Cell-List      OPTIONAL,
    mBS-Multicast-MRB-List              MBS-Multicast-MRB-List              OPTIONAL,
    iE-Extensions                      ProtocolExtensionContainer { { MulticastCU2DURRCInfo-ExtIEs } } OPTIONAL,
    ...
}

MulticastCU2DURRCInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MBS-Multicast-CU2DU-Cell-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF MBS-Multicast-CU2DU-Cell-Item

MBS-Multicast-CU2DU-Cell-Item ::= SEQUENCE {
    nRCGI                                NRCGI,
    mbsMulticastRRC-INACTIVEReceptionMode MBSMulticastRRCINACTIVEReceptionMode OPTIONAL,
    mbsMulticastConfigurationRequest      ENUMERATED {query, ...} OPTIONAL,
    iE-Extensions                         ProtocolExtensionContainer { { MBS-Multicast-CU2DU-Cell-Item-ExtIEs } } OPTIONAL,
    ...
}

MBS-Multicast-CU2DU-Cell-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MBSMulticastRRCINACTIVEReceptionMode ::= ENUMERATED {activated, deactivated, ...}

MBS-Multicast-MRB-List ::= SEQUENCE (SIZE(1.. maxnoofMRBs)) OF MBS-Multicast-MRB-Item

MBS-Multicast-MRB-Item ::= SEQUENCE {
    mRB-ID                                MRB-ID,
    mRB-PDCP-Config-Broadcast             OCTET STRING,
    iE-Extensions                         ProtocolExtensionContainer { { MBS-Multicast-MRB-Item-ExtIEs } } OPTIONAL,
    ...
}

```

```

}

MBS-Multicast-MRB-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MulticastCU2DUCommonRRCInfo ::= SEQUENCE {
    multicastCommonCU2DUCellList          MulticastCommonCU2DUCellList          OPTIONAL,
    iE-Extensions                          ProtocolExtensionContainer { {MulticastCU2DUCommonRRCInfo-ExtIEs} } OPTIONAL,
    ...
}

MulticastCU2DUCommonRRCInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MulticastCommonCU2DUCellList ::= SEQUENCE (SIZE(1.. maxCellingNBDU))    OF MulticastCommonCU2DUCell-Item

MulticastCommonCU2DUCell-Item ::= SEQUENCE {
    nRCGI                                  NRCGI,
    multicastCommonCu2DUCellInformation    MulticastCommonCu2DUCellInformation,
    iE-Extensions                          ProtocolExtensionContainer { {MulticastCommonCU2DUCell-Item-ExtIEs} } OPTIONAL,
    ...
}

MulticastCommonCU2DUCell-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MulticastCommonCu2DUCellInformation ::= SEQUENCE {
    mBSMulticastNeighbourCellListItem      MBSMulticastNeighbourCellListItem      OPTIONAL,
    thresholdMBS-ListItem                  ThresholdMBS-ListItem                  OPTIONAL,
    iE-Extensions                          ProtocolExtensionContainer { {MulticastCommonCu2DUCellInformation-ExtIEs} } OPTIONAL,
    ...
}

MulticastCommonCu2DUCellInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MBSMulticastNeighbourCellListItem ::= CHOICE {
    mbsMulticastNeighbourCellListInformationprovided    UpdateMBSMulticastNeighbourCellListInformation,
    nombsMulticastNeighbourCellListInformationprovided    NULL,
    choice-extension          ProtocolIE-SingleContainer { {MBSMulticastNeighbourCellListItem-ExtIEs} }
}

MBSMulticastNeighbourCellListItem-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

ThresholdMBS-ListItem ::= CHOICE {
    thresholdMBS-ListInformationprovided    UpdateThresholdMBS-ListInformation,
    nothresholdMBSListInformationprovided    NULL,
    choice-extension          ProtocolIE-SingleContainer { {ThresholdMBS-ListItem-ExtIEs} }
}

```

```

ThresholdMBS-ListItem-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

UpdateMBSMulticastNeighbourCellListInformation ::= SEQUENCE {
    mbs-NeighbourCellList          OCTET STRING          OPTIONAL,
    mbs-MulticastSessionList       MTCH-NeighbourCellSessionList OPTIONAL,
    iE-Extensions                  ProtocolExtensionContainer { {UpdateMBSMulticastNeighbourCellListInformation-ExtIEs} } OPTIONAL,
    ...
}

UpdateMBSMulticastNeighbourCellListInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MTCH-NeighbourCellSessionList ::= SEQUENCE (SIZE(1..maxMBSSessionsinSessionInfoList)) OF MTCH-NeighbourCellSession-Item
MTCH-NeighbourCellSession-Item ::= SEQUENCE {
    mbsSessionID                  MBS-Session-ID,
    mtch-NeighbourCellInformation MTCH-NeighbourCellInformation,
    iE-Extensions                  ProtocolExtensionContainer { {MTCH-NeighbourCellSession-Item-ExtIEs} } OPTIONAL,
    ...
}

MTCH-NeighbourCellSession-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MTCH-NeighbourCellInformation ::= CHOICE {
    mtch-NeighbourCellprovided      OCTET STRING,
    mtch-NeighbourCellnotprovided   NULL,
    choice-extension                 ProtocolIE-SingleContainer { {MTCH-NeighbourCellInformation-ExtIEs} }
}

MTCH-NeighbourCellInformation-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

UpdateThresholdMBS-ListInformation ::= SEQUENCE {
    thresholdMBSList              OCTET STRING          OPTIONAL,
    thresholdIndexSessionList     ThresholdIndexSessionList OPTIONAL,
    iE-Extensions                  ProtocolExtensionContainer { {UpdateThresholdMBS-ListInformation-ExtIEs} } OPTIONAL,
    ...
}

UpdateThresholdMBS-ListInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

ThresholdIndexSessionList ::= SEQUENCE (SIZE(1..maxMBSSessionsinSessionInfoList)) OF ThresholdIndexSession-Item
ThresholdIndexSession-Item ::= SEQUENCE {
    mbsSessionID                  MBS-Session-ID,
    thresholdIndexInformation      ThresholdIndexInformation,
    iE-Extensions                  ProtocolExtensionContainer { {ThresholdIndexSession-Item-ExtIEs} } OPTIONAL,

```

```

    ...
}

ThresholdIndexSession-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

ThresholdIndexInformation ::= CHOICE {
    thresholdIndexprovided      ThresholdIndex,
    thresholdIndexnotprovided   NULL,
    choice-extension            ProtocolIE-SingleContainer { {ThresholdIndexInformation-ExtIEs} }
}

ThresholdIndexInformation-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

ThresholdIndex ::= INTEGER (0..maxnoofThresholdMBS-1)

MulticastDU2CURRCInfo ::= SEQUENCE {
    mBS-Multicast-DU2CU-Cell-List      MBS-Multicast-DU2CU-Cell-List      OPTIONAL,
    iE-Extensions                      ProtocolExtensionContainer { { MulticastDU2CURRCInfo-ExtIEs } } OPTIONAL,
    ...
}

MulticastDU2CURRCInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MBS-Multicast-DU2CU-Cell-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF MBS-Multicast-DU2CU-Cell-Item

MBS-Multicast-DU2CU-Cell-Item ::= SEQUENCE {
    nRCGI                                NRCGI,
    mbsMulticastConfigurationResponseInfo MBSMulticastConfigurationResponseInfo OPTIONAL,
    mbsMulticastConfigurationNotification MBSMulticastConfigurationNotification OPTIONAL,
    iE-Extensions                      ProtocolExtensionContainer { { MBS-Multicast-DU2CU-Cell-Item-ExtIEs } } OPTIONAL,
    ...
}

MBS-Multicast-DU2CU-Cell-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MBSMulticastConfigurationResponseInfo ::= CHOICE {
    mbsMulticastConfiguration-available      MBSMulticastConfiguration-available,
    mbsMulticastConfiguration-notavailable   MBSMulticastConfiguration-notavailable,
    choice-extension                        ProtocolIE-SingleContainer { {MBSMulticastConfigurationResponseInfo-ExtIEs} }
}

MBSMulticastConfigurationResponseInfo-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

MBSMulticastConfiguration-available ::= SEQUENCE {

```



```

    mBSMulticastConfiguration          OCTET STRING,
    iE-Extensions                      ProtocolExtensionContainer { { MBSMulticastConfiguration-available-ExtIEs } } OPTIONAL,
    ...
}

MBSMulticastConfiguration-available-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MBSMulticastConfiguration-notavailable ::= SEQUENCE {
    mBSMulticastConfiguration-notavailable      ENUMERATED {not-available, ...},
    iE-Extensions                      ProtocolExtensionContainer { { MBSMulticastConfiguration-notavailable-ExtIEs } } OPTIONAL,
    ...
}

MBSMulticastConfiguration-notavailable-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MBSMulticastConfigurationNotification ::= SEQUENCE {
    mbsMulticastConfigurationNotificationInfo    MBSMulticastConfigurationNotificationInfo    OPTIONAL,
    iE-Extensions                      ProtocolExtensionContainer { {MBSMulticastConfigurationNotification-ExtIEs} }    OPTIONAL,
    ...
}

MBSMulticastConfigurationNotification-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MBSMulticastConfigurationNotificationInfo ::= CHOICE {
    mbsMulticastConfigurationChanged      OCTET STRING,
    mbsMulticastConfigurationRemoved      NULL,
    choice-extension                      ProtocolIE-SingleContainer { {MBSMulticastConfigurationNotificationInfo-ExtIEs} }
}

MBSMulticastConfigurationNotificationInfo-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

MulticastF1UContext-ToBeSetup-Item ::= SEQUENCE {
    mRB-ID                                MRB-ID,
    mbs-f1u-info-at-DU                    UPTransportLayerInformation,
    mbsProgressInformation                MRB-ProgressInformation                                OPTIONAL,
    -- The above IE shall be present if the MC F1-U Context usage IE in the MBS Multicast F1-U Context Descriptor IE is set to "ptp forwarding".
    iE-Extensions                      ProtocolExtensionContainer { {MulticastF1UContext-ToBeSetup-Item-ExtIEs} }    OPTIONAL,
    ...
}

MulticastF1UContext-ToBeSetup-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MulticastF1UContext-Setup-Item ::= SEQUENCE {

```

```

    mRB-ID          MRB-ID,
    mbs-f1u-info-at-CU  UPTransportLayerInformation,
    iE-Extensions    ProtocolExtensionContainer { {MulticastF1UContext-Setup-Item-ExtIEs} } OPTIONAL,
    ...
}

MulticastF1UContext-Setup-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MulticastF1UContext-FailedToBeSetup-Item ::= SEQUENCE {
    mRB-ID          MRB-ID,
    cause           Cause OPTIONAL,
    iE-Extensions    ProtocolExtensionContainer { {MulticastF1UContext-FailedToBeSetup-Item-ExtIEs} } OPTIONAL,
    ...
}

MulticastF1UContext-FailedToBeSetup-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MBSPTPretransmissionTunnelRequired ::= ENUMERATED {true, ...}

MBS-ServiceArea ::= CHOICE {
    locationindependent MBS-ServiceAreaInformation,
    locationindependent MBS-ServiceAreaInformationList,
    choice-Extensions    ProtocolIE-SingleContainer { {MBSServiceArea-ExtIEs} }
}

MBSServiceArea-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

MBS-ServiceAreaInformation ::= SEQUENCE {
    mBS-ServiceAreaCellList MBS-ServiceAreaCellList OPTIONAL,
    mBS-ServiceAreaTAIList MBS-ServiceAreaTAIList OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { {MBS-ServiceAreaInformation-ExtIEs} } OPTIONAL,
    ...
}

MBS-ServiceAreaInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MBS-ServiceAreaCellList ::= SEQUENCE (SIZE(1.. maxnoofCellsforMBS)) OF NRCGI

MBS-ServiceAreaTAIList ::= SEQUENCE (SIZE(1.. maxnoofTAIforMBS)) OF MBS-ServiceAreaTAIList-Item
MBS-ServiceAreaTAIList-Item ::= SEQUENCE {
    plmn-ID          PLMN-Identity,

```

```

    fiveGS-TAC          FiveGS-TAC,
    iE-Extensions        ProtocolExtensionContainer { {MBS-ServiceAreaTAIList-Item-ExtIEs} } OPTIONAL,
    ...
}

MBS-ServiceAreaTAIList-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MBS-ServiceAreaInformationList ::= SEQUENCE (SIZE(1..maxnoofMBSServiceAreaInformation)) OF MBS-ServiceAreaInformationItem

MBS-ServiceAreaInformationItem ::= SEQUENCE {
    mBS-AreaSessionID          MBS-Area-Session-ID,
    mBS-ServiceAreaInformation MBS-ServiceAreaInformation,
    iE-Extensions              ProtocolExtensionContainer { { MBS-ServiceAreaInformationItem-ExtIEs} } OPTIONAL,
    ...
}
MBS-ServiceAreaInformationItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MC-PagingCell-Item ::= SEQUENCE {
    nRCGI          NRCGI,
    iE-Extensions  ProtocolExtensionContainer { { MC-PagingCell-ItemExtIEs } } OPTIONAL
}

MC-PagingCell-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MIB-message ::= OCTET STRING

MeasConfig ::= OCTET STRING

MeasGapConfig ::= OCTET STRING

MeasGapSharingConfig ::= OCTET STRING

PosMeasurementAmount ::= ENUMERATED {ma0, ma1, ma2, ma4, ma8, ma16, ma32, ma64}

MeasurementBeamInfoRequest ::= ENUMERATED {true, ...}

MeasurementBeamInfo ::= SEQUENCE {
    pRS-Resource-ID          PRS-Resource-ID          OPTIONAL,
    pRS-Resource-Set-ID      PRS-Resource-Set-ID OPTIONAL,
    sSB-Index                SSB-Index                OPTIONAL,
    iE-Extensions            ProtocolExtensionContainer { { MeasurementBeamInfo-ExtIEs} } OPTIONAL
}

MeasurementBeamInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

MeasurementTimingConfiguration ::= OCTET STRING

MessageIdentifier ::= BIT STRING (SIZE (16))

MeasurementTimeOccasion ::= ENUMERATED {01, 04, ...}

MeasurementCharacteristicsRequestIndicator ::= BIT STRING (SIZE (16))

MRB-ProgressInformation ::= CHOICE {
    pdcp-SN12          INTEGER (0..4095),
    pdcp-SN18          INTEGER (0..262143),
    choice-extension   ProtocolIE-SingleContainer { { MRB-ProgressInformation-ExtIEs} }
}

MRB-ProgressInformation-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

MulticastF1UContextReferenceF1 ::= OCTET STRING (SIZE(4))

MulticastF1UContextReferenceCU ::= OCTET STRING (SIZE(4))

MultipleULAoA ::= SEQUENCE {
    multipleULAoA      MultipleULAoA-List,
    iE-Extensions      ProtocolExtensionContainer { { MultipleULAoA-ExtIEs} } OPTIONAL,
    ...
}

MultipleULAoA-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MultipleULAoA-List ::= SEQUENCE (SIZE(1.. maxnoofULAoAs)) OF MultipleULAoA-Item

MultipleULAoA-Item ::= CHOICE {
    uL-AoA      UL-AoA,
    uL-ZoA      ZoAInformation,
    choice-extension ProtocolIE-SingleContainer { { MultipleULAoA-Item-ExtIEs } }
}

MultipleULAoA-Item-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

MDTPollutedMeasurementIndicator ::= ENUMERATED {iDC,no-IDC, ...}

MRB-ID ::= INTEGER (1..512, ...)

MulticastMBSSessionList ::= SEQUENCE (SIZE(1..maxnoofMBSSessionsofUE)) OF MulticastMBSSessionList-Item
MulticastMBSSessionList-Item ::= SEQUENCE {
    mbsSessionId      MBS-Session-ID,

```

```

    iE-Extensions          ProtocolExtensionContainer { { MulticastMBSSessionList-Item-ExtIEs } } OPTIONAL,
    ...
}

MulticastMBSSessionList-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MulticastMRBs-FailedToBeModified-Item ::= SEQUENCE {
    mRB-ID                MRB-ID,
    cause                  Cause OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { MulticastMRBs-FailedtoBeModified-Item-ExtIEs} } OPTIONAL,
    ...
}

MulticastMRBs-FailedtoBeModified-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MulticastMRBs-FailedToBeSetup-Item ::= SEQUENCE {
    mRB-ID                MRB-ID,
    cause                  Cause OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { MulticastMRBs-FailedToBeSetup-Item-ExtIEs} } OPTIONAL,
    ...
}

MulticastMRBs-FailedToBeSetup-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MulticastMRBs-FailedToBeSetupMod-Item ::= SEQUENCE {
    mRB-ID                MRB-ID,
    cause                  Cause OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { MulticastMRBs-FailedToBeSetupMod-Item-ExtIEs} } OPTIONAL,
    ...
}

MulticastMRBs-FailedToBeSetupMod-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MulticastMRBs-Modified-Item ::= SEQUENCE {
    mRB-ID                MRB-ID,
    iE-Extensions          ProtocolExtensionContainer { { MulticastMRBs-Modified-Item-ExtIEs} } OPTIONAL,
    ...
}

MulticastMRBs-Modified-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MulticastMRBs-Setup-Item ::= SEQUENCE {
    mRB-ID                MRB-ID,
    iE-Extensions          ProtocolExtensionContainer { { MulticastMRBs-Setup-Item-ExtIEs} } OPTIONAL,

```

```

    ...
}

MulticastMRBs-Setup-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MulticastMRBs-SetupMod-Item ::= SEQUENCE {
    mRB-ID MRB-ID,
    iE-Extensions ProtocolExtensionContainer { { MulticastMRBs-SetupMod-Item-ExtIEs} } OPTIONAL,
    ...
}

MulticastMRBs-SetupMod-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MulticastMRBs-ToBeModified-Item ::= SEQUENCE {
    mRB-ID MRB-ID,
    mRB-QoSInformation QoSFlowLevelQoSParameters OPTIONAL,
    mBS-Flows-Mapped-To-MRB-List MBS-Flows-Mapped-To-MRB-List OPTIONAL,
    mBS-DL-PDCP-SN-Length PDCPSNLength OPTIONAL,
    iE-Extensions ProtocolExtensionContainer { { MulticastMRBs-ToBeModified-Item-ExtIEs} } OPTIONAL,
    ...
}

MulticastMRBs-ToBeModified-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MulticastMRBs-ToBeReleased-Item ::= SEQUENCE {
    mRB-ID MRB-ID,
    iE-Extensions ProtocolExtensionContainer { { MulticastMRBs-ToBeReleased-ItemExtIEs } } OPTIONAL,
    ...
}

MulticastMRBs-ToBeReleased-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MulticastMRBs-ToBeSetup-Item ::= SEQUENCE {
    mRB-ID MRB-ID,
    mRB-QoSInformation QoSFlowLevelQoSParameters,
    mBS-Flows-Mapped-To-MRB-List MBS-Flows-Mapped-To-MRB-List,
    mBS-DL-PDCP-SN-Length PDCPSNLength,
    iE-Extensions ProtocolExtensionContainer { { MulticastMRBs-ToBeSetup-Item-ExtIEs} } OPTIONAL,
    ...
}

MulticastMRBs-ToBeSetup-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MulticastMRBs-ToBeSetupMod-Item ::= SEQUENCE {

```

```

    mRB-ID                MRB-ID,
    mRB-QoSInformation      QoSFlowLevelQoSParameters,
    mBS-Flows-Mapped-To-MRB-List  MBS-Flows-Mapped-To-MRB-List,
    mBS-DL-PDCP-SN-Length  PDCPSNLength,
    iE-Extensions          ProtocolExtensionContainer { { MulticastMRBs-ToBeSetupMod-Item-ExtIEs} } OPTIONAL,
    ...
}

MulticastMRBs-ToBeSetupMod-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MultiplexingInfo ::= SEQUENCE{
    iAB-MT-Cell-List      IAB-MT-Cell-List,
    iE-Extensions         ProtocolExtensionContainer { {MultiplexingInfo-ExtIEs} } OPTIONAL
}

MultiplexingInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MusimCapabilityRestrictionIndication ::= ENUMERATED {true, ...}

MusimCandidateBandList ::= OCTET STRING

M2Configuration ::= ENUMERATED {true, ...}

M5Configuration ::= SEQUENCE {
    m5period            M5period,
    m5-links-to-log      M5-Links-to-log,
    iE-Extensions        ProtocolExtensionContainer { { M5Configuration-ExtIEs} } OPTIONAL,
    ...
}

M5Configuration-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    {ID id-M5ReportAmount CRITICALITY ignore EXTENSION M5ReportAmount PRESENCE optional },
    ...
}

M5period ::= ENUMERATED { ms1024, ms2048, ms5120, ms10240, min1, ... }

M5ReportAmount ::= ENUMERATED { r1, r2, r4, r8, r16, r32, r64, infinity, ... }

M5-Links-to-log ::= ENUMERATED {uplink, downlink, both-uplink-and-downlink, ...}

M6Configuration ::= SEQUENCE {
    m6report-Interval    M6report-Interval,
    m6-links-to-log      M6-Links-to-log,
    iE-Extensions        ProtocolExtensionContainer { { M6Configuration-ExtIEs} } OPTIONAL,
    ...
}

```

```

M6Configuration-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    {ID id-M6ReportAmount    CRITICALITY ignore  EXTENSION M6ReportAmount PRESENCE optional },
    ...
}

M6report-Interval ::= ENUMERATED { ms120, ms240, ms640, ms1024, ms2048, ms5120, ms10240, ms20480, ms40960, min1, min6, min12, min30, ..., ms480}

M6ReportAmount ::= ENUMERATED { r1, r2, r4, r8, r16, r32, r64, infinity, ... }

M6-Links-to-log ::= ENUMERATED {uplink, downlink, both-uplink-and-downlink, ...}

M7Configuration ::= SEQUENCE {
    m7period          M7period,
    m7-links-to-log   M7-Links-to-log,
    iE-Extensions     ProtocolExtensionContainer { { M7Configuration-ExtIEs} } OPTIONAL,
    ...
}

M7Configuration-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    {ID id-M7ReportAmount    CRITICALITY ignore  EXTENSION M7ReportAmount PRESENCE optional},
    ...
}

M7period ::= INTEGER(1..60, ...)

M7ReportAmount ::= ENUMERATED { r1, r2, r4, r8, r16, r32, r64, infinity, ... }

M7-Links-to-log ::= ENUMERATED {downlink, ...}

MDT-Activation ::= ENUMERATED {
    immediate-MDT-only,
    immediate-MDT-and-Trace,
    ...
}

MDTConfiguration ::= SEQUENCE {
    mdt-Activation          MDT-Activation,
    measurementsToActivate MeasurementsToActivate,
    m2Configuration        M2Configuration OPTIONAL,
    -- The above IE shall be present if the Measurements to Activate IE has the second bit set to "1".
    m5Configuration        M5Configuration OPTIONAL,
    -- The above IE shall be present if the Measurements to Activate IE has the fifth bit set to "1".
    m6Configuration        M6Configuration OPTIONAL,
    -- The above IE shall be present if the Measurements to Activate IE has the seventh bit set to "1".
    m7Configuration        M7Configuration OPTIONAL,
    -- The above IE shall be present if the Measurements to Activate IE has the eighth bit set to "1".
    iE-Extensions          ProtocolExtensionContainer { { MDTConfiguration-ExtIEs} } OPTIONAL,
    ...
}

MDTConfiguration-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```



```

MDTPLMNList ::= SEQUENCE (SIZE(1..maxnoofMDTPLMNs)) OF PLMN-Identity

MDTPLMNModificationList ::= SEQUENCE (SIZE(0..maxnoofMDTPLMNs)) OF PLMN-Identity

MeasuredFrequencyHops ::= ENUMERATED {singleHop, multiHop, ...}

MeasuredResultsValue ::= CHOICE {
    uL-AngleOfArrival    UL-AoA,
    uL-SRS-RSRP          UL-SRS-RSRP,
    uL-RTOA              UL-RTOA-Measurement,
    gNB-RxTxTimeDiff     GNB-RxTxTimeDiff,
    choice-extension     ProtocolIE-SingleContainer { { MeasuredResultsValue-ExtIEs } }
}

MeasuredResultsValue-ExtIEs F1AP-PROTOCOL-IES ::= {
    { ID id-ZoAInformation    CRITICALITY reject TYPE ZoAInformation    PRESENCE mandatory}|
    { ID id-MultipleULAAoA    CRITICALITY reject TYPE MultipleULAAoA    PRESENCE mandatory}|
    { ID id-UL-SRS-RSRPP      CRITICALITY reject TYPE UL-SRS-RSRPP      PRESENCE mandatory}|
    { ID id-UL-RSCP           CRITICALITY reject TYPE UL-RSCP           PRESENCE mandatory},
    ...
}

MeasurementsToActivate ::= BIT STRING (SIZE (8))

Mobile-TRP-LocationInformation ::= SEQUENCE {
    location-Information      OCTET STRING,
    velocity-Information      OCTET STRING    OPTIONAL,
    location-time-stamp       Timestamp      OPTIONAL,
    iE-Extensions             ProtocolExtensionContainer { { Mobile-TRP-LocationInformation-ExtIEs} } OPTIONAL,
    ...
}

Mobile-TRP-LocationInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Mobile-IAB-MT-UE-ID ::= OCTET STRING

MUSIM-GapConfig ::= OCTET STRING

MobileIAB-Barred ::= ENUMERATED {barred, not-barred, ...}

MeasBasedOnAggregatedResources ::= ENUMERATED { true, ... }

MobilityInitiation ::= CHOICE {
    mobilityTrigger           MobilityTrigger,
    mobilityInitiation-AssistanceInfo MobilityInitiation-AssistanceInfo,
    choice-extension          ProtocolIE-SingleContainer { { MobilityInitiation-ExtIEs} }
}

MobilityInitiation-ExtIEs F1AP-PROTOCOL-IES ::= {

```

```

}
...
}

MobilityTrigger ::= SEQUENCE {
    mobilityTriggeringIndication      MobilityTriggeringIndication,
    mobilityInitiation-CellSwitchInfo MobilityInitiation-CellSwitchInfo OPTIONAL,
    mobilityInitiation-EarlyULSyncInfo MobilityInitiation-EarlyULSyncInfo OPTIONAL,
    mobilityInitiation-EarlyDLSyncInfo MobilityInitiation-EarlyDLSyncInfo OPTIONAL,
    iE-Extensions                     ProtocolExtensionContainer { { MobilityTrigger-ExtIEs } }
}

MobilityTrigger-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MobilityTriggeringIndication ::= BIT STRING (SIZE(8))

MobilityInitiation-CellSwitchInfo ::= SEQUENCE {
    candidateCellwithBeamInfo      CandidateCellwithBeamInfo,
    iE-Extensions                  ProtocolExtensionContainer { { MobilityInitiation-CellSwitchInfo-ExtIEs } } OPTIONAL,
    ...
}

MobilityInitiation-CellSwitchInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MobilityInitiation-EarlyULSyncInfo ::= SEQUENCE {
    candidateCellwithBeamInfoList    CandidateCellwithBeamInfoList,
    iE-Extensions                   ProtocolExtensionContainer { { MobilityInitiation-EarlyULSyncInfo-ExtIEs } } OPTIONAL,
    ...
}

MobilityInitiation-EarlyULSyncInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MobilityInitiation-EarlyDLSyncInfo ::= SEQUENCE {
    candidateCellwithBeamInfoList    CandidateCellwithBeamInfoList,
    iE-Extensions                   ProtocolExtensionContainer { { MobilityInitiation-EarlyDLSyncInfo-ExtIEs } } OPTIONAL,
    ...
}

MobilityInitiation-EarlyDLSyncInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MobilityInitiation-AssistanceInfo ::= SEQUENCE {
    servingCellMeasurements          ServingCellMeasurements,
    candidateCellwithMeasurementsList CandidateCellwithMeasurementsList,
    iE-Extensions                   ProtocolExtensionContainer { { MobilityInitiation-AssistanceInfo-ExtIEs } } OPTIONAL,
    ...
}

```

```

MobilityInitiation-AssistanceInfo-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

-- N

NRA2XServicesAuthorized ::= SEQUENCE {
    aerialUE          AerialUE                      OPTIONAL,
    controllerUE      ControllerUE                  OPTIONAL,
    iE-Extensions     ProtocolExtensionContainer { {NRA2XServicesAuthorized-ExtIEs} } OPTIONAL
}

NRA2XServicesAuthorized-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

AerialUE ::= ENUMERATED {
    authorized,
    not-authorized,
    ...
}

ControllerUE ::= ENUMERATED {
    authorized,
    not-authorized,
    ...
}

N3CIndirectPathAddition ::= SEQUENCE {
    targetRelayUEID    GNB-DU-UE-F1AP-ID,
    iE-Extensions      ProtocolExtensionContainer { { N3CIndirectPathAddition-ExtIEs } }    OPTIONAL,
    ...
}

N3CIndirectPathAddition-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

NA-Resource-Configuration-List ::= SEQUENCE (SIZE(1.. maxnoofHSNASlots)) OF NA-Resource-Configuration-Item

NA-Resource-Configuration-Item ::= SEQUENCE {
    nADownlink          NADownlink          OPTIONAL,
    nAUplink            NAUplink            OPTIONAL,
    nAFlexible          NAFlexible          OPTIONAL,
    iE-Extensions       ProtocolExtensionContainer { { NA-Resource-Configuration-Item-ExtIEs } } OPTIONAL
}

NA-Resource-Configuration-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```
NADownlink ::= ENUMERATED { true, false, ... }
NAFlexible  ::= ENUMERATED { true, false, ... }
NAUplink   ::= ENUMERATED { true, false, ... }
```

Ncd-SSB-RedCapInitialBWP-SDT ::= OCTET STRING

```
NetworkControlledRepeaterAuthorized ::= ENUMERATED { authorized, not-authorized, ...}
```

```

NCGI-to-be-Updated-List-Item ::= SEQUENCE {
    oLDNCGI      NRCGI,
    nEWNCGI      NRCGI,
    iE-Extensions ProtocolExtensionContainer { { NCGI-to-be-Updated-List-ItemExtIES} } OPTIONAL,
    ...
}

```

```

NCGI-to-be-Updated-List-ItemExtIEs  F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```
Neighbour-Node-Cells-List ::= SEQUENCE (SIZE(1..maxnoofNeighbourNodeCellsIAB)) OF Neighbour-Node-Cells-List-Item
```

```

Neighbour-Node-Cells-List-Item ::= SEQUENCE{
    nRCGI
        GNB-CU-UE-F1AP-ID      GNB-CU-UE-F1AP-ID      NRCGI,
        GNB-DU-UE-F1AP-ID      GNB-DU-UE-F1AP-ID      OPTIONAL,
        peer-Parent-Node-Indicator
        IAB-DU-Cell-Resource-Configuration-Mode-Info  OPTIONAL,
        IAB-STC-Info
        RACH-Config-Common      OPTIONAL,
        RACH-Config-Common-IAB  OPTIONAL,
        cSI-RS-Configuration
        SR-Configuration
        pDCCH-ConfigSIB1
        SCS-Common
        IE-Extensions
        OCTET STRING      OPTIONAL,
        OCTET STRING      OPTIONAL,
        OCTET STRING      OPTIONAL,
        OCTET STRING      OPTIONAL,
        ProtocolExtensionContainer  {{Neighbour-Node-Cells-List-Item-ExtIEs}}  OPTIONAL
}

```

```
Neighbour-Node-Cells-List-Item-ExtIES    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
NeedforGap ::= ENUMERATED {true, ...}
```

```
NeedForGapsInfoNR ::= OCTET STRING
```

```
NeedForGapNCSGInfoNR ::= OCTET STRING
```

```
NeedForGapNCSGInfoEUTRA ::= OCTET STRING
```

```
NeedForInterruptionInfoNR ::= OCTET STRING
```

```
Neighbour-Cell-Information-Item ::= SEQUENCE {
    nRCGI          NRCGI,
```

```

    intendedTDD-DL-ULConfig    IntendedTDD-DL-ULConfig OPTIONAL,
    iE-Extensions    ProtocolExtensionContainer { { Neighbour-Cell-Information-ItemExtIEs } }    OPTIONAL
}

Neighbour-Cell-Information-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

NeighbourNR-CellsForSON-List ::= SEQUENCE (SIZE(1.. maxNeighbourCellforSON)) OF NeighbourNR-CellsForSON-Item

NeighbourNR-CellsForSON-Item ::= SEQUENCE {
    nRCGI                                NRCGI,
    nR-ModeInfoRel16                    NR-ModeInfoRel16                                OPTIONAL,
    sSB-PositionsInBurst                SSB-PositionsInBurst                        OPTIONAL,
    nRPRACHConfig                      NRPRACHConfig                            OPTIONAL,
    iE-Extensions                      ProtocolExtensionContainer { { NeighbourNR-CellsForSON-Item-ExtIEs } } OPTIONAL,
    ...
}

NeighbourNR-CellsForSON-Item-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

NGRANAllocationAndRetentionPriority ::= SEQUENCE {
    priorityLevel                PriorityLevel,
    pre-emptionCapability        Pre-emptionCapability,
    pre-emptionVulnerability     Pre-emptionVulnerability,
    iE-Extensions                ProtocolExtensionContainer { {NGRANAllocationAndRetentionPriority-ExtIEs} } OPTIONAL
}

NGRANAllocationAndRetentionPriority-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

NGRANHighAccuracyAccessPointPosition ::= SEQUENCE {
    latitude                      INTEGER (-2147483648.. 2147483647),
    longitude                    INTEGER (-2147483648.. 2147483647),
    altitude                     INTEGER (-64000..1280000),
    uncertaintySemi-major        INTEGER (0..255),
    uncertaintySemi-minor        INTEGER (0..255),
    orientationOfMajorAxis       INTEGER (0..179),
    horizontalConfidence         INTEGER (0..100),
    uncertaintyAltitude          INTEGER (0..255),
    verticalConfidence           INTEGER (0..100),
    iE-Extensions                ProtocolExtensionContainer { { NGRANHighAccuracyAccessPointPosition-ExtIEs } } OPTIONAL
}

NGRANHighAccuracyAccessPointPosition-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

NID ::= BIT STRING (SIZE(44))

```

```

NonFilterTerminatingTopologyIndicator ::= ENUMERATED {
    true,
    ...
}

NR-CGI-List-For-Restart-Item ::= SEQUENCE {
    nRCGI          NRCGI,
    iE-Extensions  ProtocolExtensionContainer { { NR-CGI-List-For-Restart-ItemExtIEs } } OPTIONAL,
    ...
}

NR-CGI-List-For-Restart-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

NrofSymbolsExtended ::= ENUMERATED {n8, n10, n12, n14, ...}

NR-PRSBearInformation ::= SEQUENCE {
    nR-PRSBearInformationList NR-PRSBearInformationList,
    lCStoGCSTranslationList   LCStoGCSTranslationList OPTIONAL,
    iE-Extensions             ProtocolExtensionContainer { { NR-PRSBearInformation-ExtIEs } } OPTIONAL
}

NR-PRSBearInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

NR-PRSBearInformationList ::= SEQUENCE (SIZE(1.. maxnoofPRS-ResourceSets)) OF NR-PRSBearInformationItem

NR-PRSBearInformationItem ::= SEQUENCE {
    pRSResourceSetID PRS-Resource-Set-ID,
    pRSAngleList     PRSAngleList,
    iE-Extensions    ProtocolExtensionContainer { { NR-PRSBearInformationItem-ExtIEs } } OPTIONAL
}

NR-PRSBearInformationItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

NR-TADV ::= INTEGER (0.. 7690)

NRRedCapUEIndication ::= ENUMERATED {true, ...}

ERedcap-Bcast-Information ::= BIT STRING(SIZE(8))

NRRedCapUEIndication ::= ENUMERATED {true, ...}

NRPagingeDRXInformation ::= SEQUENCE {
    nrpaging-eDRX-Cycle-Idle NR Paging-eDRX-Cycle-Idle,
    nrpaging-Time-Window     NR Paging-Time-Window OPTIONAL,
    iE-Extensions            ProtocolExtensionContainer { {NRPagingeDRXInformation-ExtIEs} } OPTIONAL,
    ...
}

```

```

NRPagingeDRXInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

NRPaging-eDRX-Cycle-Idle ::= ENUMERATED {
    hfquarter, hfhalf, hf1, hf2, hf4,
    hf8, hf16, hf32, hf64, hf128, hf256, hf512, hf1024,
    ...
}

NRPaging-Time-Window ::= ENUMERATED {
    s1, s2, s3, s4, s5,
    s6, s7, s8, s9, s10,
    s11, s12, s13, s14, s15, s16,
    ...,
    s17, s18, s19, s20, s21,
    s22, s23, s24, s25, s26,
    s27, s28, s29, s30, s31, s32
}

NRPagingeDRXInformationforRRCINACTIVE ::= SEQUENCE {
    nrpaging-eDRX-Cycle-Inactive      NRPaging-eDRX-Cycle-Inactive,
    iE-Extensions                    ProtocolExtensionContainer { { NRPagingeDRXInformationforRRCINACTIVE-ExtIEs } } OPTIONAL,
    ...
}

NRPagingeDRXInformationforRRCINACTIVE-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

NRPaging-eDRX-Cycle-Inactive ::= ENUMERATED {
    hfquarter, hfhalf, hf1,
    ...
}

NRPaginglongeDRXInformationforRRCINACTIVE ::= SEQUENCE {
    nRPaging-long-eDRX-Cycle-Inactive      NRPaging-long-eDRX-Cycle-Inactive,
    nRPaging-Time-Window-Inactive          NRPaging-Time-Window-Inactive,
    iE-Extensions                          ProtocolExtensionContainer { { NRPaginglongeDRXInformationforRRCINACTIVE-ExtIEs } } OPTIONAL,
    ...
}

NRPaginglongeDRXInformationforRRCINACTIVE-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

NRPaging-long-eDRX-Cycle-Inactive ::= ENUMERATED {
    hf2, hf4, hf8, hf16, hf32, hf64, hf128, hf256, hf512, hf1024, ...
}

```

```

NRPaging-Time-Window-Inactive ::= ENUMERATED {
    s1, s2, s3, s4, s5,
    s6, s7, s8, s9, s10,
    s11, s12, s13, s14, s15, s16,
    s17, s18, s19, s20, s21, s22,
    s23, s24, s25, s26, s27, s28, s29,
    s30, s31, s32, ...
}

NonDynamic5QIDescriptor ::= SEQUENCE {
    fiveQI                INTEGER (0..255, ...),
    qoSPriorityLevel       INTEGER (1..127)           OPTIONAL,
    averagingWindow        AveragingWindow           OPTIONAL,
    maxDataBurstVolume     MaxDataBurstVolume        OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { NonDynamic5QIDescriptor-ExtIEs } } OPTIONAL
}

NonDynamic5QIDescriptor-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-CNPacketDelayBudgetDownlink CRITICALITY ignore EXTENSION ExtendedPacketDelayBudget PRESENCE optional }|
    { ID id-CNPacketDelayBudgetUplink   CRITICALITY ignore EXTENSION ExtendedPacketDelayBudget PRESENCE optional },
    ...
}

NonDynamicPQIDescriptor ::= SEQUENCE {
    fiveQI                INTEGER (0..255, ...),
    qoSPriorityLevel       INTEGER (1..8, ...)         OPTIONAL,
    averagingWindow        AveragingWindow            OPTIONAL,
    maxDataBurstVolume     MaxDataBurstVolume         OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { NonDynamicPQIDescriptor-ExtIEs } } OPTIONAL
}

NonDynamicPQIDescriptor-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

NonUPTrafficType ::= ENUMERATED {ue-associated, non-ue-associated, non-f1, bap-control-pdu,...}

NoofDownlinkSymbols ::= INTEGER (0..14)

NoofUplinkSymbols   ::= INTEGER (0..14)

Notification-Cause ::= ENUMERATED {fulfilled, not-fulfilled, ...}

NotificationControl ::= ENUMERATED {active, not-active, ...}

NotificationInformation ::= SEQUENCE {
    message-Identifier MessageIdentifier,
    serialNumber        SerialNumber,
    iE-Extensions        ProtocolExtensionContainer { { NotificationInformationExtIEs } } OPTIONAL,
    ...
}

NotificationInformationExtIEs F1AP-PROTOCOL-EXTENSION ::= {

```



```

    ...
}

NPNBroadcastInformation ::= CHOICE {
    sNPN-Broadcast-Information          NPN-Broadcast-Information-SNPN,
    pNI-NPN-Broadcast-Information      NPN-Broadcast-Information-PNI-NPN,
    choice-extension                    ProtocolIE-SingleContainer { {NPNBroadcastInformation-ExtIEs} }
}

NPNBroadcastInformation-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

NPN-Broadcast-Information-SNPN ::= SEQUENCE {
    broadcastSNPNID-List                BroadcastSNPN-ID-List,
    iE-Extension                        ProtocolExtensionContainer { {NPN-Broadcast-Information-SNPN-ExtIEs} } OPTIONAL,
    ...
}

NPN-Broadcast-Information-SNPN-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

NPN-Broadcast-Information-PNI-NPN ::= SEQUENCE {
    broadcastPNI-NPN-ID-Information      BroadcastPNI-NPN-ID-List,
    iE-Extension                        ProtocolExtensionContainer { {NPN-Broadcast-Information-PNI-NPN-ExtIEs} } OPTIONAL,
    ...
}

NPN-Broadcast-Information-PNI-NPN-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

NPNSupportInfo ::= CHOICE {
    sNPN-Information                    NID,
    choice-extension                    ProtocolIE-SingleContainer { { NPNSupportInfo-ExtIEs } }
}

NPNSupportInfo-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

NRCarrierList ::= SEQUENCE (SIZE(1..maxnoofNRSCSs)) OF NRCarrierItem

NRCarrierItem ::= SEQUENCE {
    carrierSCS                          NRSCS,
    offsetToCarrier                     INTEGER (0..2199, ...),
    carrierBandwidth                     INTEGER (0..maxnoofPhysicalResourceBlocks, ...),
    iE-Extension                        ProtocolExtensionContainer { {NRCarrierItem-ExtIEs} } OPTIONAL,
    ...
}

NRCarrierItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

}

NRFreqInfo ::= SEQUENCE {
    nRARFCN          INTEGER (0..maxNRARFCN),
    sul-Information  SUL-Information OPTIONAL,
    freqBandListNr   SEQUENCE (SIZE(1..maxnoofNrCellBands)) OF FreqBandNrItem,
    iE-Extensions    ProtocolExtensionContainer { { NRFreqInfoExtIEs } } OPTIONAL,
    ...
}

NRFreqInfoExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-FrequencyShift7p5khz CRITICALITY ignore EXTENSION FrequencyShift7p5khz PRESENCE optional },
    ...
}

NR CGI ::= SEQUENCE {
    plmn-Identity      PLMN-Identity,
    nrcellIdentity     NRCellIdentity,
    iE-Extensions      ProtocolExtensionContainer { { NR CGI-ExtIEs } } OPTIONAL,
    ...
}

NR CGI-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

NR-Mode-Info ::= CHOICE {
    fdd      FDD-Info,
    tdd      TDD-Info,
    choice-extension          ProtocolIE-SingleContainer { { NR-Mode-Info-ExtIEs } }
}

NR-Mode-Info-ExtIEs F1AP-PROTOCOL-IES ::= {
    { ID id-NR-U CRITICALITY ignore TYPE NR-U-Channel-Info-List PRESENCE mandatory },
    ...
}

NR-ModeInfoRel16 ::= CHOICE {
    fdd      FDD-InfoRel16,
    tdd      TDD-InfoRel16,
    choice-extension          ProtocolIE-SingleContainer { { NR-ModeInfoRel16-ExtIEs } }
}

NR-ModeInfoRel16-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

NRPRACHConfig ::= SEQUENCE {
    ulPRACHConfigList      NRPRACHConfigList OPTIONAL,
    sulPRACHConfigList      NRPRACHConfigList OPTIONAL,
    iE-Extension            ProtocolExtensionContainer { { NRPRACHConfig-ExtIEs } } OPTIONAL,
    ...
}

```

```
NRPRACHConfig-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
NRCellIdentity ::= BIT STRING (SIZE(36))
```

```
NRNRB ::= ENUMERATED { nrb11, nrb18, nrb24, nrb25, nrb31, nrb32, nrb38, nrb51, nrb52, nrb65, nrb66, nrb78, nrb79, nrb93, nrb106, nrb107, nrb121,
nrb132, nrb133, nrb135, nrb160, nrb162, nrb189, nrb216, nrb217, nrb245, nrb264, nrb270, nrb273, ..., nrb33, nrb62, nrb124, nrb148, nrb248, nrb44,
nrb58, nrb92, nrb119, nrb188, nrb242, nrb15}
```

```
NRPCI ::= INTEGER(0..1007)
```

```
NRPRACHConfigList ::= SEQUENCE (SIZE(0..maxnoofPRACHconfigs)) OF NRPRACHConfigItem
```

```
NRPRACHConfigItem ::= SEQUENCE {
    nRSCS NRSCS,
    prachFreqStartfromCarrier INTEGER (0..maxnoofPhysicalResourceBlocks-1, ...),
    prachFDM ENUMERATED {one, two, four, eight, ...},
    prachConfigIndex INTEGER (0..255, ..., 256..262),
    ssb-perRACH-Occasion ENUMERATED {oneEighth, oneFourth, oneHalf, one,
two, four, eight, sixteen, ...},
    freqDomainLength FreqDomainLength,
    zeroCorrelZoneConfig INTEGER (0..15),
    iE-Extension ProtocolExtensionContainer { { NRPRACHConfigItem-ExtIEs } } OPTIONAL,
    ...
}
```

```
NRPRACHConfigItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
NRSCS ::= ENUMERATED { scs15, scs30, scs60, scs120, ..., scs480, scs960}
```

```
NRUERLFReportContainer ::= OCTET STRING
```

```
NR-U-Channel-Info-List ::= SEQUENCE (SIZE (1..maxnoofNR-UChannelIDs)) OF NR-U-Channel-Info-Item
```

```
NR-U-Channel-Info-Item ::= SEQUENCE {
    nr-U-channel-ID INTEGER(1.. maxnoofNR-UChannelIDs,...),
    nR-ARFCN INTEGER (0..maxNRARFCN),
    bandwidth ENUMERATED{mHz-10,mHz-20,mHz-40, mHz-60, mHz-80,..., mHz-100},
    iE-Extensions ProtocolExtensionContainer { { NR-U-Channel-Info-List-ExtIEs } } OPTIONAL,
    ...
}
```

```
NR-U-Channel-Info-List-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
NR-U-Channel-List ::= SEQUENCE (SIZE (1..maxnoofNR-UChannelIDs)) OF NR-U-Channel-Item
```

```

NR-U-Channel-Item ::= SEQUENCE {
    nR-U-ChannelID                INTEGER(1..maxnoofNR-UChannelIDs),
    channelOccupancyTimePercentageDL    ChannelOccupancyTimePercentage,
    energyDetectionThreshold          EnergyDetectionThreshold,
    iE-Extensions                  ProtocolExtensionContainer { { NR-U-Channel-Item-ExtIEs} } OPTIONAL,
    ...
}

NR-U-Channel-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-ChannelOccupancyTimePercentageUL    CRITICALITY ignore EXTENSION ChannelOccupancyTimePercentage PRESENCE optional}|
    { ID id-RadioResourceStatusNR-U            CRITICALITY ignore EXTENSION RadioResourceStatusNR-U PRESENCE optional},
    ...
}

NumberOfActiveUEs ::= INTEGER(0..16777215, ...)

NumberOfBroadcasts ::= INTEGER (0..65535)

NumberOfBroadcastRequest ::= INTEGER (0..65535)

NumberOfTRPRxTEG ::= ENUMERATED {two, three, four, six, eight, ...}

NumberOfTRPRxTxTEG ::= ENUMERATED {wo, three, four, six, eight, ...}

NumDLULSymbols ::= SEQUENCE {
    numDLSymbols    INTEGER (0..13, ...),
    numULSymbols    INTEGER (0..13, ...),
    iE-Extensions    ProtocolExtensionContainer { { NumDLULSymbols-ExtIEs} } OPTIONAL
}

NumDLULSymbols-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-permutation    CRITICALITY ignore EXTENSION Permutation    PRESENCE optional },
    ...
}

NRV2XServicesAuthorized ::= SEQUENCE {
    vehicleUE            VehicleUE                                OPTIONAL,
    pedestrianUE          PedestrianUE                            OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { {NRV2XServicesAuthorized-ExtIEs} } OPTIONAL
}

NRV2XServicesAuthorized-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

NRUESidelinkAggregateMaximumBitrate ::= SEQUENCE {
    uENRSidelinkAggregateMaximumBitrate    BitRate,
    iE-Extensions                          ProtocolExtensionContainer { {NRUESidelinkAggregateMaximumBitrate-ExtIEs} } OPTIONAL
}

NRUESidelinkAggregateMaximumBitrate-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

```

```

    ...
}

NZP-CSI-RS-ResourceID ::= INTEGER (0..191)

N6JitterInformation ::= SEQUENCE {
    n6JitterLowerBound    INTEGER (-127..127),
    n6JitterUpperBound    INTEGER (-127..127),
    iE-Extensions         ProtocolExtensionContainer { { N6JitterInformationExtIEs } }    OPTIONAL,
    ...}

N6JitterInformationExtIEs  F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

-- 0

OffsetToPointA ::= INTEGER (0..2199,...)

OnDemandPRS-Info ::= SEQUENCE {
    onDemandPRSRequestAllowed    BIT STRING (SIZE (16)),
    allowedResourceSetPeriodicityValues    BIT STRING (SIZE (24))    OPTIONAL,
    allowedPRSBandwidthValues    BIT STRING (SIZE (64))    OPTIONAL,
    allowedResourceRepetitionFactorValues    BIT STRING (SIZE (8))    OPTIONAL,
    allowedResourceNumberOfSymbolsValues    BIT STRING (SIZE (8))    OPTIONAL,
    allowedCombSizeValues        BIT STRING (SIZE (8))    OPTIONAL,
    iE-Extensions    ProtocolExtensionContainer { { OnDemandPRS-Info-ExtIEs } }    OPTIONAL,
    ...
}

OnDemandPRS-Info-ExtIEs  F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

-- P

PacketDelayBudget ::= INTEGER (0..1023, ...)

PacketErrorRate ::= SEQUENCE {
    pER-Scalar    PER-Scalar,
    pER-Exponent    PER-Exponent,
    iE-Extensions    ProtocolExtensionContainer { { PacketErrorRate-ExtIEs } }    OPTIONAL,
    ...
}

PacketErrorRate-ExtIEs  F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PathAdditionInformation ::= CHOICE {
    indirectPathAddition    IndirectPathAddition,
    directPathAddition        NULL,
    n3C-indirectPathAddition    N3CIndirectPathAddition,

```

```

    choice-extension          ProtocolIE-SingleContainer { { PathAdditionInformation-ExtIEs} }
}

PathAdditionInformation-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

PER-Scalar ::= INTEGER (0..9, ...)
PER-Exponent ::= INTEGER (0..9, ...)

PagingCell-Item ::= SEQUENCE {
    nRCGI          NRCGI          ,
    iE-Extensions  ProtocolExtensionContainer { { PagingCell-ItemExtIEs } }    OPTIONAL
}

PagingCell-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-LastUsedCellIndication          CRITICALITY ignore  EXTENSION LastUsedCellIndication          PRESENCE optional }|
    { ID id-PEISubgroupingSupportIndication CRITICALITY ignore  EXTENSION PEISubgroupingSupportIndication PRESENCE optional }|
    { ID id-Recommended-SSBs-List           CRITICALITY ignore  EXTENSION Recommended-SSBs-List           PRESENCE optional },
    ...
}

Recommended-SSBs-List ::= SEQUENCE (SIZE(1.. maxnoofSSBAreas)) OF RecommendedSSBItem-List-Item

RecommendedSSBItem-List-Item ::= SEQUENCE {
    sSB-Index      SSB-Index,
    iE-Extensions  ProtocolExtensionContainer { { RecommendedSSBItem-List-Item-ExtIEs} } OPTIONAL
}

RecommendedSSBItem-List-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PagingDRX ::= ENUMERATED {
    v32,
    v64,
    v128,
    v256,
    ...
}

PagingIdentity ::= CHOICE {
    rANUEPagingIdentity RANUEPagingIdentity,
    cNUEPagingIdentity CNUEPagingIdentity,
    choice-extension    ProtocolIE-SingleContainer { { PagingIdentity-ExtIEs } }
}

PagingCause ::= ENUMERATED { voice, ...}

PagingIdentity-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

```

```

PagingOrigin ::= ENUMERATED { non-3gpp, ...}

PagingPriority ::= ENUMERATED { priolevel1, priolevel2, priolevel3, priolevel4, priolevel5, priolevel6, priolevel7, priolevel8,...}

ParentTimeSource ::= ENUMERATED {synce, ptp, gnss, atomicclock, terrestrialradio, serialtimecode, ntp, handset, other, ...}

PEIPSAssistanceInfo ::= SEQUENCE {
    cSubgroupID          CNSubgroupID,
    iE-Extensions        ProtocolExtensionContainer { { PEIPSAssistanceInfo-ExtIES } }    OPTIONAL
}

PEIPSAssistanceInfo-ExtIES F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

RelativePathDelay ::= CHOICE {
    k0                INTEGER (0..16351),
    k1                INTEGER (0..8176),
    k2                INTEGER (0..4088),
    k3                INTEGER (0..2044),
    k4                INTEGER (0..1022),
    k5                INTEGER (0..511),
    choice-extension   ProtocolIE-SingleContainer { { RelativePathDelay-ExtIES } }
}

RelativePathDelay-ExtIES F1AP-PROTOCOL-IES ::= {
    {ID id-ReportingGranularitykminus1additionalpath CRITICALITY ignore TYPE ReportingGranularitykminus1AdditionalPath PRESENCE mandatory}|
    {ID id-ReportingGranularitykminus2additionalpath CRITICALITY ignore TYPE ReportingGranularitykminus2AdditionalPath PRESENCE mandatory }|
    {ID id-ReportingGranularitykminus3additionalpath CRITICALITY ignore TYPE ReportingGranularitykminus3AdditionalPath PRESENCE mandatory}|
    {ID id-ReportingGranularitykminus4additionalpath CRITICALITY ignore TYPE ReportingGranularitykminus4AdditionalPath PRESENCE mandatory }|
    {ID id-ReportingGranularitykminus5additionalpath CRITICALITY ignore TYPE ReportingGranularitykminus5AdditionalPath PRESENCE mandatory}|
    {ID id-ReportingGranularitykminus6additionalpath CRITICALITY ignore TYPE ReportingGranularitykminus6AdditionalPath PRESENCE mandatory },
    ...
}

Parent-IAB-Nodes-NA-Resource-Configuration-List ::= SEQUENCE (SIZE(1..maxnoofHSNASlots)) OF Parent-IAB-Nodes-NA-Resource-Configuration-Item

Parent-IAB-Nodes-NA-Resource-Configuration-Item ::= SEQUENCE {
    nADownlink          NADownlink          OPTIONAL,
    nAUplink            NAUplink            OPTIONAL,
    nAFlexible          NAFlexible          OPTIONAL,
    iE-Extensions        ProtocolExtensionContainer { { Parent-IAB-Nodes-NA-Resource-Configuration-Item-ExtIES} } OPTIONAL
}

Parent-IAB-Nodes-NA-Resource-Configuration-Item-ExtIES F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PartialSuccessCell ::= SEQUENCE {
    broadcastCellList    BroadcastCellList,
    iE-Extensions        ProtocolExtensionContainer { { PartialSuccessCell-ExtIES} } OPTIONAL,
    ...
}

PartialSuccessCell-ExtIES F1AP-PROTOCOL-EXTENSION ::= {

```

```

    ...
}

PathlossReferenceInfo ::= SEQUENCE {
    pathlossReferenceSignal    PathlossReferenceSignal,
    iE-Extensions              ProtocolExtensionContainer { {PathlossReferenceInfo-ExtIEs} } OPTIONAL
}

PathlossReferenceInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PathlossReferenceSignal ::= CHOICE {
    SSB,
    dL-PRS,
    choice-extension          ProtocolIE-SingleContainer {{PathlossReferenceSignal-ExtIEs }}
}

PathlossReferenceSignal-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

PathSwitchConfiguration ::= SEQUENCE {
    targetRelayUEID            BIT STRING(SIZE(24)),
    remoteUELocalID            RemoteUELocalID,
    t420                       ENUMERATED {ms50, ms100, ms150, ms200, ms500, ms1000, ms2000, ms10000},
    iE-Extensions              ProtocolExtensionContainer { { PathSwitchConfiguration-ExtIEs } }    OPTIONAL,
    ...
}

PathSwitchConfiguration-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PC5QoSFlowIdentifier ::= INTEGER (1..2048)

PC5-QoS-Characteristics ::= CHOICE {
    non-Dynamic-PQI            NonDynamicPQIDescriptor,
    dynamic-PQI                DynamicPQIDescriptor,
    choice-extension            ProtocolIE-SingleContainer { { PC5-QoS-Characteristics-ExtIEs } }
}

PC5-QoS-Characteristics-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

PC5QoSParameters ::= SEQUENCE {
    pC5-QoS-Characteristics    PC5-QoS-Characteristics,
    pC5-QoS-Flow-Bit-Rates     PC5FlowBitRates OPTIONAL,
    iE-Extensions              ProtocolExtensionContainer { { PC5QoSParameters-ExtIEs } }    OPTIONAL,
    ...
}

```



```

PC5QoSParameters-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PC5FlowBitRates ::= SEQUENCE {
    guaranteedFlowBitRate      BitRate,
    maximumFlowBitRate         BitRate,
    iE-Extensions              ProtocolExtensionContainer { { PC5FlowBitRates-ExtIEs } } OPTIONAL,
    ...
}

PC5FlowBitRates-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PC5RLCChannelID ::= INTEGER (1..512, ...)

PC5RLCChannelQoSInformation ::= CHOICE {
    pC5RLCChannelQoS          QoSFlowLevelQoSParameters,
    pC5ControlPlaneTrafficType ENUMERATED {srb1,srb2,...},
    choice-extension          ProtocolIE-SingleContainer { { PC5RLCChannelQoSInformation-ExtIEs } }
}

PC5RLCChannelQoSInformation-ExtIEs F1AP-PROTOCOL-IES ::= {
    { ID id-U2URLCChannelQoS      CRITICALITY reject TYPE PC5QoSParameters      PRESENCE mandatory},
    ...
}

PC5RLCChannelToBeSetupList ::= SEQUENCE (SIZE(1.. maxnoofPC5RLCChannels)) OF PC5RLCChannelToBeSetupItem

PC5RLCChannelToBeSetupItem ::= SEQUENCE {
    pC5RLCChannelID            PC5RLCChannelID,
    remoteUELocalID            RemoteUELocalID OPTIONAL,
    pC5RLCChannelQoSInformation PC5RLCChannelQoSInformation,
    rLCMode                    RLCMode,
    iE-Extensions              ProtocolExtensionContainer { { PC5RLCChannelToBeSetupItem-ExtIEs } } OPTIONAL,
    ...
}

PC5RLCChannelToBeSetupItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-PeerUE-ID            CRITICALITY reject EXTENSION BIT STRING (SIZE (24)) PRESENCE optional },
    ...
}

PC5RLCChannelToBeModifiedList ::= SEQUENCE (SIZE(1.. maxnoofPC5RLCChannels)) OF PC5RLCChannelToBeModifiedItem

PC5RLCChannelToBeModifiedItem ::= SEQUENCE {
    pC5RLCChannelID            PC5RLCChannelID,
    remoteUELocalID            RemoteUELocalID OPTIONAL,
    pC5RLCChannelQoSInformation PC5RLCChannelQoSInformation OPTIONAL,
    rLCMode                    RLCMode OPTIONAL,
    iE-Extensions              ProtocolExtensionContainer { { PC5RLCChannelToBeModifiedItem-ExtIEs } } OPTIONAL,
    ...
}

```

```

}

PC5RLCChannelToBeModifiedItem-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PC5RLCChannelToBeReleasedList ::= SEQUENCE (SIZE(1.. maxnoofPC5RLCChannels)) OF PC5RLCChannelToBeReleasedItem

PC5RLCChannelToBeReleasedItem ::= SEQUENCE {
    pC5RLCChannelID          PC5RLCChannelID,
    remoteUELocalID          RemoteUELocalID          OPTIONAL,
    iE-Extensions            ProtocolExtensionContainer { { PC5RLCChannelToBeReleasedItem-ExtIEs } } OPTIONAL,
    ...
}

PC5RLCChannelToBeReleasedItem-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PC5RLCChannelSetupList ::= SEQUENCE (SIZE(1.. maxnoofPC5RLCChannels)) OF PC5RLCChannelSetupItem

PC5RLCChannelSetupItem ::= SEQUENCE {
    pC5RLCChannelID          PC5RLCChannelID,
    remoteUELocalID          RemoteUELocalID          OPTIONAL,
    iE-Extensions            ProtocolExtensionContainer { { PC5RLCChannelSetupItem-ExtIEs } } OPTIONAL,
    ...
}

PC5RLCChannelSetupItem-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PC5RLCChannelFailedToBeSetupList ::= SEQUENCE (SIZE(1.. maxnoofPC5RLCChannels)) OF PC5RLCChannelFailedToBeSetupItem

PC5RLCChannelFailedToBeSetupItem ::= SEQUENCE {
    pC5RLCChannelID          PC5RLCChannelID,
    remoteUELocalID          RemoteUELocalID          OPTIONAL,
    cause                    Cause                    OPTIONAL,
    iE-Extensions            ProtocolExtensionContainer { { PC5RLCChannelFailedToBeSetupItem-ExtIEs } } OPTIONAL,
    ...
}

PC5RLCChannelFailedToBeSetupItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PC5RLCChannelModifiedList ::= SEQUENCE (SIZE(1.. maxnoofPC5RLCChannels)) OF PC5RLCChannelModifiedItem

PC5RLCChannelModifiedItem ::= SEQUENCE {
    pC5RLCChannelID          PC5RLCChannelID,
    remoteUELocalID          RemoteUELocalID          OPTIONAL,
    iE-Extensions            ProtocolExtensionContainer { { PC5RLCChannelModifiedItem-ExtIEs } } OPTIONAL,
    ...
}

```

```

PC5RLCChannelModifiedItem-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PC5RLCChannelFailedToBeModifiedList ::= SEQUENCE (SIZE(1.. maxnoofPC5RLCChannels)) OF PC5RLCChannelFailedToBeModifiedItem

PC5RLCChannelFailedToBeModifiedItem ::= SEQUENCE {
    pC5RLCChannelID          PC5RLCChannelID,
    remoteUELocalID          RemoteUELocalID          OPTIONAL,
    cause                     Cause          OPTIONAL,
    iE-Extensions            ProtocolExtensionContainer { { PC5RLCChannelFailedToBeModifiedItem-ExtIEs } } OPTIONAL,
    ...
}

PC5RLCChannelFailedToBeModifiedItem-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PC5RLCChannelRequiredToBeModifiedList ::= SEQUENCE (SIZE(1.. maxnoofPC5RLCChannels)) OF PC5RLCChannelRequiredToBeModifiedItem

PC5RLCChannelRequiredToBeModifiedItem ::= SEQUENCE {
    pC5RLCChannelID          PC5RLCChannelID,
    remoteUELocalID          RemoteUELocalID          OPTIONAL,
    iE-Extensions            ProtocolExtensionContainer { { PC5RLCChannelRequiredToBeModifiedItem-ExtIEs } } OPTIONAL,
    ...
}

PC5RLCChannelRequiredToBeModifiedItem-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PC5RLCChannelRequiredToBeReleasedList ::= SEQUENCE (SIZE(1.. maxnoofPC5RLCChannels)) OF PC5RLCChannelRequiredToBeReleasedItem

PC5RLCChannelRequiredToBeReleasedItem ::= SEQUENCE {
    pC5RLCChannelID          PC5RLCChannelID,
    remoteUELocalID          RemoteUELocalID          OPTIONAL,
    iE-Extensions            ProtocolExtensionContainer { { PC5RLCChannelRequiredToBeReleasedItem-ExtIEs } } OPTIONAL,
    ...
}

PC5RLCChannelRequiredToBeReleasedItem-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PDCCH-BlindDetectionSCG ::= OCTET STRING

PDCMeasurementPeriodicity ::= ENUMERATED
{ms80, ms120, ms160, ms240, ms320, ms480, ms640, ms1024, ms1280, ms2048, ms2560, ms5120, ...}

PDCMeasurementQuantities ::= SEQUENCE (SIZE (1.. maxnoofMeasPDC)) OF ProtocolIE-SingleContainer { {PDCMeasurementQuantities-ItemIEs} }

PDCMeasurementQuantities-ItemIEs F1AP-PROTOCOL-IES ::= {
    { ID id-PDCMeasurementQuantities-Item    CRITICALITY reject    TYPE PDCMeasurementQuantities-Item    PRESENCE mandatory}

```

```

}

PDCMeasurementQuantities-Item ::= SEQUENCE {
    pDCmeasurementQuantitiesValue      PDCMeasurementQuantitiesValue,
    iE-Extensions                      ProtocolExtensionContainer { { PDCMeasurementQuantitiesValue-ExtIEs} } OPTIONAL
}

PDCMeasurementQuantitiesValue-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PDCMeasurementQuantitiesValue ::= ENUMERATED {
    nr-pdc-tadv,
    gNB-rx-tx,
    ...
}

PDCMeasurementResult ::= SEQUENCE {
    pDCMeasuredResultsList      PDCMeasuredResultsList,
    iE-Extensions              ProtocolExtensionContainer { { PDCMeasurementResult-ExtIEs} } OPTIONAL
}

PDCMeasurementResult-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PDCMeasuredResultsList ::= SEQUENCE (SIZE(1..maxnoofMeasPDC)) OF PDCMeasuredResults-Item

PDCMeasuredResults-Item ::= SEQUENCE {
    pDCMeasuredResults-Value      PDCMeasuredResults-Value,
    iE-Extensions                ProtocolExtensionContainer {{ PDCMeasuredResults-Item-ExtIEs }} OPTIONAL
}

PDCMeasuredResults-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PDCMeasuredResults-Value ::= CHOICE {
    pDC-TADV-NR                PDC-TADV-NR,
    pDC-RxTxTimeDiff           PDC-RxTxTimeDiff,
    choice-extension            ProtocolIE-SingleContainer { { PDCMeasuredResults-Value-ExtIEs} }
}

PDCMeasuredResults-Value-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

PDCReportType ::= ENUMERATED {
    onDemand,
    periodic,
    ...
}

PDC-RxTxTimeDiff ::= INTEGER (0..61565, ...)

```

```

PDC-TADV-NR ::= INTEGER (0..62500, ...)

PDCP-SN ::= INTEGER (0..4095)

PDCPSNLength ::= ENUMERATED { twelve-bits, eighteen-bits, ... }

PDUSessionID ::= INTEGER (0..255)

PEISubgroupingSupportIndication ::= ENUMERATED { true, ... }

ReportingPeriodicityValue ::= INTEGER (0..512, ...)

Periodicity ::= INTEGER (0..640000, ...)

PeriodicitySRS ::= ENUMERATED { ms0p125, ms0p25, ms0p5, ms0p625, ms1, ms1p25, ms2, ms2p5, ms4, ms5, ms8, ms10, ms16, ms20, ms32, ms40, ms64, ms80,
ms160, ms320, ms640, ms1280, ms2560, ms5120, ms10240, ... }

PeriodicityList ::= SEQUENCE (SIZE(1.. maxnoSRS-ResourcePerSet)) OF PeriodicityList-Item

PeriodicityList-Item ::= SEQUENCE {
    periodicitySRS PeriodicitySRS,
    iE-Extensions ProtocolExtensionContainer { { PeriodicityList-ItemExtIEs } } OPTIONAL
}

PeriodicityList-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PeriodicityBound ::= SEQUENCE {
    periodicityLowerBound Periodicity,
    periodicityUpperBound Periodicity,
    iE-Extensions ProtocolExtensionContainer { { PeriodicityBound-ExtIEs } } OPTIONAL,
    ...
}

PeriodicityBound-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

AllowedPeriodicityList ::= SEQUENCE (SIZE(1..maxnoofPeriodicities)) OF Periodicity

PeriodicityRange ::= CHOICE {
    periodicityBound PeriodicityBound,
    periodicityList AllowedPeriodicityList,
    choice-extensions ProtocolIE-SingleContainer { { PeriodicityRange-ExtIEs } }
}

PeriodicityRange-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

Permutation ::= ENUMERATED { dfu, ufd, ... }

```

```
Ph-InfoMCG ::= OCTET STRING

Ph-InfoSCG ::= OCTET STRING

PLMN-Identity ::= OCTET STRING (SIZE(3))

PLMNIndexNR ::= INTEGER (1..maxnoofBPLMNsNR)

PlayOutDelayForMediaStartup ::= OCTET STRING

PortNumber ::= BIT STRING (SIZE (16))

PosAssistance-Information ::= OCTET STRING

PosAssistanceInformationFailureList ::= OCTET STRING

PosBroadcast ::= ENUMERATED {
    start,
    stop,
    ...
}

PosContextRevIndication ::= ENUMERATED {true, ...}

PositioningBroadcastCells ::= SEQUENCE (SIZE (1..maxnoBcastCell)) OF NRCGI

PosMeasGapPreConfigList ::= SEQUENCE {
    posMeasGapPreConfigToAddModList      OCTET STRING      OPTIONAL,
    posMeasGapPreConfigToReleaseList     OCTET STRING      OPTIONAL,
    iE-Extensions      ProtocolExtensionContainer { { PosMeasGapPreConfigList-ExtIEs} } OPTIONAL
}

PosMeasGapPreConfigList-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

MeasurementPeriodicity ::= ENUMERATED
{ms120, ms240, ms480, ms640, ms1024, ms2048, ms5120, ms10240, min1, min6, min12, min30, ..., ms20480, ms40960, extended }

MeasurementPeriodicityExtended ::= ENUMERATED {ms160, ms320, ms1280, ms2560, ms61440, ms81920, ms368640, ms737280, ms1843200, ...}

PosMeasurementPeriodicityNR-AoA ::= ENUMERATED {
    ms160,
    ms320,
    ms640,
    ms1280,
    ms2560,
    ms5120,
    ms10240,
    ms20480,
    ms40960,
```

```

ms61440,
ms81920,
ms368640,
ms737280,
ms1843200,
...
}

PosMeasurementQuantities ::= SEQUENCE (SIZE(1.. maxnoofPosMeas)) OF PosMeasurementQuantities-Item

PosMeasurementQuantities-Item ::= SEQUENCE {
    posMeasurementType      PosMeasurementType,
    timingReportingGranularityFactor  INTEGER (0..5) OPTIONAL,
    iE-Extensions            ProtocolExtensionContainer { { PosMeasurementQuantities-ItemExtIEs} } OPTIONAL
}

PosMeasurementQuantities-ItemExtIEs  F1AP-PROTOCOL-EXTENSION ::= {
    {ID id-TimingReportingGranularityFactorExtended CRITICALITY ignore EXTENSION TimingReportingGranularityFactorExtended PRESENCE optional},
    ...
}

PosMeasurementResult ::= SEQUENCE (SIZE (1.. maxnoofPosMeas)) OF PosMeasurementResultItem

PosMeasurementResultItem ::= SEQUENCE {
    measuredResultsValue      MeasuredResultsValue,
    timeStamp                  TimeStamp,
    measurementQuality          TRPMeasurementQuality  OPTIONAL,
    measurementBeamInfo         MeasurementBeamInfo     OPTIONAL,
    iE-Extensions              ProtocolExtensionContainer { { PosMeasurementResultItemExtIEs } }  OPTIONAL
}

PosMeasurementResultItemExtIEs  F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-ARP-ID              CRITICALITY ignore EXTENSION ARP-ID              PRESENCE optional}|
    { ID id-SRSResourceType     CRITICALITY ignore EXTENSION SRSResourceType     PRESENCE optional}|
    { ID id-LoS-NLoSInformation CRITICALITY ignore EXTENSION LoS-NLoSInformation PRESENCE optional }|
    { ID id-Mobile-TRP-LocationInformation CRITICALITY ignore EXTENSION Mobile-TRP-LocationInformation PRESENCE optional }|
    { ID id-AggregatedPosSRSResourceIDList CRITICALITY ignore EXTENSION AggregatedPosSRSResourceIDList PRESENCE optional }|
    { ID id-MeasuredFrequencyHops CRITICALITY ignore EXTENSION MeasuredFrequencyHops PRESENCE optional }|
    { ID id-MeasBasedOnAggregatedResources CRITICALITY ignore EXTENSION MeasBasedOnAggregatedResources PRESENCE optional },
    ...
}

PosMeasurementResultList ::= SEQUENCE (SIZE(1.. maxNoOfMeasTRPs)) OF PosMeasurementResultList-Item

PosMeasurementResultList-Item ::= SEQUENCE {
    posMeasurementResult      PosMeasurementResult,
    trpID                      TRPID,
    iE-Extensions              ProtocolExtensionContainer { { PosMeasurementResultList-ItemExtIEs} } OPTIONAL
}

PosMeasurementResultList-ItemExtIEs  F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-NRCGI  CRITICALITY ignore EXTENSION NRCGI  PRESENCE optional },
    ...
}

```

```

}

PosMeasurementType ::= ENUMERATED {
    gnb-rx-tx,
    ul-srs-rsrp,
    ul-aoa,
    ul-rtoa,
    ...,
    multiple-ul-aoa,
    ul-srs-rsrpp,
    ul-rscp
}

PosReportCharacteristics ::= ENUMERATED {
    ondemand,
    periodic,
    ...
}

PosResourceSetType ::= CHOICE {
    periodic          PosResourceSetTypePR,
    semi-persistent   PosResourceSetTypeSP,
    aperiodic         PosResourceSetTypeAP,
    choice-extension   ProtocolIE-SingleContainer {{ PosResourceSetType-ExtIEs }}
}

PosResourceSetType-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

PosResourceSetTypePR ::= SEQUENCE {
    posperiodicSet      ENUMERATED{true, ...},
    iE-Extensions       ProtocolExtensionContainer { { PosResourceSetTypePR-ExtIEs} }    OPTIONAL
}

PosResourceSetTypePR-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PosResourceSetTypeSP ::= SEQUENCE {
    possemi-persistentSet      ENUMERATED{true, ...},
    iE-Extensions              ProtocolExtensionContainer { { PosResourceSetTypeSP-ExtIEs} }    OPTIONAL
}

PosResourceSetTypeSP-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PosResourceSetTypeAP ::= SEQUENCE {
    sRSResourceTrigger-List    INTEGER(1..3),
    iE-Extensions              ProtocolExtensionContainer { { PosResourceSetTypeAP-ExtIEs} }    OPTIONAL
}

PosResourceSetTypeAP-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

```



```

}
...
}

PosSitypeList ::= SEQUENCE (SIZE(1.. maxnoofPosSitypes)) OF PosSitype-Item
PosSitype-Item ::= SEQUENCE {
    posSitype          PosSitype,
    iE-Extensions      ProtocolExtensionContainer { { PosSitype-ItemExtIEs } } OPTIONAL
}

PosSitype-ItemExtIEs      F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PosSitype ::= INTEGER (1..32, ...)

PosSRSResourceID-List ::= SEQUENCE (SIZE (1..maxnoSRS-PosResourcePerSet)) OF SRSPosResourceID

PosSRSResource-Item ::= SEQUENCE {
    srs-PosResourceID          SRSPosResourceID,
    transmissionCombPos        TransmissionCombPos,
    startPosition               INTEGER (0..13),
    nrofSymbols                 ENUMERATED {n1, n2, n4, n8, n12},
    freqDomainShift             INTEGER (0..268),
    c-SRS                       INTEGER (0..63),
    groupOrSequenceHopping      ENUMERATED { neither, groupHopping, sequenceHopping },
    resourceTypePos             ResourceTypePos,
    sequenceId                  INTEGER (0.. 65535),
    spatialRelationPos          SpatialRelationPos OPTIONAL,
    iE-Extensions               ProtocolExtensionContainer { { PosSRSResource-Item-ExtIEs } } OPTIONAL
}

PosSRSResource-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-TxHoppingConfiguration CRITICALITY ignore EXTENSION TxHoppingConfiguration PRESENCE optional},
    ...
}

PosSRSResource-List ::= SEQUENCE (SIZE (1..maxnoSRS-PosResources)) OF PosSRSResource-Item

PosSRSResourceSet-Item ::= SEQUENCE {
    possrsResourceSetID          INTEGER(0..15),
    possrsResourceID-List        PosSRSResourceID-List,
    posresourceSetType           PosResourceSetType,
    iE-Extensions                ProtocolExtensionContainer { { PosSRSResourceSet-Item-ExtIEs } } OPTIONAL
}

PosSRSResourceSet-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PosValidityAreaCellList ::= SEQUENCE (SIZE(1.. maxnoVACell)) OF PosValidityAreaCellList-Item

PosValidityAreaCellList-Item ::= SEQUENCE {
    nRCGI                      NRCGI,
    nRPCI                      INTEGER (0..1007) OPTIONAL,

```

```

    iE-Extensions    ProtocolExtensionContainer { { PosValidityAreaCellList-Item-ExtIEs } } OPTIONAL
}

PosValidityAreaCellList-Item-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
PosSRSResourceSet-List ::= SEQUENCE (SIZE (1..maxnoSRS-PosResourceSets)) OF PosSRSResourceSet-Item

PrimaryPathIndication ::= ENUMERATED {
    true,
    false,
    ...
}

PreambleIndexList ::= SEQUENCE (SIZE (1.. maxnoofLTMCells)) OF PreambleIndexList-Item

PreambleIndexList-Item ::= SEQUENCE {
    preambleIndex      INTEGER (0..63),
    iE-Extensions      ProtocolExtensionContainer { { PreambleIndex-Item-ExtIEs} } OPTIONAL
}

PreambleIndex-Item-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Pre-emptionCapability ::= ENUMERATED {
    shall-not-trigger-pre-emption,
    may-trigger-pre-emption
}

Pre-emptionVulnerability ::= ENUMERATED {
    not-pre-emptable,
    pre-emptable
}

Preconfigured-measurement-GAP-Request ::= ENUMERATED {true, ...}

PriorityLevel    ::= INTEGER { spare (0), highest (1), lowest (14), no-priority (15) } (0..15)

ProtectedEUTRAResourceIndication    ::= OCTET STRING

Protected-EUTRA-Resources-Item ::= SEQUENCE {
    spectrumSharingGroupID      SpectrumSharingGroupID,
    eUTRACells-List             EUTRACells-List,
    iE-Extensions               ProtocolExtensionContainer { { Protected-EUTRA-Resources-ItemExtIEs } } OPTIONAL
}

Protected-EUTRA-Resources-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PRSConfiguration ::= SEQUENCE {
    pRSResourceSet-List      PRSResourceSet-List,
    iE-Extensions            ProtocolExtensionContainer { { PRSConfiguration-ExtIEs } } OPTIONAL
}

```

```

}

PRSCOnfiguration-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  { ID id-AggregatedPRSResourceSetList CRITICALITY ignore EXTENSION AggregatedPRSResourceSetList PRESENCE optional },
  ...
}

PRSCInformationPos ::= SEQUENCE {
  pRS-IDPos INTEGER(0..255),
  pRS-Resource-Set-IDPos INTEGER(0..7),
  pRS-Resource-IDPos INTEGER(0..63) OPTIONAL,
  iE-Extensions ProtocolExtensionContainer { { PRSCInformationPos-ExtIEs } } OPTIONAL
}

PRSCInformationPos-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  ...
}

PRSCMeasurement-Info-List ::= SEQUENCE (SIZE(1..maxFreqLayers)) OF PRSCMeasurement-Info-List-Item

PRSCMeasurement-Info-List-Item ::= SEQUENCE {
  pointA INTEGER (0..3279165),
  measPRSPeriodicity ENUMERATED {ms20, ms40, ms80, ms160, ...},
  measPRSCOffset INTEGER (0..159, ...),
  measurementPRSLength ENUMERATED {ms1dot5, ms3, ms3dot5, ms4, ms5dot5, ms6, ms10, ms20},
  iE-Extensions ProtocolExtensionContainer { { PRSCMeasurement-Info-List-Item-ExtIEs } } OPTIONAL,
  ...
}

PRSCMeasurement-Info-List-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  ...
}

Potential-SpCell-Item ::= SEQUENCE {
  potential-SpCell-ID NRCGI ,
  iE-Extensions ProtocolExtensionContainer { { Potential-SpCell-ItemExtIEs } } OPTIONAL,
  ...
}

Potential-SpCell-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  ...
}

PRSCAngleList ::= SEQUENCE (SIZE(1.. maxnoofPRS-ResourcesPerSet)) OF PRSCAngleItem

PRSCAngleItem ::= SEQUENCE {
  nR-PRS-Azimuth INTEGER (0..359),
  nR-PRS-Azimuth-fine INTEGER (0..9) OPTIONAL,
  nR-PRS-Elevation INTEGER (0..180) OPTIONAL,
  nR-PRS-Elevation-fine INTEGER (0..9) OPTIONAL,
  iE-Extensions ProtocolExtensionContainer { { PRSCAngleItem-ItemExtIEs } } OPTIONAL
}

```

```

PRSAngleItem-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  { ID id-PRS-Resource-ID CRITICALITY ignore EXTENSION PRS-Resource-ID PRESENCE optional },
  ...
}

PRConfigRequestType ::= ENUMERATED {configure, off, ...}

PRSMuting ::= SEQUENCE {
  pRSMutingOption1 PRSMutingOption1 OPTIONAL,
  pRSMutingOption2 PRSMutingOption2 OPTIONAL,
  iE-Extensions ProtocolExtensionContainer { { PRSMuting-ExtIEs } } OPTIONAL
}

PRSMuting-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  ...
}

PRSMutingOption1 ::= SEQUENCE {
  mutingPattern DL-PRSMutingPattern,
  mutingBitRepetitionFactor ENUMERATED{rf1,rf2,rf4,rf8,...},
  iE-Extensions ProtocolExtensionContainer { { PRSMutingOption1-ExtIEs } } OPTIONAL
}

PRSMutingOption1-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  ...
}

PRSMutingOption2 ::= SEQUENCE {
  mutingPattern DL-PRSMutingPattern,
  iE-Extensions ProtocolExtensionContainer { { PRSMutingOption2-ExtIEs } } OPTIONAL
}

PRSMutingOption2-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  ...
}

PRS-Resource-ID ::= INTEGER (0..63)

PRSResource-List ::= SEQUENCE (SIZE (1..maxnoofPRSresources)) OF PRSResource-Item

PRSResource-Item ::= SEQUENCE {
  pRSResourceID PRS-Resource-ID,
  sequenceID INTEGER(0..4095),
  rEOffset INTEGER(0..11,...),
  resourceSlotOffset INTEGER(0..511),
  resourceSymbolOffset INTEGER(0..12),
  qCLInfo PRSResource-QCLInfo OPTIONAL,
  iE-Extensions ProtocolExtensionContainer { { PRSResource-Item-ExtIEs } } OPTIONAL
}

PRSResource-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  { ID id-ExtendedResourceSymbolOffset CRITICALITY ignore EXTENSION ExtendedResourceSymbolOffset PRESENCE optional},
  ...
}

```

```

}

PRSBWAggregationRequestInfoList ::= SEQUENCE (SIZE (1..maxnoAggCombinations)) OF PRSBWAggregationRequestInfo-Item

PRSBWAggregationRequestInfo-Item ::= SEQUENCE {
    dl-PRSBWAggregationRequestInfo-List DL-PRSBWAggregationRequestInfo-List,
    iE-Extensions                        ProtocolExtensionContainer { { PRSBWAggregationRequestInfo-Item-ExtIEs } } OPTIONAL,
    ...
}

PRSBWAggregationRequestInfo-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

DL-PRSBWAggregationRequestInfo-List ::= SEQUENCE (SIZE (2..maxnoAggregatedPosPRSResourceSets)) OF DL-PRSBWAggregationRequestInfo-Item

DL-PRSBWAggregationRequestInfo-Item ::= SEQUENCE {
    dl-prs-ResourceSetIndex            INTEGER (1..8),
    iE-Extensions                      ProtocolExtensionContainer { {DL-PRSBWAggregationRequestInfo-Item-ExtIEs} } OPTIONAL,
    ...
}

DL-PRSBWAggregationRequestInfo-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

ExtendedResourceSymbolOffset ::= INTEGER (0..13,...)

PRSResource-QCLInfo ::= CHOICE {
    qCLSourceSSB          PRSResource-QCLSourceSSB,
    qCLSourcePRS          PRSResource-QCLSourcePRS,
    choice-extension      ProtocolIE-SingleContainer { { PRSResource-QCLInfo-ExtIEs } }
}

PRSResource-QCLInfo-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

PRSResource-QCLSourceSSB ::= SEQUENCE {
    pCI-NR                INTEGER(0..1007),
    SSB-Index              SSB-Index OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { PRSResource-QCLSourceSSB-ExtIEs } } OPTIONAL,
    ...
}

PRSResource-QCLSourceSSB-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PRSResource-QCLSourcePRS ::= SEQUENCE {
    qCLSourcePRSResourceSetID PRS-Resource-Set-ID,
    qCLSourcePRSResourceID    PRS-Resource-ID OPTIONAL,

```

```

    iE-Extensions          ProtocolExtensionContainer { { PRSResource-QCLSourcePRS-ExtIEs } } OPTIONAL
}

PRSResource-QCLSourcePRS-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PRS-Resource-Set-ID ::= INTEGER(0..7)

PRSResourceSet-List ::= SEQUENCE (SIZE (1.. maxnoofPRSresourceSets)) OF PRSResourceSet-Item
PRSResourceSet-Item ::= SEQUENCE {
    pRSResourceSetID          PRS-Resource-Set-ID,
    subcarrierSpacing         ENUMERATED{kHz15, kHz30, kHz60, kHz120, ...},
    pRSbandwidth              INTEGER(1..63),
    startPRB                  INTEGER(0..2176),
    pointA                    INTEGER (0..3279165),
    combSize                  ENUMERATED{n2, n4, n6, n12, ...},
    cPType                    ENUMERATED{normal, extended, ...},
    resourceSetPeriodicity    ENUMERATED{n4, n5, n8, n10, n16, n20, n32, n40, n64, n80, n160, n320, n640, n1280, n2560, n5120, n10240, n20480, n40960,
n81920, ..., n128, n256, n512},
    resourceSetSlotOffset     INTEGER(0..81919, ...),
    resourceRepetitionFactor  ENUMERATED{rf1, rf2, rf4, rf6, rf8, rf16, rf32, ...},
    resourceTimeGap           ENUMERATED{tg1, tg2, tg4, tg8, tg16, tg32, ...},
    resourceNumberOfSymbols   ENUMERATED{n2, n4, n6, n12, ..., n1},
    pRSMuting                 PRSMuting          OPTIONAL,
    pRSResourceTransmitPower  INTEGER(-60..50),
    pRSResource-List         PRSResource-List,
    iE-Extensions            ProtocolExtensionContainer { { PRSResourceSet-Item-ExtIEs } } OPTIONAL
}

PRSResourceSet-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PRSTransmissionOffIndication ::= CHOICE {
    pRSTransmissionOffPerTRP          NULL,
    pRSTransmissionOffPerResourceSet  PRSTransmissionOffPerResourceSet,
    pRSTransmissionOffPerResource     PRSTransmissionOffPerResource,
    choice-extension                  ProtocolIE-SingleContainer { { PRSTransmissionOffIndication-ExtIEs } }
}

PRSTransmissionOffIndication-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

PRSTransmissionOffPerResource ::= SEQUENCE (SIZE (1..maxnoofPRSresourceSets)) OF PRSTransmissionOffPerResource-Item

PRSTransmissionOffPerResource-Item ::= SEQUENCE {
    pRSResourceSetID          PRS-Resource-Set-ID,
    pRSTransmissionOffIndicationPerResourceList SEQUENCE (SIZE(1.. maxnoofPRSresources)) OF PRSTransmissionOffIndicationPerResource-Item,
    iE-Extensions            ProtocolExtensionContainer { { PRSTransmissionOffPerResource-Item-ExtIEs } } OPTIONAL,
    ...
}

```

```

PRSTransmissionOffPerResource-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PRSTransmissionOffIndicationPerResource-Item ::= SEQUENCE {
    pRSResourceID          PRS-Resource-ID,
    iE-Extensions          ProtocolExtensionContainer { { PRSTransmissionOffIndicationPerResource-Item-ExtIEs } } OPTIONAL,
    ...
}

PRSTransmissionOffIndicationPerResource-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PRSTransmissionOffInformation ::= SEQUENCE {
    pRSTransmissionOffIndication PRSTransmissionOffIndication,
    iE-Extensions                ProtocolExtensionContainer { { PRSTransmissionOffInformation-ExtIEs } } OPTIONAL,
    ...
}

PRSTransmissionOffInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PRSTransmissionOffPerResourceSet ::= SEQUENCE (SIZE (1..maxnoofPRSresourceSets)) OF PRSTransmissionOffPerResourceSet-Item

PRSTransmissionOffPerResourceSet-Item ::= SEQUENCE {
    pRSResourceSetID          PRS-Resource-Set-ID,
    iE-Extensions            ProtocolExtensionContainer { { PRSTransmissionOffPerResourceSet-Item-ExtIEs } } OPTIONAL,
    ...
}

PRSTransmissionOffPerResourceSet-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PWS-Failed-NR-CGI-Item ::= SEQUENCE {
    nRCGI                    NRCGI,
    numberOfBroadcasts        NumberOfBroadcasts,
    iE-Extensions            ProtocolExtensionContainer { { PWS-Failed-NR-CGI-ItemExtIEs } } OPTIONAL,
    ...
}

PWS-Failed-NR-CGI-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PWSSystemInformation ::= SEQUENCE {
    sIBtype                  SIBType-PWS,
    sIBmessage                OCTET STRING,
    iE-Extensions            ProtocolExtensionContainer { { PWSSystemInformationExtIEs } } OPTIONAL,
    ...
}

```

```

PWSSystemInformationExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    {ID id-NotificationInformation      CRITICALITY ignore  EXTENSION NotificationInformation      PRESENCE optional}|
    { ID id-AdditionalSIBMessageList    CRITICALITY reject  EXTENSION AdditionalSIBMessageList    PRESENCE optional},
    ...
}

PrivacyIndicator ::= ENUMERATED {immediate-MDT, logged-MDT, ...}

PRSTRPList ::= SEQUENCE (SIZE(1.. maxnoofTRPs)) OF PRSTRPItem

PRSTRPItem ::= SEQUENCE {
    trp-ID          TRPID,
    requestedDLPRSTransmissionCharacteristics RequestedDLPRSTransmissionCharacteristics OPTIONAL,
    -- The IE shall be present if the PRS Configuration Request Type IE is set to "configure" --
    prSTransmissionOffInformation PRSTransmissionOffInformation OPTIONAL,
    -- The IE shall be present if the PRS Configuration Request Type IE is set to "off" --

    iE-Extensions ProtocolExtensionContainer { { PRSTRPItem-ExtIEs} } OPTIONAL,
    ...
}

PRSTRPItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

RequestedDLPRSTransmissionCharacteristics ::= SEQUENCE {
    requestedDLPRSResourceSet-List RequestedDLPRSResourceSet-List,
    numberOfFrequencyLayers        INTEGER(1..4) OPTIONAL,
    startTimeAndDuration            StartTimeAndDuration OPTIONAL,
    iE-Extensions ProtocolExtensionContainer { { RequestedDLPRSTransmissionCharacteristics-ExtIEs} } OPTIONAL,
    ...
}

RequestedDLPRSTransmissionCharacteristics-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    {ID id-PRSBWAggregationRequestInfoList CRITICALITY ignore EXTENSION PRSBWAggregationRequestInfoList PRESENCE optional},
    ...
}

RequestedDLPRSResourceSet-List ::= SEQUENCE (SIZE (1..maxnoofPRSresourceSets)) OF RequestedDLPRSResourceSet-Item

RequestedDLPRSResourceSet-Item ::= SEQUENCE {
    prSbandwidth        INTEGER(1..63) OPTIONAL,
    combSize            ENUMERATED{n2, n4, n6, n12, ...} OPTIONAL,
    resourceSetPeriodicity ENUMERATED{n4, n5, n8, n10, n16, n20, n32, n40, n64, n80, n160, n320, n640, n1280, n2560, n5120, n10240, n20480, n40960, n81920, ..., n128, n256, n512} OPTIONAL,
    resourceRepetitionFactor ENUMERATED{rf1, rf2, rf4, rf6, rf8, rf16, rf32, ...} OPTIONAL,
    resourceNumberOfSymbols ENUMERATED{n2, n4, n6, n12, ..., n1} OPTIONAL,
    requestedDLPRSResource-List RequestedDLPRSResource-List OPTIONAL,
    resourceSetStartTimeAndDuration StartTimeAndDuration OPTIONAL,
    iE-Extensions ProtocolExtensionContainer { { RequestedDLPRSResourceSet-Item-ExtIEs} } OPTIONAL,
    ...
}

```



```

RequestedDLPRSResourceSet-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

RequestedDLPRSResource-List ::= SEQUENCE (SIZE (1..maxnoofPRSresources)) OF RequestedDLPRSResource-Item

RequestedDLPRSResource-Item ::= SEQUENCE {
    qCLInfo          PRSResource-QCLInfo          OPTIONAL,
    iE-Extensions    ProtocolExtensionContainer { { RequestedDLPRSResource-Item-ExtIEs } } OPTIONAL,
    ...
}

RequestedDLPRSResource-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PRSTransmissionTRPList ::= SEQUENCE (SIZE(1.. maxnoofTRPs)) OF PRSTransmissionTRPItem

PRSTransmissionTRPItem ::= SEQUENCE {
    tRP-ID          TRPID,
    pRSConfiguration PRSConfiguration,
    iE-Extensions    ProtocolExtensionContainer { { PRSTransmissionTRPItem-ExtIEs } } OPTIONAL,
    ...
}

PRSTransmissionTRPItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PreambleIndex ::= INTEGER(0..63)

PDUSetQoSParameters ::= SEQUENCE {
    ulPDUSetQoSInformation          PDUSetQoSInformation          OPTIONAL,
    dlPDUSetQoSInformation          PDUSetQoSInformation          OPTIONAL,
    iE-Extensions                  ProtocolExtensionContainer { { PDUSetQoSParameters-ExtIEs } } OPTIONAL
}

PDUSetQoSParameters-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PDUSetQoSInformation ::= SEQUENCE {
    pduSetDelayBudget          ExtendedPacketDelayBudget          OPTIONAL,
    pduSetErrorRate            PacketErrorRate                    OPTIONAL,
    pduSetIntegratedHandlingInformation ENUMERATED {true, false, ...} OPTIONAL,
    iE-Extensions              ProtocolExtensionContainer { { PDUSetQoSInformation-ExtIEs } } OPTIONAL
}

PDUSetQoSInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

PSIbasedSDUdiscardUL ::= ENUMERATED {start, stop, ...}

```

```

PointA ::= INTEGER (0..3279165)

PSCellList ::= SEQUENCE (SIZE(1..maxnoofCH0cells)) OF PSCellList-Item

PSCellList-Item ::= SEQUENCE {
    pscell                NRCGI,
    iE-Extensions         ProtocolExtensionContainer { { PSCellList-Item-ExtIEs} } OPTIONAL
}

PSCellList-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

-- Q

QCI ::= INTEGER (0..255)

QoEInformation ::= SEQUENCE {
    qoEInformationList    QoEInformationList,
    iE-Extensions         ProtocolExtensionContainer { { QoEInformation-ExtIEs} } OPTIONAL
}

QoEInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

QoEInformationList ::= SEQUENCE (SIZE(1.. maxnoofQoEInformation)) OF QoEInformationList-Item

QoEInformationList-Item ::= SEQUENCE {
    qoEMetrics            QoEMetrics OPTIONAL,
    iE-Extensions         ProtocolExtensionContainer { { QoEInformationList-Item-ExtIEs} } OPTIONAL
}

QoEInformationList-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    {ID id-drb-List CRITICALITY ignore EXTENSION DRB-List PRESENCE optional},
    ...
}

QoEMetrics ::= SEQUENCE {
    appLayerBufferLevelList AppLayerBufferLevelList OPTIONAL,
    playoutDelayForMediaStartup PlayoutDelayForMediaStartup OPTIONAL,
    iE-Extensions           ProtocolExtensionContainer { { QoEMetrics-ExtIEs} } OPTIONAL,
    ...
}

QoEMetrics-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

QoS-Characteristics ::= CHOICE {

```

```

    non-Dynamic-5QI          NonDynamic5QIDescriptor,
    dynamic-5QI              Dynamic5QIDescriptor,
    choice-extension         ProtocolIE-SingleContainer { { QoS-Characteristics-ExtIEs } }
}

QoS-Characteristics-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

QoSFlowIdentifier ::= INTEGER (0..63)

QoSFlowLevelQoSParameters ::= SEQUENCE {
    qoS-Characteristics          QoS-Characteristics,
    nGRANAllocationRetentionPriority NGRANAllocationAndRetentionPriority,
    gBR-QoS-Flow-Information     GBR-QoSFlowInformation OPTIONAL,
    reflective-QoS-Attribute     ENUMERATED {subject-to, ...} OPTIONAL,
    iE-Extensions                ProtocolExtensionContainer { { QoSFlowLevelQoSParameters-ExtIEs } } OPTIONAL
}

QoSFlowLevelQoSParameters-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-PDUSessionID          CRITICALITY ignore EXTENSION PDUSessionID          PRESENCE optional}|
    { ID id-ULPDUSessionAggregateMaximumBitRate CRITICALITY ignore EXTENSION BitRate          PRESENCE optional}|
    { ID id-QoSMonitoringRequest  CRITICALITY ignore EXTENSION QoSMonitoringRequest PRESENCE optional}|
    { ID id-PDCPTerminatingNodeDLTNLAddrInfo   CRITICALITY ignore EXTENSION TransportLayerAddress PRESENCE optional}|
    { ID id-PDUSetQoSParameters    CRITICALITY ignore EXTENSION PDUSetQoSParameters  PRESENCE optional},
    ...
}

QoSFlowMappingIndication ::= ENUMERATED {ul,dl,...}

QoSInformation ::= CHOICE {
    eUTRANQoS          EUTRANQoS,
    choice-extension   ProtocolIE-SingleContainer { { QoSInformation-ExtIEs } }
}

QoSInformation-ExtIEs F1AP-PROTOCOL-IES ::= {
    { ID id-DRB-Information          CRITICALITY ignore TYPE DRB-Information          PRESENCE mandatory},
    ...
}

QoSMonitoringRequest ::= ENUMERATED {ul, dl, both, ..., stop}

QoSParaSetIndex ::= INTEGER (1..8, ...)

QoSParaSetNotifyIndex ::= INTEGER (0..8, ...)

-- R

RACH-Config-Common ::= OCTET STRING

RACH-Config-Common-IAB ::= OCTET STRING

Range ::= ENUMERATED {m50, m80, m180, m200, m350, m400, m500, m700, m1000, ...}

```

RRReportContainer ::= OCTET STRING

RRReportList ::= SEQUENCE (SIZE(1.. maxnoofRRReports)) OF RRReportItem

```
RRReportItem ::= SEQUENCE {
    rRReportContainer          RRReportContainer,
    uEAssitantIdentifier       GNB-DU-UE-F1AP-ID          OPTIONAL,
    iE-Extensions              ProtocolExtensionContainer { { RRReportItem-ExtIEs} } OPTIONAL,
    ...
}
```

```
RRReportItem-ExtIEs      F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
```

RRReportIndicationList ::= SEQUENCE (SIZE(1..maxnoofUEsforRRReportIndications)) OF RRReportIndicationList-Item

```
RRReportIndicationList-Item ::= SEQUENCE {
    gNB-CU-UE-F1AP-ID          GNB-CU-UE-F1AP-ID,
    iE-Extensions              ProtocolExtensionContainer { { RRReportIndicationList-Item-ExtIEs} } OPTIONAL,
    ...
}
```

```
RRReportIndicationList-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
RadioResourceStatus ::= SEQUENCE {
    sSBAreaRadioResourceStatusList    SSBAreaRadioResourceStatusList,
    iE-Extensions      ProtocolExtensionContainer { { RadioResourceStatus-ExtIEs} } OPTIONAL
}
```

```
RadioResourceStatus-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-SliceRadioResourceStatus      CRITICALITY ignore EXTENSION SliceRadioResourceStatus      PRESENCE optional }|
    { ID id-MIMOPRUsageInformation         CRITICALITY ignore EXTENSION MIMOPRUsageInformation         PRESENCE optional },
    ...
}
```

```
RadioResourceStatusNR-U ::= SEQUENCE {
    dl-Total-PRB-usage  INTEGER (0..100),
    ul-Total-PRB-usage  INTEGER (0..100),
    iE-Extensions       ProtocolExtensionContainer { { RadioResourceStatusNR-U-ExtIEs} } OPTIONAL,
    ...
}
```

```
RadioResourceStatusNR-U-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
MIMOPRUsageInformation ::= SEQUENCE {
    dl-GBR-PRB-usage-for-MIMO  INTEGER (0..100),
    ul-GBR-PRB-usage-for-MIMO  INTEGER (0..100),
    ...
}
```

```

    dl-non-GBR-PRB-usage-for-MIMO    INTEGER (0..100),
    ul-non-GBR-PRB-usage-for-MIMO    INTEGER (0..100),
    dl-Total-PRB-usage-for-MIMO      INTEGER (0..100),
    ul-Total-PRB-usage-for-MIMO      INTEGER (0..100),
    iE-Extensions                     ProtocolExtensionContainer { { MIMOPRBusageInformation-ExtIEs } } OPTIONAL,
    ...
}

MIMOPRBusageInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

RANfeedbacktype ::= CHOICE {
    proactive          RANfeedbacktype-proactive,
    reactive           RANfeedbacktype-reactive,
    choice-extensions  ProtocolIE-SingleContainer { {RANfeedbacktype-ExtIEs} }
}

RANfeedbacktype-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

RANfeedbacktype-proactive ::= SEQUENCE {
    burstArrivalTimeWindow BurstArrivalTimeWindow,
    periodicityRange        PeriodicityRange    OPTIONAL,
    iE-Extension            ProtocolExtensionContainer { {RANfeedbacktype-proactive-ExtIEs} }    OPTIONAL,
    ...
}

RANfeedbacktype-proactive-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

RANfeedbacktype-reactive ::= SEQUENCE {
    capabilityForBATAdaptation ENUMERATED {true, ...},
    iE-Extension              ProtocolExtensionContainer { {RANfeedbacktype-reactive-ExtIEs} }    OPTIONAL,
    ...
}

RANfeedbacktype-reactive-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

RANSharingAssistanceInformation ::= ENUMERATED {
    mbs-session-in-non-shared-cell-resources,
    ...
}

RANTSSRequestType ::= ENUMERATED {start, stop, ...}

RANTimingSynchronisationStatusInfo ::= SEQUENCE {
    synchronisationstate    ENUMERATED {locked, holdover, freeRun, ...}    OPTIONAL,
    traceabletoUTC          ENUMERATED { true, false, ...}                OPTIONAL,
    traceabletoGNSS         ENUMERATED { true, false, ...}                OPTIONAL,

```

```

    clockFrequencyStability      BIT STRING (SIZE(16))                OPTIONAL,
    clockAccuracy                ClockAccuracy                       OPTIONAL,
    parentTimeSource             ParentTimeSource                   OPTIONAL,
    iE-Extensions                ProtocolExtensionContainer { { RANTimingSynchronisationStatusInfo-ExtIEs } } OPTIONAL,
    ...
}

RANTimingSynchronisationStatusInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

ClockAccuracy ::= CHOICE {
    clockAccuracyValue          INTEGER (1..400000000, ...),
    clockAccuracyIndex          INTEGER (32..47, ...),
    choice-Extensions           ProtocolIE-SingleContainer { { ClockAccuracy-ExtIEs } }
}

ClockAccuracy-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

RANAC ::= INTEGER (0..255)

RAN-MeasurementID ::= INTEGER (1.. 65536, ...)

RAN-UE-MeasurementID ::= INTEGER (1.. 256, ...)

RAN-UE-PDC-MeasID ::= INTEGER (1..16, ...)

RANUEID ::= OCTET STRING (SIZE (8))

RANUEPagingIdentity ::= SEQUENCE {
    iRNTI                      BIT STRING (SIZE(40)),
    iE-Extensions              ProtocolExtensionContainer { { RANUEPagingIdentity-ExtIEs } } OPTIONAL
}

RANUEPagingIdentity-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

RAT-FrequencyPriorityInformation ::= CHOICE {
    eNDC                      SubscriberProfileIDforRFP,
    nGRAN                     RAT-FrequencySelectionPriority,
    choice-extension           ProtocolIE-SingleContainer { { RAT-FrequencyPriorityInformation-ExtIEs } }
}

RAT-FrequencyPriorityInformation-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

RAT-FrequencySelectionPriority ::= INTEGER (1.. 256, ...)

RBSetConfiguration ::= SEQUENCE {
    subcarrierSpacing          SubcarrierSpacing,
    rBSetSize                  RBSetSize,

```

```

    nUmberRBsets          INTEGER(1..maxnoofRBsetsPerCell),
    iE-Extensions         ProtocolExtensionContainer { { RBSetsConfiguration-ExtIEs} } OPTIONAL
}

RBSetsConfiguration-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

RBSetsSize ::= ENUMERATED { rb2, rb4, rb8, rb16, rb32, rb64}

Re-routingEnableIndicator ::= ENUMERATED {
    true,
    false,
    ...
}

Recommended-SSBs-for-Paging-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF Recommended-SSBs-for-Paging-List-Item

Recommended-SSBs-for-Paging-List-Item ::= SEQUENCE {
    nRCGI          NRCGI,
    sSBs-forPaging-List  SSBs-forPaging-List,
    iE-Extensions   ProtocolExtensionContainer { { Recommended-SSBs-for-Paging-List-Item-ExtIEs} } OPTIONAL
}

Recommended-SSBs-for-Paging-List-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Redcap-Bcast-Information ::= BIT STRING(SIZE(8))

RedCapIndication ::= ENUMERATED {true, ...}

Reestablishment-Indication ::= ENUMERATED {
    reestablished,
    ...
}

ReferencePoint ::= CHOICE {
    coordinateID          CoordinateID,
    referencePointCoordinate  AccessPointPosition,
    referencePointCoordinateHA  NGRANHighAccuracyAccessPointPosition,
    choice-Extension       ProtocolIE-SingleContainer { { ReferencePoint-ExtIEs} }
}

ReferencePoint-ExtIEs F1AP-PROTOCOL-IES ::= {
    {ID id-LocalOrigin  CRITICALITY ignore TYPE LocalOrigin PRESENCE mandatory},
    ...
}

LocalOrigin ::= SEQUENCE {

```

```

        relativeCoordinateID      CoordinateID,
        horizontalAxesOrientation INTEGER (0..3599),
        referencePointCoordinateHA NGRANHighAccuracyAccessPointPosition OPTIONAL,
        iE-Extensions             ProtocolExtensionContainer { { LocalOrigin-ExtIEs } } OPTIONAL,
        ...
    }

LocalOrigin-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

ReferenceSFN ::= INTEGER (0..1023)

ReferenceSignal ::= CHOICE {
    nZP-CSI-RS          NZP-CSI-RS-ResourceID,
    SSB                 SSB,
    SRS                 SRSResourceID,
    positioningSRS      SRSPosResourceID,
    dL-PRS              DL-PRS,
    choice-extension    ProtocolIE-SingleContainer {{ReferenceSignal-ExtIEs }}
}

ReferenceSignal-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

RA-RNTI ::= INTEGER (0..65535, ...)

ReferenceConfiguration ::= CHOICE {
    rREQUESTforLowerLayerConfiguration RequestforLowerLayerConfiguration,
    referenceConfiguration              ReferenceConfigurationInformation,
    choice-extension ProtocolIE-SingleContainer { { ReferenceConfiguration-ExtIEs } }
}

ReferenceConfiguration-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

RelativeCartesianLocation ::= SEQUENCE {
    xYZunit      ENUMERATED {mm, cm, dm, ...},
    xvalue       INTEGER (-65536..65535),
    yvalue       INTEGER (-65536..65535),
    zvalue       INTEGER (-32768..32767),
    locationUncertainty LocationUncertainty,
    iE-Extensions    ProtocolExtensionContainer { { RelativeCartesianLocation-ExtIEs } } OPTIONAL
}

RelativeCartesianLocation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

RelativeGeodeticLocation ::= SEQUENCE {

```



```
    milli-Arc-SecondUnits      ENUMERATED {zerodot03, zerodot3, three, ...},
    heightUnits                ENUMERATED {mm, cm, m, ...},
    deltaLatitude               INTEGER (-1024.. 1023),
    deltaLongitude              INTEGER (-1024.. 1023),
    deltaHeight                 INTEGER (-1024.. 1023),
    locationUncertainty         LocationUncertainty,
    iE-extensions               ProtocolExtensionContainer {{RelativeGeodeticLocation-ExtIEs }} OPTIONAL
}

RelativeGeodeticLocation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

RemoteUELocalID ::= INTEGER (0..255, ...)

ReferenceTime ::= OCTET STRING

RegistrationRequest ::= ENUMERATED{start, stop, add, ...}

ReportCharacteristics ::= BIT STRING (SIZE(32))

ReportingGranularitykminus1 ::= INTEGER(0..3940097)

ReportingGranularitykminus2 ::= INTEGER(0..7880193)

ReportingGranularitykminus3 ::= INTEGER(0..15760385)

ReportingGranularitykminus4 ::= INTEGER(0..31520769)

ReportingGranularitykminus5 ::= INTEGER(0..63041537)

ReportingGranularitykminus6 ::= INTEGER(0..126083073)

ReportingGranularitykminus1AdditionalPath ::= INTEGER(0..32701)

ReportingGranularitykminus2AdditionalPath ::= INTEGER(0..65401)

ReportingGranularitykminus3AdditionalPath ::= INTEGER(0..130801)

ReportingGranularitykminus4AdditionalPath ::= INTEGER(0..261601)

ReportingGranularitykminus5AdditionalPath ::= INTEGER(0..523201)

ReportingGranularitykminus6AdditionalPath ::= INTEGER(0..1046401)

ReportingPeriodicity ::= ENUMERATED{ms500, ms1000, ms2000, ms5000, ms10000, ...}

RequestedBandCombinationIndex ::= OCTET STRING
```

RequestedFeatureSetEntryIndex ::= OCTET STRING

RequestedP-MaxFR2 ::= OCTET STRING

Requested-PDCCH-BlindDetectionSCG ::= OCTET STRING

RequestedSRSPreconfigurationCharacteristics-List ::= SEQUENCE (SIZE (1.. maxnoPreconfiguredSRS)) OF RequestedSRSPreconfigurationCharacteristics-Item

RequestedSRSPreconfigurationCharacteristics-Item ::= SEQUENCE {  
     requestedSRSTransmissionCharacteristics RequestedSRSTransmissionCharacteristics,  
     iE-Extensions ProtocolExtensionContainer {{ RequestedSRSPreconfigurationCharacteristics-Item-ExtIEs }} OPTIONAL,  
     ...  
 }

RequestedSRSPreconfigurationCharacteristics-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {  
     ...  
 }

RequestedSRSTransmissionCharacteristics ::= SEQUENCE {  
     numberOfTransmissions INTEGER (0..500, ...) OPTIONAL,  
     -- The above IE shall be present if the Resource Type IE is set to "periodic" --  
     resourceType ENUMERATED {periodic, semi-persistent, aperiodic,...},  
     bandwidthSRS BandwidthSRS,  
     srsResourceSetList SRSResourceSetList OPTIONAL,  
     ssbInformation SSBInformation OPTIONAL,  
     iE-Extensions ProtocolExtensionContainer { { RequestedSRSTransmissionCharacteristics-ExtIEs } } OPTIONAL  
 }

RequestedSRSTransmissionCharacteristics-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {  
     { ID id-SrsFrequency CRITICALITY ignore EXTENSION SrsFrequency PRESENCE optional }|  
     { ID id-BW-Aggregation-Request-Indication CRITICALITY ignore EXTENSION BW-Aggregation-Request-Indication PRESENCE optional }|  
     { ID id-PosValidityAreaCellList CRITICALITY ignore EXTENSION PosValidityAreaCellList PRESENCE optional }|  
     { ID id-ValidityAreaSpecificSRSInformation CRITICALITY ignore EXTENSION ValidityAreaSpecificSRSInformation PRESENCE optional }|  
     { ID id-ValidityAreaSpecificSRSInformationExtended CRITICALITY ignore EXTENSION ValidityAreaSpecificSRSInformationExtended PRESENCE optional },  
     ...  
 }

RequestType ::= ENUMERATED {offer, execution, ...}

ResourceCoordinationEUTRACellInfo ::= SEQUENCE {  
     eUTRA-Mode-Info EUTRA-Coex-Mode-Info,  
     eUTRA-PRACH-Configuration EUTRA-PRACH-Configuration,  
     iE-Extensions ProtocolExtensionContainer { { ResourceCoordinationEUTRACellInfo-ExtIEs } } OPTIONAL,  
     ...  
 }

ResourceCoordinationEUTRACellInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {  
     {ID id-IgnorePRACHConfiguration CRITICALITY reject EXTENSION IgnorePRACHConfiguration PRESENCE optional },  
     ...  
 }

ResourceCoordinationTransferInformation ::= SEQUENCE {

```

    meNB-Cell-ID          EUTRA-Cell-ID,
    resourceCoordinationEUTRACellInfo  ResourceCoordinationEUTRACellInfo  OPTIONAL,
    iE-Extensions  ProtocolExtensionContainer { { ResourceCoordinationTransferInformation-ExtIEs } }  OPTIONAL,
    ...
}

ResourceCoordinationTransferInformation-ExtIEs  F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

ResourceCoordinationTransferContainer ::= OCTET STRING

ResourceMapping ::= SEQUENCE {
    startPosition          INTEGER (0..13),
    nrofSumbols            ENUMERATED {n1, n2, n4, n8, n12},
    iE-Extensions          ProtocolExtensionContainer { { ResourceMapping-ExtIEs } }  OPTIONAL,
    ...
}

ResourceMapping-ExtIEs  F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

ResourceSetType ::= CHOICE {
    periodic              ResourceSetTypePeriodic,
    semi-persistent       ResourceSetTypeSemi-persistent,
    aperiodic             ResourceSetTypeAperiodic,
    choice-extension      ProtocolIE-SingleContainer {{ ResourceSetType-ExtIEs }}
}

ResourceSetType-ExtIEs  F1AP-PROTOCOL-IES ::= {
    ...
}

ResourceSetTypePeriodic ::= SEQUENCE {
    periodicSet           ENUMERATED{true, ...},
    iE-Extensions          ProtocolExtensionContainer { { ResourceSetTypePeriodic-ExtIEs } }  OPTIONAL
}

ResourceSetTypePeriodic-ExtIEs  F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

ResourceSetTypeSemi-persistent ::= SEQUENCE {
    semi-persistentSet     ENUMERATED{true, ...},
    iE-Extensions          ProtocolExtensionContainer { { ResourceSetTypeSemi-persistent-ExtIEs } }  OPTIONAL
}

ResourceSetTypeSemi-persistent-ExtIEs  F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

ResourceSetTypeAperiodic ::= SEQUENCE {
    srsResourceTrigger-List    INTEGER(1..3),
    slotoffset                 INTEGER(0..32),
    iE-Extensions              ProtocolExtensionContainer { { ResourceSetTypeAperiodic-ExtIEs } } OPTIONAL
}

```

```

ResourceSetTypeAperiodic-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

RepetitionFactorExtended ::= ENUMERATED {n3, n5, n6, n7, n8, n10, n12, n14, ...}
RepetitionPeriod ::= INTEGER (0..131071, ...)

```

```

ReportingRequestType ::= SEQUENCE {
    eventType                  EventType,
    reportingPeriodicityValue ReportingPeriodicityValue OPTIONAL,
    -- The above IE shall be present if the Event Type IE is set to "periodic" in the Event Type IE.
    iE-Extensions             ProtocolExtensionContainer { {ReportingRequestType-ExtIEs} } OPTIONAL
}

```

```

ReportingRequestType-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

ResourceType ::= CHOICE {
    periodic      ResourceTypePeriodic,
    semi-persistent ResourceTypeSemi-persistent,
    aperiodic     ResourceTypeAperiodic,
    choice-extension ProtocolIE-SingleContainer {{ ResourceType-ExtIEs }}
}

```

```

ResourceType-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

```

```

ResourceTypePeriodic ::= SEQUENCE {
    periodicity    ENUMERATED{slot1, slot2, slot4, slot5, slot8, slot10, slot16, slot20, slot32, slot40, slot64, slot80, slot160, slot320,
slot640, slot1280, slot2560, ...},
    offset         INTEGER(0..2559, ...),
    iE-Extensions  ProtocolExtensionContainer { { ResourceTypePeriodic-ExtIEs } } OPTIONAL
}

```

```

ResourceTypePeriodic-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

ResourceTypeSemi-persistent ::= SEQUENCE {
    periodicity    ENUMERATED{slot1, slot2, slot4, slot5, slot8, slot10, slot16, slot20, slot32, slot40, slot64, slot80, slot160, slot320,
slot640, slot1280, slot2560, ...},
    offset         INTEGER(0..2559, ...),
    iE-Extensions  ProtocolExtensionContainer { { ResourceTypeSemi-persistent-ExtIEs } } OPTIONAL
}

```

```

ResourceTypeSemi-persistent-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

```

```

}
...
ResourceTypeAperiodic ::= SEQUENCE {
    aperiodicResourceType      ENUMERATED{true, ...},
    iE-Extensions              ProtocolExtensionContainer { { ResourceTypeAperiodic-ExtIEs } } OPTIONAL
}

ResourceTypeAperiodic-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

ResourceTypePos ::= CHOICE {
    periodic                  ResourceTypePeriodicPos,
    semi-persistent           ResourceTypeSemi-persistentPos,
    aperiodic                 ResourceTypeAperiodicPos,
    choice-extension          ProtocolIE-SingleContainer {{ ResourceTypePos-ExtIEs }}
}

ResourceTypePos-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

ResourceTypePeriodicPos ::= SEQUENCE {
    periodicity               SRS-Periodicity,
    offset                    INTEGER(0..81919, ...),
    iE-Extensions             ProtocolExtensionContainer { { ResourceTypePeriodicPos-ExtIEs } } OPTIONAL
}

ResourceTypePeriodicPos-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-SRSPosPeriodicConfigHyperSFNIndex          CRITICALITY ignore EXTENSION SRSPosPeriodicConfigHyperSFNIndex          PRESENCE optional },
    ...
}

ResourceTypeSemi-persistentPos ::= SEQUENCE {
    periodicity               SRS-Periodicity,
    offset                    INTEGER(0..81919, ...),
    iE-Extensions             ProtocolExtensionContainer { { ResourceTypeSemi-persistentPos-ExtIEs } } OPTIONAL
}

ResourceTypeSemi-persistentPos-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-SRSPosPeriodicConfigHyperSFNIndex          CRITICALITY ignore EXTENSION SRSPosPeriodicConfigHyperSFNIndex          PRESENCE optional },
    ...
}

ResourceTypeAperiodicPos ::= SEQUENCE {
    slotOffset                INTEGER (0..32),
    iE-Extensions             ProtocolExtensionContainer { { ResourceTypeAperiodicPos-ExtIEs } } OPTIONAL
}

ResourceTypeAperiodicPos-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

RLCDuplicationInformation ::= SEQUENCE {
    rLCDuplicationStateList      RLCDuplicationStateList,
    primaryPathIndication        PrimaryPathIndication OPTIONAL,
    iE-Extensions                ProtocolExtensionContainer { {RLCDuplicationInformation-ExtIEs} } OPTIONAL
}

RLCDuplicationInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

RLCDuplicationStateList ::= SEQUENCE (SIZE(1..maxnoofRLCDuplicationState)) OF RLCDuplicationState-Item

RLCDuplicationState-Item ::=SEQUENCE {
    duplicationState             DuplicationState,
    iE-Extensions                ProtocolExtensionContainer { {RLCDuplicationState-Item-ExtIEs } } OPTIONAL,
    ...
}

RLCDuplicationState-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

RLCFailureIndication ::= SEQUENCE {
    associatedLCID                LCID,
    iE-Extensions                ProtocolExtensionContainer { {RLCFailureIndication-ExtIEs} } OPTIONAL
}

RLCFailureIndication-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

RLCMode ::= ENUMERATED {
    rlc-am,
    rlc-um-bidirectional,
    rlc-um-unidirectional-ul,
    rlc-um-unidirectional-dl,
    ...
}

RLC-Status ::= SEQUENCE {
    reestablishment-Indication    Reestablishment-Indication,
    iE-Extensions                ProtocolExtensionContainer { { RLC-Status-ExtIEs } } OPTIONAL,
    ...
}

RLC-Status-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

RLFReportInformationList ::= SEQUENCE (SIZE(1.. maxnoofRLFReports)) OF RLFReportInformationItem

RLFReportInformationItem ::= SEQUENCE {
    nRUERLFReportContainer        nRUERLFReportContainer,

```

```

    uEAssitantIdentifier      GNB-DU-UE-F1AP-ID      OPTIONAL,
    iE-Extensions             ProtocolExtensionContainer { { RLFReportInformationItem-ExtIEs } } OPTIONAL,
    ...
}

RLFReportInformationItem-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

RIMRSDetectionStatus ::= ENUMERATED {rs-detected, rs-disappeared, ...}

RRCContainer ::= OCTET STRING

RRCContainer-RRCSetupComplete ::= OCTET STRING

RRCDeliveryStatus ::= SEQUENCE {
    delivery-status          PDCP-SN,
    triggering-message       PDCP-SN,
    iE-Extensions            ProtocolExtensionContainer { { RRCDeliveryStatus-ExtIEs } } OPTIONAL}

RRCDeliveryStatus-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

RRCDeliveryStatusRequest ::= ENUMERATED {true, ...}

RRCReconfigurationCompleteIndicator ::= ENUMERATED {
    true,
    ...,
    failure
}

RRC-Terminating-IAB-Donor-Related-Info ::= SEQUENCE {
    rRC-TerminatingIAB-Donor-gNB-ID      GlobalGNB-ID,
    mobileIAB-MT-BAP-Address             BAPAddress,
    iE-Extensions                        ProtocolExtensionContainer { { RRC-Terminating-IAB-Donor-Related-Info-ExtIEs } } OPTIONAL,
    ...
}

RRC-Terminating-IAB-Donor-Related-Info-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

RRC-Version ::= SEQUENCE {
    latest-RRC-Version          BIT STRING (SIZE(3)),
    iE-Extensions               ProtocolExtensionContainer { { RRC-Version-ExtIEs } }    OPTIONAL}

RRC-Version-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    {ID id-latest-RRC-Version-Enhanced      CRITICALITY ignore EXTENSION OCTET STRING (SIZE(3))    PRESENCE optional },
    ...
}

```

RoutingID ::= OCTET STRING

```
ResponseTime ::= SEQUENCE {
    time          INTEGER (1..128,...),
    timeUnit      ENUMERATED {second, ten-seconds, ten-milliseconds,...},
    iE-Extensions ProtocolExtensionContainer { { ResponseTime-ExtIEs } } OPTIONAL,
    ...
}
```

```
ResponseTime-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
```

RACHConfiguration ::= OCTET STRING

RequestforRACHConfiguration ::= ENUMERATED {true, ...}

RequestforLowerLayerConfiguration ::= ENUMERATED {true, ...}

RxTxTimingErrorMargin ::= ENUMERATED {tc0dot5, tc1, tc2, tc4, tc8, tc12, tc16, tc20, tc24, tc32, tc40, tc48, tc64, tc80, tc96, tc128, ...}

ReportingIntervalIMS ::= INTEGER (1.. 999)

-- S

```
SCell-FailedtoSetup-Item ::= SEQUENCE {
    sCell-ID      NRCGI ,
    cause         Cause OPTIONAL ,
    iE-Extensions ProtocolExtensionContainer { { SCell-FailedtoSetup-ItemExtIEs } } OPTIONAL,
    ...
}
```

```
SCell-FailedtoSetup-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
SCell-FailedtoSetupMod-Item ::= SEQUENCE {
    sCell-ID      NRCGI ,
    cause         Cause OPTIONAL ,
    iE-Extensions ProtocolExtensionContainer { { SCell-FailedtoSetupMod-ItemExtIEs } } OPTIONAL,
    ...
}
```

```
SCell-FailedtoSetupMod-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
SCell-ToBeRemoved-Item ::= SEQUENCE {
    sCell-ID      NRCGI ,
    iE-Extensions ProtocolExtensionContainer { { SCell-ToBeRemoved-ItemExtIEs } } OPTIONAL,
    ...
}
```



```

SCell-ToBeRemoved-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SCell-ToBeSetup-Item ::= SEQUENCE {
    sCell-ID          NRCGI ,
    sCellIndex        SCellIndex,
    sCellULConfigured CellULConfigured OPTIONAL,
    iE-Extensions     ProtocolExtensionContainer { { SCell-ToBeSetup-ItemExtIEs } } OPTIONAL,
    ...
}

SCell-ToBeSetup-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-ServingCellMO      CRITICALITY ignore EXTENSION ServingCellMO      PRESENCE optional },
    ...
}

SCell-ToBeSetupMod-Item ::= SEQUENCE {
    sCell-ID          NRCGI ,
    sCellIndex        SCellIndex,
    sCellULConfigured CellULConfigured OPTIONAL,
    iE-Extensions     ProtocolExtensionContainer { { SCell-ToBeSetupMod-ItemExtIEs } } OPTIONAL,
    ...
}

SCell-ToBeSetupMod-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-ServingCellMO      CRITICALITY ignore EXTENSION ServingCellMO      PRESENCE optional },
    ...
}

SCellIndex ::= INTEGER (1..31, ...)

SCGActivationRequest ::= ENUMERATED {activate-scg, deactivate-scg, ...}

SCGActivationStatus ::= ENUMERATED {scg-activated, scg-deactivated, ...}

SCGIndicator ::= ENUMERATED{released, ...}

SCPAC-Request ::= ENUMERATED {initiation, ...}

S-CPAC-Configuration ::= SEQUENCE {
    referenceConfigurationInformation ReferenceConfigurationInformation OPTIONAL,
    completeCandidateConfigurationIndicator CompleteCandidateConfigurationIndicator OPTIONAL,
    iE-Extensions     ProtocolExtensionContainer { { S-CPAC-Configuration-ExtIEs } } OPTIONAL,
    ...
}

S-CPAC-Configuration-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

S-CPACLowerLayerReferenceConfigRequest ::= ENUMERATED{true, ...}

```

SCS-480 ::= INTEGER(0..319)

SCS-960 ::= INTEGER(0..639)

SCS-SpecificCarrier ::=  
     offsetToCarrier                     SEQUENCE {  
         subcarrierSpacing               INTEGER (0..2199,...),  
         carrierBandwidth                ENUMERATED {kHz15, kHz30, kHz60, kHz120,..., kHz480, kHz960},  
         iE-Extensions                  INTEGER (1..275,...),  
         ProtocolExtensionContainer { { SCS-SpecificCarrier-ExtIEs } } OPTIONAL  
     }

SCS-SpecificCarrier-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {  
     ...  
 }

SDTBearerConfigurationQueryIndication ::= ENUMERATED {true, ...}

SDTBearerConfigurationInfo ::= SEQUENCE {  
     sdtBearerConfig-List               SDTBearerConfig-List,  
     iE-Extensions                      ProtocolExtensionContainer { { SDTBearerConfigurationInfo-ExtIEs } } OPTIONAL  
 }

SDTBearerConfigurationInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {  
     ...  
 }

SDTBearerConfig-List ::= SEQUENCE (SIZE(1..maxnoofSDTBearers)) OF SDTBearerConfig-List-Item

SDTBearerConfig-List-Item ::= SEQUENCE{  
     sdtBearerType                       SDTBearerType,  
     sdtrlcbearerConfiguration          SDTRLCBearerConfiguration,  
     iE-Extensions                      ProtocolExtensionContainer {{ SDTBearerConfig-List-Item-ExtIEs}}       OPTIONAL  
 }

SDTBearerConfig-List-Item-ExtIEs       F1AP-PROTOCOL-EXTENSION ::= {  
     ...  
 }

SDTBearerType ::= CHOICE {  
     srb                                 SRBID,  
     drb                                 DRBID,  
     choice-extension                   ProtocolIE-SingleContainer {{ SDTBearerType-ExtIEs }}  
 }

SDTBearerType-ExtIEs F1AP-PROTOCOL-IES ::= {  
     ...  
 }

SDT-MAC-PHY-CG-Config ::= OCTET STRING

SDTInformation ::= SEQUENCE {  
     sdtIndicator                        ENUMERATED {true,...},  
     sdtAssistantInformation             ENUMERATED {singlepacket, multiplepackets,...} OPTIONAL,  
     iE-Extensions                      ProtocolExtensionContainer { { SDTInformation-ExtIEs } } OPTIONAL  
 }

```

}

SDTInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SDTRLCBearerConfiguration ::= OCTET STRING

SDT-Termination-Request ::= ENUMERATED {radio-link-problem, normal, ..., sdt-volume-threshold-crossed}

SDT-Volume-Threshold ::= INTEGER(1.. 192000,...)

Search-window-information ::= SEQUENCE {
    expectedPropagationDelay      INTEGER (-3841..3841,...),
    delayUncertainty              INTEGER (1..246,...),
    iE-Extensions                 ProtocolExtensionContainer { { Search-window-information-ExtIEs } } OPTIONAL
}

Search-window-information-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SerialNumber ::= BIT STRING (SIZE (16))

SIBType-PWS ::= INTEGER (6..8, ...)

SelectedBandCombinationIndex ::= OCTET STRING

SelectedFeatureSetEntryIndex ::= OCTET STRING

CG-ConfigInfo ::= OCTET STRING

ServCellInfoList ::= OCTET STRING

ServCellIndex ::= INTEGER (0..31, ...)

ServingCellM0 ::= INTEGER (1..64, ...)

ServingCellM0-List-Item ::= SEQUENCE {
    servingCellM0                ServingCellM0,
    sSB-Frequency                 INTEGER (0..3279165),
    iE-Extensions                 ProtocolExtensionContainer { { ServingCellM0-List-Item-ExtIEs } } OPTIONAL
}

ServingCellM0-List-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

ServingCellM0-encoded-in-CGC-List ::= SEQUENCE (SIZE(1.. maxNrofBWPs)) OF ServingCellM0-encoded-in-CGC-Item

ServingCellM0-encoded-in-CGC-Item ::= SEQUENCE {
    servingCellM0                ServingCellM0,
    iE-Extensions                 ProtocolExtensionContainer { { ServingCellM0-encoded-in-CGC-Item-ExtIEs } } OPTIONAL,
    ...

```

```

}

ServingCellMO-encoded-in-CGC-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  { ID id-BWP-Id CRITICALITY ignore EXTENSION BWP-Id PRESENCE optional },
  ...
}

Served-Cell-Information ::= SEQUENCE {
  nRCGI NRCGI,
  nRPCI NRPCI,
  fiveGS-TAC FiveGS-TAC OPTIONAL,
  configured-EPS-TAC Configured-EPS-TAC OPTIONAL,
  servedPLMNs ServedPLMNs-List,
  nR-Mode-Info NR-Mode-Info,
  measurementTimingConfiguration OCTET STRING,
  iE-Extensions ProtocolExtensionContainer { {Served-Cell-Information-ExtIEs} } OPTIONAL,
  ...
}

Served-Cell-Information-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  { ID id-RANAC CRITICALITY ignore EXTENSION RANAC PRESENCE optional }|
  { ID id-ExtendedServedPLMNs-List CRITICALITY ignore EXTENSION ExtendedServedPLMNs-List PRESENCE optional }|
  { ID id-Cell-Direction CRITICALITY ignore EXTENSION Cell-Direction PRESENCE optional }|
  { ID id-BPLMN-ID-Info-List CRITICALITY ignore EXTENSION BPLMN-ID-Info-List PRESENCE optional }|
  { ID id-Cell-Type CRITICALITY ignore EXTENSION CellType PRESENCE optional }|
  { ID id-ConfiguredTACIndication CRITICALITY ignore EXTENSION ConfiguredTACIndication PRESENCE optional }|
  { ID id-AggressorNBSetID CRITICALITY ignore EXTENSION AggressorNBSetID PRESENCE optional }|
  { ID id-VictimNBSetID CRITICALITY ignore EXTENSION VictimNBSetID PRESENCE optional }|
  { ID id-IAB-Info-IAB-DU CRITICALITY ignore EXTENSION IAB-Info-IAB-DU PRESENCE optional }|
  { ID id-SSB-PositionsInBurst CRITICALITY ignore EXTENSION SSB-PositionsInBurst PRESENCE optional }|
  { ID id-NRPRACHConfig CRITICALITY ignore EXTENSION NRPRACHConfig PRESENCE optional }|
  { ID id-SFN-Offset CRITICALITY ignore EXTENSION SFN-Offset PRESENCE optional }|
  { ID id-NPNBroadcastInformation CRITICALITY reject EXTENSION NPNBroadcastInformation PRESENCE optional }|
  { ID id-Supported-MBS-FSA-ID-List CRITICALITY ignore EXTENSION Supported-MBS-FSA-ID-List PRESENCE optional }|
  { ID id-Redcap-Bcast-Information CRITICALITY ignore EXTENSION Redcap-Bcast-Information PRESENCE optional }|
  { ID id-ERedcap-Bcast-Information CRITICALITY ignore EXTENSION ERedcap-Bcast-Information PRESENCE optional }|
  { ID id-XR-Bcast-Information CRITICALITY ignore EXTENSION XR-Bcast-Information PRESENCE optional }|
  { ID id-BarringExemptionforEmerCallInfo CRITICALITY ignore EXTENSION BarringExemptionforEmerCallInfo PRESENCE optional },
  ...
}

Serving-Cells-List ::= SEQUENCE (SIZE(1..maxnoofServingCells)) OF Serving-Cells-List-Item

Serving-Cells-List-Item ::= SEQUENCE{
  nRCGI NRCGI,
  iAB-MT-Cell-NA-Resource-Configuration-Mode-Info IAB-MT-Cell-NA-Resource-Configuration-Mode-Info OPTIONAL,
  iE-Extensions ProtocolExtensionContainer {{Serving-Cells-List-Item-ExtIEs}} OPTIONAL
}

Serving-Cells-List-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  ...
}

```

Supported-MBS-FSA-ID-List ::= SEQUENCE (SIZE(1.. maxnoofMBSFSAs)) OF MBS-FrequencySelectionArea-Identity

MBS-FrequencySelectionArea-Identity ::= OCTET STRING (SIZE(3))

```
SFN-Offset ::= SEQUENCE {
    sFN-Time-Offset          BIT STRING (SIZE(24)),
    iE-Extensions            ProtocolExtensionContainer { {SFN-Offset-ExtIEs} } OPTIONAL,
    ...
}
```

```
SFN-Offset-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
Served-Cells-To-Add-Item ::= SEQUENCE {
    served-Cell-Information    Served-Cell-Information,
    gNB-DU-System-Information  GNB-DU-System-Information OPTIONAL,
    iE-Extensions              ProtocolExtensionContainer { { Served-Cells-To-Add-ItemExtIEs} } OPTIONAL,
    ...
}
```

```
Served-Cells-To-Add-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
Served-Cells-To-Delete-Item ::= SEQUENCE {
    oldNRCGI                  NRCGI ,
    iE-Extensions              ProtocolExtensionContainer { { Served-Cells-To-Delete-ItemExtIEs } } OPTIONAL,
    ...
}
```

```
Served-Cells-To-Delete-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
Served-Cells-To-Modify-Item ::= SEQUENCE {
    oldNRCGI                  NRCGI ,
    served-Cell-Information    Served-Cell-Information ,
    gNB-DU-System-Information  GNB-DU-System-Information OPTIONAL ,
    iE-Extensions              ProtocolExtensionContainer { { Served-Cells-To-Modify-ItemExtIEs } } OPTIONAL,
    ...
}
```

```
Served-Cells-To-Modify-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
Served-EUTRA-Cells-Information ::= SEQUENCE {
    eUTRA-Mode-Info            EUTRA-Mode-Info,
    protectedEUTRAResourceIndication ProtectedEUTRAResourceIndication,
    iE-Extensions              ProtocolExtensionContainer { {Served-EUTRA-Cell-Information-ExtIEs} } OPTIONAL,
    ...
}
```

```

Served-EUTRA-Cell-Information-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Service-State ::= ENUMERATED {
    in-service,
    out-of-service,
    ...
}

Service-Status ::= SEQUENCE {
    service-state           Service-State,
    switchingOffOngoing     ENUMERATED {true, ...} OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { Service-Status-ExtIEs } } OPTIONAL,
    ...
}

Service-Status-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SelectedMeasurementQuantities ::= SEQUENCE {
    rSRP                    INTEGER (0..127),
    rSRQ                    INTEGER (0..127),
    sINR                    INTEGER (0..127) OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { SelectedMeasurementQuantities-ExtIEs } } OPTIONAL,
    ...
}

SelectedMeasurementQuantities-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

ServingCellMeasurements ::= SEQUENCE {
    nRCGI                   NRCGI,
    sSBIndexwithMeasurements SSBIndexwithMeasurements-Item,
    iE-Extensions          ProtocolExtensionContainer { { ServingCellMeasurements-ExtIEs } } OPTIONAL,
    ...
}

ServingCellMeasurements-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SSBIndex ::= INTEGER(0..63)

SSBIndexList ::= SEQUENCE (SIZE(1..maxnoofSSBIndices)) OF SSBIndexList-Item

SSBIndexList-Item ::= SEQUENCE {
    sSBIndex                SSBIndex,
    iE-Extensions          ProtocolExtensionContainer { { SSBIndex-Item-ExtIEs } } OPTIONAL}

SSBIndex-Item-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {

```

```
} ...

SSBIndexwithMeasurementsList ::= SEQUENCE (SIZE(1..maxnoofSSBIndices)) OF SSBIndexwithMeasurements-Item

SSBIndexwithMeasurements-Item ::= SEQUENCE {
    sSBIndex          SSBIndex,
    selectedMeasurementQuantities SelectedMeasurementQuantities,
    iE-Extensions     ProtocolExtensionContainer { { SSBIndexwithMeasurements-Item-ExtIEs } } OPTIONAL}

SSBIndexwithMeasurements-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

RelativeTime1900 ::= BIT STRING (SIZE (64))

ShortDRXCycleLength ::= ENUMERATED {ms2, ms3, ms4, ms5, ms6, ms7, ms8, ms10, ms14, ms16, ms20, ms30, ms32, ms35, ms40, ms64, ms80, ms128, ms160,
ms256, ms320, ms512, ms640, ...}

ShortNonIntegerDRXCycleLength ::= ENUMERATED { ms1001over240, ms25over6, ms25over3, ms1001over120, ms100over9, ms25over2, ms40over3, ms125over9,
ms50over3, ms1001over60, ms125over6, ms200over9, ms100over3, ms1001over30, ms125over3, ms1001over24, ms200over3, ...}

ShortDRXCycleTimer ::= INTEGER (1..16)

SIB1-message ::= OCTET STRING
SIB10-message ::= OCTET STRING
SIB12-message ::= OCTET STRING
SIB13-message ::= OCTET STRING
SIB14-message ::= OCTET STRING
SIB15-message ::= OCTET STRING
SIB17-message ::= OCTET STRING
SIB20-message ::= OCTET STRING
SIB24-message ::= OCTET STRING
SIB22-message ::= OCTET STRING
SIB23-message ::= OCTET STRING
SIB17bis-message ::= OCTET STRING

SIttype ::= INTEGER (1..32, ...)

SIttype-List ::= SEQUENCE (SIZE(1.. maxnoofSIttypes)) OF SIttype-Item
```

```

SItypes-Item ::= SEQUENCE {
    sItypes          SItypes ,
    iE-Extensions    ProtocolExtensionContainer { { SItypes-ItemExtIEs } }    OPTIONAL
}

SItypes-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SibtypespetobeupdatedListItem ::= SEQUENCE {
    sIBtype          INTEGER (2..32,...),
    sIBmessage        OCTET STRING,
    valueTag          INTEGER (0..31,...),
    iE-Extensions    ProtocolExtensionContainer { { SibtypespetobeupdatedListItem-ExtIEs } }    OPTIONAL,
    ...
}

SibtypespetobeupdatedListItem-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    {ID id-areaScope    CRITICALITY ignore EXTENSION    AreaScope    PRESENCE optional},
    ...
}

SidelinkRelayConfiguration ::= SEQUENCE {
    gNB-DU-UE-F1APIDofRelayUE    GNB-DU-UE-F1AP-ID,
    remoteUELocalID                RemoteUELocalID,
    sidelinkConfigurationContainer    SidelinkConfigurationContainer    OPTIONAL,
    iE-Extensions                  ProtocolExtensionContainer { { SidelinkRelayConfiguration-ExtIEs } }    OPTIONAL,
    ...
}

SidelinkRelayConfiguration-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SidelinkConfigurationContainer ::= OCTET STRING

SLDRBID ::= INTEGER (1..512, ...)

SLDRBInformation ::= SEQUENCE {
    SLDRB-QoS                PC5QoSParameters,
    flowsMappedToSLDRB-List    FlowsMappedToSLDRB-List,
    ...
}

SLDRBs-FailedToBeModified-Item ::= SEQUENCE {
    SLDRBID        SLDRBID ,
    cause          Cause    OPTIONAL,
    iE-Extensions    ProtocolExtensionContainer { { SLDRBs-FailedToBeModified-ItemExtIEs } }    OPTIONAL
}

SLDRBs-FailedToBeModified-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```



```

SLDRBs-FailedToBeSetup-Item ::= SEQUENCE {
    SLDRBID SLDRBID,
    cause Cause OPTIONAL,
    iE-Extensions ProtocolExtensionContainer { { SLDRBs-FailedToBeSetup-ItemExtIEs } } OPTIONAL
}

SLDRBs-FailedToBeSetup-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SLDRBs-FailedToBeSetupMod-Item ::= SEQUENCE {
    SLDRBID SLDRBID ,
    cause Cause OPTIONAL ,
    iE-Extensions ProtocolExtensionContainer { { SLDRBs-FailedToBeSetupMod-ItemExtIEs } } OPTIONAL
}

SLDRBs-FailedToBeSetupMod-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SLDRBs-Modified-Item ::= SEQUENCE {
    SLDRBID SLDRBID,
    iE-Extensions ProtocolExtensionContainer { { SLDRBs-Modified-ItemExtIEs } } OPTIONAL
}

SLDRBs-Modified-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SLDRBs-ModifiedConf-Item ::= SEQUENCE {
    SLDRBID SLDRBID,
    iE-Extensions ProtocolExtensionContainer { { SLDRBs-ModifiedConf-ItemExtIEs } } OPTIONAL
}

SLDRBs-ModifiedConf-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SLDRBs-Required-ToBeModified-Item ::= SEQUENCE {
    SLDRBID SLDRBID,
    iE-Extensions ProtocolExtensionContainer { { SLDRBs-Required-ToBeModified-ItemExtIEs } } OPTIONAL
}

SLDRBs-Required-ToBeModified-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SLDRBs-Required-ToBeReleased-Item ::= SEQUENCE {
    SLDRBID SLDRBID,
    iE-Extensions ProtocolExtensionContainer { { SLDRBs-Required-ToBeReleased-ItemExtIEs } } OPTIONAL
}

SLDRBs-Required-ToBeReleased-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

}

SLDRBs-Setup-Item ::= SEQUENCE {
    SLDRBID                SLDRBID,
    iE-Extensions          ProtocolExtensionContainer { { SLDRBs-Setup-ItemExtIEs } } OPTIONAL
}

SLDRBs-Setup-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SLDRBs-SetupMod-Item      ::= SEQUENCE {
    SLDRBID                SLDRBID,
    iE-Extensions          ProtocolExtensionContainer { { SLDRBs-SetupMod-ItemExtIEs } } OPTIONAL
}

SLDRBs-SetupMod-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SLDRBs-ToBeModified-Item  ::= SEQUENCE {
    SLDRBID                SLDRBID,
    SLDRBInformation        SLDRBInformation OPTIONAL,
    rLCMode                 RLCMode OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { SLDRBs-ToBeModified-ItemExtIEs } } OPTIONAL
}

SLDRBs-ToBeModified-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    {ID id-duplicationIndication CRITICALITY ignore EXTENSION DuplicationIndication PRESENCE optional},
    ...
}

SLDRBs-ToBeReleased-Item  ::= SEQUENCE {
    SLDRBID                SLDRBID,
    iE-Extensions          ProtocolExtensionContainer { { SLDRBs-ToBeReleased-ItemExtIEs } } OPTIONAL
}

SLDRBs-ToBeReleased-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SLDRBs-ToBeSetup-Item ::= SEQUENCE {
    SLDRBID                SLDRBID,
    SLDRBInformation        SLDRBInformation,
    rLCMode                 RLCMode,

    iE-Extensions          ProtocolExtensionContainer { { SLDRBs-ToBeSetup-ItemExtIEs } } OPTIONAL
}

SLDRBs-ToBeSetup-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    {ID id-duplicationIndication CRITICALITY ignore EXTENSION DuplicationIndication PRESENCE optional},
    ...
}

```

```

SLDRBs-ToBeSetupMod-Item ::= SEQUENCE {
    SLDRBID                SLDRBID,
    SLDRBInformation        SLDRBInformation,
    rLCMode                 RLCMode OPTIONAL,
    iE-Extensions           ProtocolExtensionContainer { { SLDRBs-ToBeSetupMod-ItemExtIEs } } OPTIONAL
}

SLDRBs-ToBeSetupMod-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    {ID id-duplicationIndication CRITICALITY ignore EXTENSION DuplicationIndication PRESENCE optional},
    ...
}

SLDRXCycleList ::= SEQUENCE (SIZE(1.. maxnoofSLdestinations)) OF SLDRXCycleItem
SLDRXCycleItem ::= SEQUENCE {
    rXUEID                 BIT STRING (SIZE(24)),
    SLDRXInformation        SLDRXInformation,
    iE-Extensions           ProtocolExtensionContainer { { SLDRXCycleItem-ExtIEs } } OPTIONAL,
    ...
}

SLDRXCycleItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SLDRXInformation ::= CHOICE {
    SLDRXCycle              SLDRXCycleLength,
    nosLDRX                 SLDRXConfigurationIndicator,
    choice-extension         ProtocolIE-SingleContainer { { SLDRXInformation-ExtIEs } }
}

SLDRXCycleLength ::= ENUMERATED{ms10, ms20, ms32, ms40, ms60, ms64, ms70, ms80, ms128, ms160, ms256, ms320, ms512, ms640, ms1024, ms1280, ms2048,
ms2560, ms5120, ms10240, ...}

SLDRXConfigurationIndicator ::= ENUMERATED{ release, ...}

SLDRXInformation-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

SL-PHY-MAC-RLC-Config ::= OCTET STRING
SL-PHY-MAC-RLC-ConfigExt ::= OCTET STRING
SL-RLC-ChannelToAddModList ::= OCTET STRING
SL-ConfigDedicatedEUTRA-Info ::= OCTET STRING

SliceAvailableCapacity ::= SEQUENCE {
    sliceAvailableCapacityList SliceAvailableCapacityList,
    iE-Extensions              ProtocolExtensionContainer { { SliceAvailableCapacity-ExtIEs } } OPTIONAL
}

SliceAvailableCapacity-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

```

```

}
...
SliceAvailableCapacityList ::= SEQUENCE (SIZE(1.. maxnoofBPLMNsNR)) OF SliceAvailableCapacityItem
SliceAvailableCapacityItem ::= SEQUENCE {
    pLMNIdentity          PLMN-Identity,
    snSSAIAvailableCapacity-List  SNSSAIAvailableCapacity-List,
    iE-Extensions         ProtocolExtensionContainer { { SliceAvailableCapacityItem-ExtIEs} } OPTIONAL
}
SliceAvailableCapacityItem-ExtIEs  F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
SNSSAIAvailableCapacity-List ::= SEQUENCE (SIZE(1.. maxnoofSliceItems)) OF SNSSAIAvailableCapacity-Item
SNSSAIAvailableCapacity-Item ::= SEQUENCE {
    snSSAI          SNSSAI,
    sliceAvailableCapacityValueDownlink INTEGER (0..100)    OPTIONAL,
    sliceAvailableCapacityValueUplink   INTEGER (0..100)    OPTIONAL,
    iE-Extensions         ProtocolExtensionContainer { { SNSSAIAvailableCapacity-Item-ExtIEs } } OPTIONAL
}
SNSSAIAvailableCapacity-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
SliceRadioResourceStatus ::= SEQUENCE {
    sliceRadioResourceStatus  SliceRadioResourceStatus-List,
    iE-Extensions             ProtocolExtensionContainer { { SliceRadioResourceStatus-ExtIEs} } OPTIONAL
}
SliceRadioResourceStatus-ExtIEs      F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
SliceRadioResourceStatus-List ::= SEQUENCE (SIZE(1..maxnoofBPLMNsNR)) OF SliceRadioResourceStatus-Item
SliceRadioResourceStatus-Item ::= SEQUENCE {
    pLMNIdentity          PLMN-Identity,
    snSSAIRadioResourceStatus-List  SNSSAIRadioResourceStatus-List,
    iE-Extensions         ProtocolExtensionContainer { { SliceRadioResourceStatus-Item-ExtIEs} } OPTIONAL
}
SliceRadioResourceStatus-Item-ExtIEs      F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
SNSSAIRadioResourceStatus-List ::= SEQUENCE (SIZE(1.. maxnoofSliceItems)) OF SNSSAIRadioResourceStatus-Item
SNSSAIRadioResourceStatus-Item ::= SEQUENCE {
    snSSAI          SNSSAI,

```

```

    sNSSAIulGBRPRBUUsage      INTEGER (0..100),
    sNSSAIulGBRPRBUUsage      INTEGER (0..100),
    sNSSAIulNonGBRPRBUUsage   INTEGER (0..100),
    sNSSAIulNonGBRPRBUUsage   INTEGER (0..100),
    sNSSAIulTotalPRBAllocation INTEGER (0..100),
    sNSSAIulTotalPRBAllocation INTEGER (0..100),
    iE-Extensions              ProtocolExtensionContainer { { sNSSAIRadioResourceStatus-Item-ExtIEs } } OPTIONAL
}

sNSSAIRadioResourceStatus-Item-ExtIEs  F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SliceSupportList ::= SEQUENCE (SIZE(1.. maxnoofSliceItems)) OF SliceSupportItem

SliceSupportItem ::= SEQUENCE {
    sNSSAI sNSSAI,
    iE-Extensions ProtocolExtensionContainer { { SliceSupportItem-ExtIEs } } OPTIONAL
}

SliceSupportItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SliceToReportList ::= SEQUENCE (SIZE(1.. maxnoofBPLMNsNR)) OF SliceToReportItem

SliceToReportItem ::= SEQUENCE {
    pLMNIdentity PLMN-Identity,
    sNSSAIlist sNSSAI-list,
    iE-Extensions ProtocolExtensionContainer { { SliceToReportItem-ExtIEs } } OPTIONAL
}

SliceToReportItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SlotNumber ::= INTEGER (0..79)

SLPositioning-Ranging-Service-Info ::= SEQUENCE{
    sLPositioning-Ranging-Authorized sLPositioning-Ranging-Authorized,
    rSPP-transport-QoS-parameters RSPP-transport-QoS-parameters OPTIONAL,
    iE-Extensions ProtocolExtensionContainer { { SLPositioning-Ranging-Service-Info-ExtIEs } } OPTIONAL,
    ...
}

SLPositioning-Ranging-Service-Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SLPositioning-Ranging-Authorized ::= ENUMERATED {
    authorized,
    not-authorized,
    ...
}

```

```

}

RSPP-transport-QoS-parameters ::= SEQUENCE {
    rSPPQoSFlowList          RSPPQoSFlowList,
    rSPPLinkAggregateBitRates BitRate OPTIONAL,
    iE-Extensions            ProtocolExtensionContainer { { RSPP-transport-QoS-parameters-ExtIEs} } OPTIONAL,
    ...
}

RSPP-transport-QoS-parameters-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

RSPPQoSFlowList ::= SEQUENCE (SIZE(1..maxnoofRSPPQoSFlows)) OF RSPPQoSFlowItem

RSPPQoSFlowItem ::= SEQUENCE {
    pQI          FiveQI,
    rSPPFlowBitRates RSPPFlowBitRates OPTIONAL,
    range          Range OPTIONAL,
    iE-Extensions  ProtocolExtensionContainer { { RSPPQoSFlowItem-ExtIEs} } OPTIONAL,
    ...
}

RSPPQoSFlowItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

RSPPFlowBitRates ::= SEQUENCE {
    guaranteedFlowBitRate BitRate,
    maximumFlowBitRate    BitRate,
    iE-Extensions          ProtocolExtensionContainer { { RSPPFlowBitRates-ExtIEs} } OPTIONAL,
    ...
}

RSPPFlowBitRates-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SNSSAI-list ::= SEQUENCE (SIZE(1.. maxnoofSliceItems)) OF SNSSAI-Item

SNSSAI-Item ::= SEQUENCE {
    sNSSAI SNSSAI,
    iE-Extensions ProtocolExtensionContainer { { SNSSAI-Item-ExtIEs } } OPTIONAL
}

SNSSAI-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Slot-Configuration-List ::= SEQUENCE (SIZE(1.. maxnoofslots)) OF Slot-Configuration-Item

Slot-Configuration-Item ::= SEQUENCE {
    slotIndex          INTEGER (0..5119, ...),
    symbolAllocInSlot  SymbolAllocInSlot,

```

```

    iE-Extensions          ProtocolExtensionContainer { { Slot-Configuration-ItemExtIEs } }    OPTIONAL
}

Slot-Configuration-ItemExtIEs  F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SlotOffsetForRemainingHopsList ::= SEQUENCE (SIZE (1..maxnoHopsMinusOne)) OF SlotOffsetForRemainingHopsItem

SlotOffsetForRemainingHopsItem ::= SEQUENCE {
    slotOffsetRemainingHops          SlotOffsetRemainingHops,
    iE-Extensions                    ProtocolExtensionContainer { { SlotOffsetForRemainingHopsItem-ExtIEs } } OPTIONAL,
    ...
}

SlotOffsetForRemainingHopsItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SlotOffsetRemainingHops ::= CHOICE {
    aperiodic          SlotOffsetRemainingHopsAperiodic,
    semi-persistent    SlotOffsetRemainingHopsSemiPersistent,
    periodic            SlotOffsetRemainingHopsPeriodic,
    choice-extension    ProtocolIE-SingleContainer {{ SlotOffsetRemainingHops-ExtIEs }}
}

SlotOffsetRemainingHops-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

SlotOffsetRemainingHopsAperiodic ::= SEQUENCE {
    slotOffset          INTEGER (1..32)          OPTIONAL,
    startPosition        INTEGER (0..13)          OPTIONAL,
    iE-Extensions        ProtocolExtensionContainer { { SlotOffsetRemainingHopsAperiodic-ExtIEs } } OPTIONAL,
    ...
}

SlotOffsetRemainingHopsAperiodic-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SlotOffsetRemainingHopsSemiPersistent ::= SEQUENCE {
    srsperiodicity        SRS-Periodicity,
    offset                INTEGER(0..81919, ...),
    startPosition          INTEGER (0..13)          OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { SlotOffsetRemainingHopsSemiPersistent-ExtIEs } } OPTIONAL,
    ...
}

SlotOffsetRemainingHopsSemiPersistent-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SlotOffsetRemainingHopsPeriodic ::= SEQUENCE {

```

```

    sRSPeriodicity      SRS-Periodicity,
    offset              INTEGER(0..81919, ...),
    startPosition       INTEGER (0..13)      OPTIONAL,
    iE-Extensions       ProtocolExtensionContainer { { SlotOffsetRemainingHopsSemiPeriodic-ExtIEs } } OPTIONAL,
    ...
}

SlotOffsetRemainingHopsSemiPeriodic-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SNSSAI ::= SEQUENCE {
    sST      OCTET STRING (SIZE(1)),
    sD      OCTET STRING (SIZE(3))  OPTIONAL ,
    iE-Extensions      ProtocolExtensionContainer { { SNSSAI-ExtIEs } }      OPTIONAL
}

SNSSAI-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SpatialDirectionInformation ::= SEQUENCE {
    nR-PRSBearInformation      NR-PRSBearInformation,
    iE-Extensions              ProtocolExtensionContainer { { SpatialDirectionInformation-ExtIEs } } OPTIONAL
}

SpatialDirectionInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SpatialRelationInfo ::= SEQUENCE {
    spatialRelationForResourceID      SpatialRelationForResourceID,
    iE-Extensions      ProtocolExtensionContainer { {SpatialRelationInfo-ExtIEs} } OPTIONAL
}

SpatialRelationInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SpatialRelationForResourceID ::= SEQUENCE (SIZE(1..maxnoofSpatialRelations)) OF SpatialRelationForResourceIDItem

SpatialRelationForResourceIDItem ::= SEQUENCE {
    referenceSignal      ReferenceSignal,
    iE-Extensions      ProtocolExtensionContainer { {SpatialRelationForResourceIDItem-ExtIEs} }  OPTIONAL
}

SpatialRelationForResourceIDItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SpatialRelationPerSRSResource ::= SEQUENCE {
    spatialRelationPerSRSResource-List      SpatialRelationPerSRSResource-List,
    iE-Extensions      ProtocolExtensionContainer { { SpatialRelationPerSRSResource-ExtIEs } }  OPTIONAL,
    ...
}

```



```

}

SpatialRelationPerSRSResource-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SpatialRelationPerSRSResource-List ::= SEQUENCE(SIZE (1.. maxnoSRS-ResourcePerSet)) OF SpatialRelationPerSRSResourceItem

SpatialRelationPerSRSResourceItem ::= SEQUENCE {
    referenceSignal      ReferenceSignal,
    iE-Extensions        ProtocolExtensionContainer { { SpatialRelationPerSRSResourceItem-ExtIEs } } OPTIONAL,
    ...
}

SpatialRelationPerSRSResourceItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SpatialRelationPos ::= CHOICE {
    sSBPos                SSB,
    pRSInformationPos      PRSInformationPos,
    choice-extension       ProtocolIE-SingleContainer {{ SpatialInformationPos-ExtIEs }}
}

SpatialInformationPos-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

SpectrumSharingGroupID ::= INTEGER (1..maxCelllineNB)

SRBID ::= INTEGER (0..3, ..., 4 | 5)

SRBs-FailedToBeSetup-Item ::= SEQUENCE {
    sRBID                SRBID ,
    cause                Cause OPTIONAL,
    iE-Extensions        ProtocolExtensionContainer { { SRBs-FailedToBeSetup-ItemExtIEs } } OPTIONAL,
    ...
}

SRBs-FailedToBeSetup-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SRBs-FailedToBeSetupMod-Item ::= SEQUENCE {
    sRBID                SRBID ,
    cause                Cause OPTIONAL,
    iE-Extensions        ProtocolExtensionContainer { { SRBs-FailedToBeSetupMod-ItemExtIEs } } OPTIONAL,
    ...
}

SRBs-FailedToBeSetupMod-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

SRBs-Modified-Item ::= SEQUENCE {
    SRBID                SRBID,
    LCID                LCID,
    iE-Extensions    ProtocolExtensionContainer { { SRBs-Modified-ItemExtIEs } } OPTIONAL,
    ...
}

SRBs-Modified-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SRBs-Required-ToBeReleased-Item ::= SEQUENCE {
    SRBID    SRBID,
    iE-Extensions    ProtocolExtensionContainer { { SRBs-Required-ToBeReleased-ItemExtIEs } }    OPTIONAL,
    ...
}

SRBs-Required-ToBeReleased-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SRBs-Setup-Item ::= SEQUENCE {
    SRBID                SRBID,
    LCID                LCID,
    iE-Extensions    ProtocolExtensionContainer { { SRBs-Setup-ItemExtIEs } }    OPTIONAL,
    ...
}

SRBs-Setup-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SRBs-SetupMod-Item ::= SEQUENCE {
    SRBID                SRBID,
    LCID                LCID,
    iE-Extensions    ProtocolExtensionContainer { { SRBs-SetupMod-ItemExtIEs } } OPTIONAL,
    ...
}

SRBs-SetupMod-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SRBs-ToBeReleased-Item ::= SEQUENCE {
    SRBID    SRBID,
    iE-Extensions    ProtocolExtensionContainer { { SRBs-ToBeReleased-ItemExtIEs } } OPTIONAL,
    ...
}

SRBs-ToBeReleased-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SRBs-ToBeSetup-Item ::= SEQUENCE {

```

```

    sRBID      sRBID ,
    duplicationIndication DuplicationIndication OPTIONAL,
    iE-Extensions ProtocolExtensionContainer { { SRBs-ToBeSetup-ItemExtIEs } } OPTIONAL,
    ...
}

SRBs-ToBeSetup-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-AdditionalDuplicationIndication CRITICALITY ignore EXTENSION AdditionalDuplicationIndication PRESENCE optional }|
    { ID id-SDTRLCBearerConfiguration CRITICALITY ignore EXTENSION SDTRLCBearerConfiguration PRESENCE optional }|
    { ID id-SRBMappingInfo CRITICALITY ignore EXTENSION UuRLCChannelID PRESENCE optional },
    ...
}

SRBs-ToBeSetupMod-Item ::= SEQUENCE {
    sRBID      sRBID,
    duplicationIndication DuplicationIndication OPTIONAL,
    iE-Extensions ProtocolExtensionContainer { { SRBs-ToBeSetupMod-ItemExtIEs } } OPTIONAL,
    ...
}

SRBs-ToBeSetupMod-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-AdditionalDuplicationIndication CRITICALITY ignore EXTENSION AdditionalDuplicationIndication PRESENCE optional }|
    { ID id-SRBMappingInfo CRITICALITY ignore EXTENSION UuRLCChannelID PRESENCE optional }|
    { ID id-CG-SDTindicatorSetup CRITICALITY reject EXTENSION CG-SDTindicatorSetup PRESENCE optional },
    ...
}

SRSCarrier-List ::= SEQUENCE (SIZE(1.. maxnoSRS-Carriers)) OF SRSCarrier-List-Item

SRSCarrier-List-Item ::= SEQUENCE {
    pointA INTEGER (0..3279165),
    uplinkChannelBW-PerSCS-List UplinkChannelBW-PerSCS-List,
    activeULBWP ActiveULBWP,
    pci NRPCI OPTIONAL,
    iE-Extensions ProtocolExtensionContainer { { SRSCarrier-List-Item-ExtIEs } } OPTIONAL
}

SRSCarrier-List-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SRSConfig ::= SEQUENCE {
    SRSResource-List SRSResource-List OPTIONAL,
    posSRSResource-List PosSRSResource-List OPTIONAL,
    SRSResourceSet-List SRSResourceSet-List OPTIONAL,
    posSRSResourceSet-List PosSRSResourceSet-List OPTIONAL,
    iE-Extensions ProtocolExtensionContainer { { SRSConfig-ExtIEs } } OPTIONAL
}

SRSConfig-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SRSConfiguration ::= SEQUENCE {

```

```

    SRSCarrier-List      SRSCarrier-List,
    iE-Extensions        ProtocolExtensionContainer { { SRSConfiguration-ExtIEs } } OPTIONAL
}

SRSConfiguration-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-AggregatedPosSRSResourceSetList CRITICALITY ignore EXTENSION AggregatedPosSRSResourceSetList PRESENCE optional},
    ...
}

SrsFrequency ::= INTEGER (0..3279165)

SRSPortIndex ::= ENUMERATED {id1000, id1001, id1002, id1003,...}

SRSPosPeriodicConfigHyperSFNIndex ::=ENUMERATED {even0, odd1}

SRSPosResourceID ::= INTEGER (0..63)

SRSPreconfiguration-List ::= SEQUENCE (SIZE (1.. maxnoPreconfiguredSRS)) OF SRSPreconfiguration-Item

SRSPreconfiguration-Item ::= SEQUENCE {
    SRSPosRRCTInactiveValidityAreaConfig      SRSPosRRCTInactiveValidityAreaConfig,
    posValidityAreaCellList                    PosValidityAreaCellList,
    iE-Extensions                             ProtocolExtensionContainer {{ SRSPreconfiguration-Item-ExtIEs}}      OPTIONAL,
    ...
}

SRSPreconfiguration-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SRSResource ::= SEQUENCE {
    SRSResourceID                SRSResourceID,
    nrofSRS-Ports                 ENUMERATED {port1, ports2, ports4},
    transmissionComb              TransmissionComb,
    startPosition                 INTEGER (0..13),
    nrofSymbols                   ENUMERATED {n1, n2, n4},
    repetitionFactor              ENUMERATED {n1, n2, n4},
    freqDomainPosition            INTEGER (0..67),
    freqDomainShift               INTEGER (0..268),
    c-SRS                        INTEGER (0..63),
    b-SRS                        INTEGER (0..3),
    b-hop                        INTEGER (0..3),
    groupOrSequenceHopping        ENUMERATED { neither, groupHopping, sequenceHopping },
    resourceType                  ResourceType,
    sequenceId                    INTEGER (0..1023),
    iE-Extensions                 ProtocolExtensionContainer { { SRSResource-ExtIEs } } OPTIONAL
}

SRSResource-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-nrofSymbolsExtended      CRITICALITY ignore EXTENSION NrofSymbolsExtended PRESENCE optional}|
    { ID id-repetitionFactorExtended CRITICALITY ignore EXTENSION RepetitionFactorExtended PRESENCE optional}|
    { ID id-startRBHopping           CRITICALITY ignore EXTENSION StartRBHopping PRESENCE optional}|
    { ID id-startRBIndex             CRITICALITY ignore EXTENSION StartRBIndex PRESENCE optional},
    ...
}

```

```

}

SRSResourceID ::= INTEGER (0..63)

SRSResourceID-List ::= SEQUENCE (SIZE (1..maxnoSRS-ResourcePerSet)) OF SRSResourceID

SRSResource-List ::= SEQUENCE (SIZE (1..maxnoSRS-Resources)) OF SRSResource

SRSResourceSet ::= SEQUENCE {
    sRSResourceSetID          SRSResourceSetID,
    sRSResourceID-List        SRSResourceID-List,
    resourceSetType            ResourceSetType,
    iE-Extensions              ProtocolExtensionContainer { { SRSResourceSet-ExtIEs } } OPTIONAL
}

SRSResourceSet-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SRSResourceSetID ::= INTEGER (0..15, ...)

SRSResourceSetList ::= SEQUENCE (SIZE(1.. maxnoSRS-ResourceSets)) OF SRSResourceSetItem

SRSResourceSetItem ::= SEQUENCE {
    numSRSresourcesperset    INTEGER (1..16, ...)    OPTIONAL,
    periodicityList           PeriodicityList        OPTIONAL,
    spatialRelationInfo       SpatialRelationInfo    OPTIONAL,
    pathlossReferenceInfo     PathlossReferenceInfo   OPTIONAL,
    iE-Extensions             ProtocolExtensionContainer { { SRSResourceSetItemExtIEs } } OPTIONAL
}

SRSResourceSetItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-SRSSpatialRelationPerSRSResource    CRITICALITY ignore  EXTENSION SpatialRelationPerSRSResource PRESENCE optional},
    ...
}

SRSResourceSet-List ::= SEQUENCE (SIZE (1..maxnoSRS-ResourceSets)) OF SRSResourceSet

SRSResourceTrigger ::= SEQUENCE {
    aperiodicSRSResourceTriggerList    AperiodicSRSResourceTriggerList,
    iE-Extensions                       ProtocolExtensionContainer { {SRSResourceTrigger-ExtIEs} } OPTIONAL
}

SRSResourceTrigger-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SRSResourcetype ::= SEQUENCE {
    sRSResourceTypeChoice    SRSResourceTypeChoice,
    iE-Extensions            ProtocolExtensionContainer { { SRSResourcetype-ExtIEs} }    OPTIONAL,
    ...
}

```

```

SRSResourceType-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-SRSPortIndex          CRITICALITY ignore EXTENSION SRSPortIndex  PRESENCE optional },
    ...
}

SRSResourceTypeChoice ::= CHOICE {
    sRSResourceInfo          SRSInfo,
    posSRSResourceInfo       PosSRSInfo,
    choice-extension         ProtocolIE-SingleContainer { { SRSResourceTypeChoice-ExtIEs} }
}

SRSResourceTypeChoice-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

SRSInfo ::= SEQUENCE {
    sRSResource          SRSResourceID,
    ...
}

SRS-Periodicity ::= ENUMERATED{slot1, slot2, slot4, slot5, slot8, slot10, slot16, slot20, slot32, slot40, slot64, slot80, slot160, slot320,
slot640, slot1280, slot2560, slot5120, slot10240, slot40960, slot81920, ..., slot128, slot256, slot512, slot20480}

SRSPosRRCTInactiveConfig ::= OCTET STRING

SRSPosRRCTInactiveValidityAreaConfig ::= OCTET STRING

SRSPosRRCTInactiveQueryIndication ::= ENUMERATED {true, ...}

PosSRSInfo ::= SEQUENCE {
    posSRSResourceID          SRSPosResourceID,
    ...
}

SRSReservationType ::= ENUMERATED {reserve, release, ...}

SSB ::= SEQUENCE {
    pCI-NR          NRPCI,
    ssb-index       SSB-Index  OPTIONAL,
    iE-Extensions   ProtocolExtensionContainer { {SSB-ExtIEs} } OPTIONAL
}

SSBCoverageModification-List ::= SEQUENCE (SIZE (1..maxnoofSSBAreas)) OF SSBCoverageModification-Item

SSBCoverageModification-Item ::= SEQUENCE {
    sSBIndex          INTEGER(0..63),
    ssBCoverageState  SSBCoverageState,
    iE-Extensions     ProtocolExtensionContainer { { SSBCoverageModification-Item-ExtIEs} }  OPTIONAL,
    ...
}

SSBCoverageModification-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

```

```

    ...
}

SSBCoverageState ::= INTEGER (0..15, ...)

SSB-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SSB-freqInfo ::= INTEGER (0..maxNRARFCN)

SSB-Index ::= INTEGER(0..63)

SSB-subcarrierSpacing ::= ENUMERATED {kHz15, kHz30, kHz120, kHz240, spare3, spare2, spare1, ...}

SSB-transmissionPeriodicity ::= ENUMERATED {sf10, sf20, sf40, sf80, sf160, sf320, sf640, ..., sf5}

SSB-transmissionTimingOffset ::= INTEGER (0..127, ...)

SSB-transmissionBitmap ::= CHOICE {
    shortBitmap      BIT STRING (SIZE (4)),
    mediumBitmap     BIT STRING (SIZE (8)),
    longBitmap       BIT STRING (SIZE (64)),
    choice-extension ProtocolIE-SingleContainer { { SSB-transmisisonBitmap-ExtIEs} }
}

SSB-transmisisonBitmap-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

SSBAreaCapacityValueList ::= SEQUENCE (SIZE(1.. maxnoofSSBAreas)) OF SSBAreaCapacityValueItem

SSBAreaCapacityValueItem ::= SEQUENCE {
    sSBIndex          INTEGER(0..63),
    sSBAreaCapacityValue INTEGER (0..100),
    iE-Extensions     ProtocolExtensionContainer { { SSBAreaCapacityValueItem-ExtIEs} } OPTIONAL
}

SSBAreaCapacityValueItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SSBAreaRadioResourceStatusList ::= SEQUENCE (SIZE(1.. maxnoofSSBAreas)) OF SSBAreaRadioResourceStatusItem

SSBAreaRadioResourceStatusItem ::= SEQUENCE {
    sSBIndex          INTEGER(0..63),
    sSBAreaDLGBRPRUsage INTEGER (0..100),
    sSBAreaULGBRPRUsage INTEGER (0..100),
    sSBAreaDLnon-GBRPRUsage INTEGER (0..100),
    sSBAreaULnon-GBRPRUsage INTEGER (0..100),
    sSBAreaDLTotalPRUsage INTEGER (0..100),
    sSBAreaULTotalPRUsage INTEGER (0..100),

```

```

    dLschedulingPDCCHCEusage    INTEGER (0..100)    OPTIONAL,
    uLschedulingPDCCHCEusage    INTEGER (0..100)    OPTIONAL,
    iE-Extensions               ProtocolExtensionContainer { { SSBAreaRadioResourceStatusItem-ExtIEs } } OPTIONAL
}

SSBAreaRadioResourceStatusItem-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SSBInformation ::= SEQUENCE {
    sSBInformationList    SSBInformationList,
    iE-Extensions        ProtocolExtensionContainer { { SSBInformation-ExtIEs } }    OPTIONAL
}

SSBInformation-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SSBInformationList ::= SEQUENCE (SIZE(1.. maxnoofSSBs)) OF SSBInformationItem

SSBInformationItem ::= SEQUENCE {
    sSB-Configuration    SSB-TF-Configuration,
    pCI-NR                NRPCI,
    iE-Extensions        ProtocolExtensionContainer { { SSBInformationItem-ExtIEs } }    OPTIONAL
}

SSBInformationItem-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SSB-PositionsInBurst ::= CHOICE {
    shortBitmap            BIT STRING (SIZE (4)),
    mediumBitmap            BIT STRING (SIZE (8)),
    longBitmap            BIT STRING (SIZE (64)),
    choice-extension       ProtocolIE-SingleContainer { {SSB-PositionsInBurst-ExtIEs} }
}

SSB-PositionsInBurst-ExtIEs    F1AP-PROTOCOL-IES ::= {
    ...
}

SSBs-activated-List ::= SEQUENCE (SIZE(1.. maxnoofSSBAreas)) OF SSB-Index

SSBs-forPaging-List ::= SEQUENCE (SIZE(1.. maxnoofSSBAreas)) OF SSB-Index

SSBs-toBeActivated-List ::= SEQUENCE (SIZE(1.. maxnoofSSBAreas)) OF SSB-Index

SSB-TF-Configuration ::= SEQUENCE {
    sSB-frequency          INTEGER (0..3279165),
    sSB-subcarrier-spacing ENUMERATED {kHz15, kHz30, kHz60, kHz120, kHz240, ..., kHz480, kHz960},
    -- The value kHz60 is not supported in this version of the specification.
    sSB-Transmit-power     INTEGER (-60..50),
    sSB-periodicity        ENUMERATED {ms5, ms10, ms20, ms40, ms80, ms160, ...},

```



```

        SSB-half-frame-offset      INTEGER(0..1),
        SSB-SFN-offset             INTEGER(0..15),
        SSB-position-in-burst      SSB-PositionsInBurst      OPTIONAL,
        sFNInitialisationTime      RelativeTime1900          OPTIONAL,
        iE-Extensions              ProtocolExtensionContainer { { SSB-TF-Configuration-ExtIEs} } OPTIONAL
    }

SSB-TF-Configuration-ExtIEs      F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SSBToReportList ::= SEQUENCE (SIZE(1.. maxnoofSSBAreas)) OF SSBToReportItem

SSBToReportItem ::= SEQUENCE {
    SSBIndex                      INTEGER(0..63),
    iE-Extensions                 ProtocolExtensionContainer { { SSBToReportItem-ExtIEs} } OPTIONAL
}

SSBToReportItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

StartRBIndex ::= CHOICE{
    freqScalingFactor2    INTEGER(0..1),
    freqScalingFactor4    INTEGER(0..3),
    choice-extension      ProtocolIE-SingleContainer { { StartRBIndex-ExtIEs} }
}
StartRBIndex-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

StartRBHopping ::= ENUMERATED {enable}

StartTimeAndDuration ::= SEQUENCE {
    startTime      RelativeTime1900          OPTIONAL,
    duration       INTEGER (0..90060, ...)    OPTIONAL,
    iE-Extensions  ProtocolExtensionContainer { { StartTimeAndDuration-ExtIEs } } OPTIONAL,
    ...
}

StartTimeAndDuration-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SUL-Information ::= SEQUENCE {
    SUL-NRARFCN                      INTEGER (0..maxNRARFCN),
    SUL-transmission-Bandwidth        Transmission-Bandwidth,
    iE-Extensions                    ProtocolExtensionContainer { { SUL-InformationExtIEs} } OPTIONAL,
    ...
}

SUL-InformationExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-CarrierList              CRITICALITY ignore EXTENSION NRCarrierList          PRESENCE optional }|

```

```

    { ID id-FrequencyShift7p5khz    CRITICALITY ignore  EXTENSION FrequencyShift7p5khz  PRESENCE optional },
    ...
}

SubcarrierSpacing ::= ENUMERATED { kHz15, kHz30, kHz60, kHz120, kHz240, spare3, spare2, spare1, ...}

SubscriberProfileIDforRFP ::= INTEGER (1..256, ...)

SuccessfulH0ReportInformationList ::= SEQUENCE (SIZE(1.. maxnoofSuccessfulH0Reports)) OF SuccessfulH0ReportInformation-Item

SuccessfulH0ReportInformation-Item ::= SEQUENCE {
    successfulH0ReportContainer      OCTET STRING,
    iE-Extensions    ProtocolExtensionContainer { { SuccessfulH0ReportInformation-Item-ExtIEs } } OPTIONAL
}

SuccessfulH0ReportInformation-Item-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SuccessfulPSCellChangeReportInformationList ::= SEQUENCE (SIZE(1.. maxnoofSuccessfulPSCellChangeReports)) OF
SuccessfulPSCellChangeReportInformation-Item

SuccessfulPSCellChangeReportInformation-Item ::= SEQUENCE {
    successfulPSCellChangeReportContainer      OCTET STRING,
    iE-Extensions    ProtocolExtensionContainer { { SuccessfulPSCellChangeReportInformation-Item-ExtIEs } } OPTIONAL
}

SuccessfulPSCellChangeReportInformation-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SULAccessIndication ::= ENUMERATED {true,...}

SupportedSULFreqBandItem ::= SEQUENCE {
    freqBandIndicatorNr      INTEGER (1..1024,...),
    iE-Extensions    ProtocolExtensionContainer { { SupportedSULFreqBandItem-ExtIEs } } OPTIONAL,
    ...
}

SupportedSULFreqBandItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

SupportedUETypeList ::= SEQUENCE (SIZE(1.. maxnoofUETypes)) OF SupportedUETypeList-Item

SupportedUETypeList-Item ::= SEQUENCE {
    supportedUEType      ENUMERATED {non-redcap-eredcap-ue, redcap-eredcap-ue, ...},
    iE-Extensions    ProtocolExtensionContainer { { SupportedUETypeList-Item-ExtIEs } } OPTIONAL,
    ...
}

SupportedUETypeList-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

```

```

    ...
}

SurvivalTime ::= INTEGER (0.. 1920000,...)

SymbolAllocInSlot ::= CHOICE {
    all-DL                NULL,
    all-UL                NULL,
    both-DL-and-UL        NumDLULSymbols,
    choice-extension      ProtocolIE-SingleContainer { { SymbolAllocInSlot-ExtIEs } }
}

SymbolAllocInSlot-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

SymbolIndex ::= INTEGER (0..13)

SystemFrameNumber ::= INTEGER (0..1023)

SystemInformationAreaID ::=BIT STRING (SIZE (24))

-- T

TAI ::= SEQUENCE {
    pLMN-Identity          PLMN-Identity,
    fiveGS-TAC             FiveGS-TAC,
    iE-Extensions          ProtocolExtensionContainer { {TAI-ExtIEs} } OPTIONAL,
    ...
}

TAI-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TAAssistanceInfo ::= ENUMERATED{zero, ...}

FiveGS-TAC ::= OCTET STRING (SIZE(3))

Configured-EPS-TAC ::= OCTET STRING (SIZE(2))

TagIDPointer ::= OCTET STRING

TargetCellList ::= SEQUENCE (SIZE(1..maxnoofCH0cells)) OF TargetCellList-Item

TargetCellList-Item ::= SEQUENCE {
    target-cell            NRCGI,
    iE-Extensions          ProtocolExtensionContainer { { TargetCellList-Item-ExtIEs } } OPTIONAL
}

TargetCellList-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

NSAGSupportList ::= SEQUENCE (SIZE(1.. maxnoofNSAGs)) OF NSAGSupportItem

```
NSAGSupportItem ::= SEQUENCE {
    nSAG-ID          NSAG-ID,
    nSAGSliceSupport ExtendedSliceSupportList,
    iE-Extensions    ProtocolExtensionContainer { {NSAGSupportItem-ExtIEs} } OPTIONAL,
    ...
}
```

```
NSAGSupportItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
```

NSAG-ID ::= INTEGER (0..255, ...)

TCIStatesConfigurationsList ::= OCTET STRING

TAValue ::= INTEGER (0..4095)

```
TDD-Info ::= SEQUENCE {
    nRFreqInfo          NRFreqInfo,
    transmission-Bandwidth Transmission-Bandwidth,
    iE-Extensions       ProtocolExtensionContainer { {TDD-Info-ExtIEs} } OPTIONAL,
    ...
}
```

```
TDD-Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    {ID id-IntendedTDD-DL-ULConfig CRITICALITY ignore EXTENSION IntendedTDD-DL-ULConfig PRESENCE optional}|
    {ID id-TDD-UL-DLConfigCommonNR CRITICALITY ignore EXTENSION TDD-UL-DLConfigCommonNR PRESENCE optional }|
    {ID id-CarrierList CRITICALITY ignore EXTENSION NRCarrierList PRESENCE optional }|
    {ID id-Transmission-Bandwidth-asymmetric CRITICALITY ignore EXTENSION Transmission-Bandwidth-asymmetric PRESENCE optional },
    ...
}
```

```
TDD-InfoRel16 ::= SEQUENCE {
    tDD-FreqInfo          FreqInfoRel16 OPTIONAL,
    sUL-FreqInfo          FreqInfoRel16 OPTIONAL,
    tDD-UL-DLConfigCommonNR TDD-UL-DLConfigCommonNR OPTIONAL,
    iE-Extensions         ProtocolExtensionContainer { {TDD-InfoRel16-ExtIEs} } OPTIONAL,
    ...
}
```

```
TDD-InfoRel16-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}
```

TDD-UL-DLConfigCommonNR ::= OCTET STRING

```
TRPTEGInformation ::= CHOICE {
    rxTx-TEG          RXTxTEG,
```

```

    rx-TEG          RxTEG,
    choice-extension ProtocolIE-SingleContainer { { TRPTEGInformation-ExtIEs } }
}

TRPTEGInformation-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

RxTxTEG ::= SEQUENCE {
    trp-RxTx-TEGInformation TRP-RxTx-TEGInformation,
    trp-Tx-TEGInformation   TRP-Tx-TEGInformation   OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { RxTxTEG-ExtIEs } } OPTIONAL,
    ...
}

RxTxTEG-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

RxTEG ::= SEQUENCE {
    trp-Rx-TEGInformation TRP-Rx-TEGInformation,
    trp-Tx-TEGInformation TRP-Tx-TEGInformation,
    iE-Extensions         ProtocolExtensionContainer { { RxTEG-ExtIEs } } OPTIONAL,
    ...
}

RxTEG-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TimeReferenceInformation ::= SEQUENCE {
    referenceTime ReferenceTime,
    referenceSFN   ReferenceSFN,
    uncertainty    Uncertainty    OPTIONAL,
    timeInformationType TimeInformationType OPTIONAL,
    iE-Extensions  ProtocolExtensionContainer { { TimeReferenceInformation-ExtIEs } } OPTIONAL
}

TimeReferenceInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TimeInformationType ::= ENUMERATED {localClock}

TimeStamp ::= SEQUENCE {
    systemFrameNumber SystemFrameNumber,
    slotIndex          TimeStampSlotIndex,
    measurementTime    RelativeTime1900 OPTIONAL,
    iE-Extension        ProtocolExtensionContainer { { TimeStamp-ExtIEs } } OPTIONAL
}

TimeStamp-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-SymbolIndex CRITICALITY ignore EXTENSION SymbolIndex PRESENCE optional },
    ...
}

```

```

}

TimeStampSlotIndex ::= CHOICE {
    SCS-15          INTEGER(0..9),
    SCS-30          INTEGER(0..19),
    SCS-60          INTEGER(0..39),
    SCS-120         INTEGER(0..79),
    choice-extension ProtocolIE-SingleContainer { { TimeStampSlotIndex-ExtIEs } }
}

TimeStampSlotIndex-ExtIEs F1AP-PROTOCOL-IES ::= {
    { ID id-SCS-480    CRITICALITY reject TYPE SCS-480 PRESENCE mandatory}|
    { ID id-SCS-960    CRITICALITY reject TYPE SCS-960 PRESENCE mandatory},
    ...
}

TimeToWait ::= ENUMERATED {v1s, v2s, v5s, v10s, v20s, v60s, ...}

TimingErrorMargin ::= ENUMERATED {m0Tc, m2Tc, m4Tc, m6Tc, m8Tc, m12Tc, m16Tc, m20Tc, m24Tc, m32Tc, m40Tc, m48Tc, m56Tc, m64Tc, m72Tc, m80Tc, ...}

TimingMeasurementQuality ::= SEQUENCE {
    measurementQuality    INTEGER(0..31),
    resolution            ENUMERATED{m0dot1, m1, m10, m30, ...},
    iE-Extensions         ProtocolExtensionContainer { { TimingMeasurementQuality-ExtIEs } }    OPTIONAL
}

TimingMeasurementQuality-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TimingReportingGranularityFactorExtended ::= INTEGER(-6..-1,...)

TimeWindowStart ::= SEQUENCE {
    systemFrameNumber    SystemFrameNumber,
    slotNumber           SlotNumber,
    symbolIndex          INTEGER (0..13),
    iE-Extension         ProtocolExtensionContainer { { TimeWindowStart-ExtIEs } }    OPTIONAL,
    ...
}

TimeWindowStart-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TimeWindowInformation-Measurement-List ::= SEQUENCE (SIZE (1.. maxnoofTimeWindowMea)) OF TimeWindowInformation-Measurement-Item

TimeWindowInformation-Measurement-Item ::= SEQUENCE {
    timeWindowDurationMeasurement    TimeWindowDurationMeasurement,
    timeWindowType                   ENUMERATED {single, periodic, ...},
    timeWindowPeriodicityMeasurement    TimeWindowPeriodicityMeasurement    OPTIONAL,
    -- This IE shall be present if the Time Window Type IE is set to the value "periodic". --
    timeWindowStart                  TimeWindowStart,
    iE-Extension                     ProtocolExtensionContainer { { TimeWindowInformation-Measurement-Item-ExtIEs } }    OPTIONAL,
}

```

```

    ...}

TimeWindowInformation-Measurement-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TimeWindowInformation-SRS-List ::= SEQUENCE (SIZE (1.. maxnoofTimeWindowsSRS)) OF TimeWindowInformation-SRS-Item

TimeWindowInformation-SRS-Item ::= SEQUENCE {
    timeWindowStartSRS          TimeWindowStartSRS,
    timeWindowDurationSRS       TimeWindowDurationSRS,
    timeWindowType               ENUMERATED {single, periodic, ...},
    timeWindowPeriodicitySRS     TimeWindowPeriodicitySRS OPTIONAL,
    -- The above IE shall be present if the Time Window Type IE is set to the value "periodic".
    iE-Extension                 ProtocolExtensionContainer { { TimeWindowInformation-SRS-ExtIEs} } OPTIONAL,
    ...
}

TimeWindowInformation-SRS-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TimeWindowDurationMeasurement ::= CHOICE {
    durationSlots      ENUMERATED {n1, n2, n4, n6, n8, n12, n16, ...},
    choice-extension    ProtocolIE-SingleContainer { { TimeWindowDurationMeasurement-ExtIEs} }
}

TimeWindowDurationMeasurement-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

TimeWindowDurationSRS ::= CHOICE {
    durationSymbols      ENUMERATED {n1, n2, n4, n8, n12, ...},
    durationSlots        ENUMERATED {n1, n2, n4, n6, n8, n12, n16, ...},
    choice-extension      ProtocolIE-SingleContainer { { TimeWindowDurationSRS-ExtIEs} }
}

TimeWindowDurationSRS-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

TimeWindowPeriodicityMeasurement ::= ENUMERATED {ms160, ms320, ms640, ms1280, ms2560, ms5120, ms10240, ms20480, ms40960, ms61440, ms81920,
ms368640, ms737280, ms1843200, ...}

TimeWindowPeriodicitySRS ::= ENUMERATED {ms0dot125, ms0dot25, ms0dot5, ms0dot625, ms1, ms1dot25, ms2, ms2dot5, ms4, ms5, ms8, ms10, ms16, ms20,
ms32, ms40, ms64, ms80, ms160, ms320, ms640, ms1280, ms2560, ms5120, ms10240, ...}

TimeWindowStartSRS ::= SEQUENCE {
    systemFrameNumber      SystemFrameNumber,
    slotNumber              SlotNumber,
    symbolIndex             SymbolIndex,
    iE-Extension            ProtocolExtensionContainer { { TimeWindowStartSRS-ExtIEs} } OPTIONAL,
    ...
}

```

```

TimeWindowStartSRS-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TMGI ::= OCTET STRING (SIZE(6))

TNLAssociationUsage ::= ENUMERATED {
    ue,
    non-ue,
    both,
    ...
}

TNLCapacityIndicator ::= SEQUENCE {
    dLTNLOfferedCapacity      INTEGER (1.. 16777216,...),
    dLTNLAvailableCapacity    INTEGER (0.. 100,...),
    uLTNLOfferedCapacity      INTEGER (1.. 16777216,...),
    uLTNLAvailableCapacity    INTEGER (0.. 100,...),
    iE-Extensions    ProtocolExtensionContainer { { TNLCapacityIndicator-ExtIEs} } OPTIONAL
}

TNLCapacityIndicator-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TraceActivation ::= SEQUENCE {
    traceID                      TraceID,
    interfacesToTrace             InterfacesToTrace,
    traceDepth                    TraceDepth,
    traceCollectionEntityIPAddress TransportLayerAddress,
    iE-Extensions    ProtocolExtensionContainer { {TraceActivation-ExtIEs} } OPTIONAL
}

TraceActivation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    {ID id-mdtConfiguration      CRITICALITY ignore EXTENSION MDTConfiguration      PRESENCE optional}|
    {ID id-TraceCollectionEntityURI CRITICALITY ignore EXTENSION URI-address      PRESENCE optional},
    ...
}

TraceDepth ::= ENUMERATED {
    minimum,
    medium,
    maximum,
    minimumWithoutVendorSpecificExtension,
    mediumWithoutVendorSpecificExtension,
    maximumWithoutVendorSpecificExtension,
    ...
}

TraceID ::= OCTET STRING (SIZE(8))

TrafficMappingInfo ::= CHOICE {

```



```

    iPtolayer2TrafficMappingInfo
    bAPlayerBHRLCchannelMappingInfo
    choice-extension
}

TrafficMappingInfo-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

TransportLayerAddress ::= BIT STRING (SIZE(1..160, ...))

TransactionID ::= INTEGER (0..255, ...)

Transmission-Bandwidth ::= SEQUENCE {
    nRSCS NRSCS,
    nRNRB NRNRB,
    iE-Extensions ProtocolExtensionContainer { { Transmission-Bandwidth-ExtIEs} } OPTIONAL,
    ...
}

Transmission-Bandwidth-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Transmission-Bandwidth-asymmetric ::= SEQUENCE {
    ul-Transmission-Bandwidth Transmission-Bandwidth,
    dl-Transmission-Bandwidth Transmission-Bandwidth,
    iE-Extensions ProtocolExtensionContainer { { Transmission-Bandwidth-asymmetric-ExtIEs} } OPTIONAL,
    ...
}

Transmission-Bandwidth-asymmetric-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TransmissionComb ::= CHOICE {
    n2 SEQUENCE {
        combOffset-n2 INTEGER (0..1),
        cyclicShift-n2 INTEGER (0..7)
    },
    n4 SEQUENCE {
        combOffset-n4 INTEGER (0..3),
        cyclicShift-n4 INTEGER (0..11)
    },
    choice-extension ProtocolIE-SingleContainer { { TransmissionComb-ExtIEs} }
}

TransmissionComb-ExtIEs F1AP-PROTOCOL-IES ::= {
    { ID id-transmissionCombN8 CRITICALITY reject TYPE TransmissionCombN8 PRESENCE mandatory},
    ...
}

TransmissionCombN8 ::= SEQUENCE {
    combOffset-n8 INTEGER (0..7),
    cyclicShift-n8 INTEGER (0..5),

```

```

    iE-Extensions          ProtocolExtensionContainer { { TransmissionCombN8-ExtIEs } } OPTIONAL
}

TransmissionCombN8-ExtIEs  F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TransmissionCombPos ::= CHOICE {
    n2      SEQUENCE {
        combOffset-n2      INTEGER (0..1),
        cyclicShift-n2     INTEGER (0..7)
    },
    n4      SEQUENCE {
        combOffset-n4      INTEGER (0..3),
        cyclicShift-n4     INTEGER (0..11)
    },
    n8      SEQUENCE {
        combOffset-n8      INTEGER (0..7),
        cyclicShift-n8     INTEGER (0..5)
    },
}

    choice-extension          ProtocolIE-SingleContainer { { TransmissionCombPos-ExtIEs } }
}
TransmissionCombPos-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

TransmissionStopIndicator ::= ENUMERATED {true, ... }

Transport-UP-Layer-Address-Info-To-Add-List ::= SEQUENCE (SIZE(1.. maxnoofTLAs)) OF Transport-UP-Layer-Address-Info-To-Add-Item

Transport-UP-Layer-Address-Info-To-Add-Item ::= SEQUENCE {
    iP-SecTransportLayerAddress  TransportLayerAddress,
    gTPTransportLayerAddressToAdd  GTPTLAS OPTIONAL,
    iE-Extensions                ProtocolExtensionContainer { { Transport-UP-Layer-Address-Info-To-Add-ItemExtIEs } } OPTIONAL
}

Transport-UP-Layer-Address-Info-To-Add-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Transport-UP-Layer-Address-Info-To-Remove-List ::= SEQUENCE (SIZE(1.. maxnoofTLAs)) OF Transport-UP-Layer-Address-Info-To-Remove-Item

Transport-UP-Layer-Address-Info-To-Remove-Item ::= SEQUENCE {
    iP-SecTransportLayerAddress  TransportLayerAddress,
    gTPTransportLayerAddressToRemove  GTPTLAS OPTIONAL,
    iE-Extensions                ProtocolExtensionContainer { { Transport-UP-Layer-Address-Info-To-Remove-ItemExtIEs } } OPTIONAL
}

Transport-UP-Layer-Address-Info-To-Remove-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TransmissionActionIndicator ::= ENUMERATED {stop, ..., restart }

```

```

TRPBeamAntennaInformation ::= SEQUENCE {
    choice-TRP-Beam-Antenna-Info-Item      Choice-TRP-Beam-Antenna-Info-Item
    iE-Extensions                          ProtocolExtensionContainer {{ TRPBeamAntennaInformation-ExtIEs}}      OPTIONAL,
    ...
}

TRPBeamAntennaInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

Choice-TRP-Beam-Antenna-Info-Item ::= CHOICE {
    reference                TRPID,
    explicit                 TRP-BeamAntennaExplicitInformation,
    noChange                NULL,
    choice-extension        ProtocolIE-SingleContainer { { Choice-TRP-Beam-Info-Item-ExtIEs } }
}

Choice-TRP-Beam-Info-Item-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

TRP-BeamAntennaExplicitInformation ::= SEQUENCE {
    trp-BeamAntennaAngles      TRP-BeamAntennaAngles,
    lcs-to-gcs-translation      LCS-to-GCS-Translation      OPTIONAL,
    iE-Extensions              ProtocolExtensionContainer {{ TRP-BeamAntennaExplicitInformation-ExtIEs}}      OPTIONAL,
    ...
}

TRP-BeamAntennaExplicitInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TRP-BeamAntennaAngles ::= SEQUENCE (SIZE (1.. maxnoAzimuthAngles)) OF TRP-BeamAntennaAnglesList-Item

TRP-BeamAntennaAnglesList-Item ::= SEQUENCE {
    trp-azimuth-angle          INTEGER (0..359),
    trp-azimuth-angle-fine     INTEGER (0..9) OPTIONAL,
    trp-elevation-angle-list    SEQUENCE (SIZE (1.. maxnoElevationAngles)) OF TRP-ElevationAngleList-Item,
    iE-Extensions              ProtocolExtensionContainer {{ TRP-BeamAntennaAnglesList-Item-ExtIEs}}      OPTIONAL,
    ...
}

TRP-BeamAntennaAnglesList-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TRP-ElevationAngleList-Item ::= SEQUENCE {
    trp-elevation-angle        INTEGER (0..180),
    trp-elevation-angle-fine   INTEGER (0..9) OPTIONAL,
    trp-beam-power-list        SEQUENCE (SIZE (2..maxNumResourcesPerAngle)) OF TRP-Beam-Power-Item,
    iE-Extensions              ProtocolExtensionContainer {{ TRP-ElevationAngleList-Item-ExtIEs}}      OPTIONAL,

```

```

...
}
TRP-ElevationAngleList-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  ...
}

TRP-Beam-Power-Item ::= SEQUENCE {
  pRSResourceSetID          PRS-Resource-Set-ID          OPTIONAL,
  pRSResourceID             PRS-Resource-ID,
  relativePower             INTEGER (0..30), --negative value
  relativePowerFine         INTEGER (0..9)              OPTIONAL,
  iE-Extensions             ProtocolExtensionContainer {{ TRP-Beam-Power-Item-ExtIEs}} OPTIONAL,
  ...
}

TRP-Beam-Power-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  ...
}

TRPID ::= INTEGER (0.. maxnoofTRPs, ...)

TRPInformation ::= SEQUENCE {
  trPID                     TRPID,
  trPInformationTypeResponseList TRPInformationTypeResponseList,
  iE-Extensions             ProtocolExtensionContainer { { TRPInformation-ExtIEs } } OPTIONAL
}

TRPInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  { ID id-Mobile-IAB-MT-UE-ID          CRITICALITY reject EXTENSION Mobile-IAB-MT-UE-ID          PRESENCE optional},
  -- The above IE shall be present if the TRP type IE is set to the value "mobile-trp"
  ...
}

TRPInformationItem ::= SEQUENCE {
  trPInformation            TRPInformation,
  iE-Extensions             ProtocolExtensionContainer { { TRPInformationItem-ExtIEs } } OPTIONAL
}

TRPInformationItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  ...
}

TRPInformationTypeItem ::= ENUMERATED {
  nrPCI,
  nG-RAN-CGI,
  arfcn,
  pRSConfig,
  sSBConfig,
  sFNInitTime,
  spatialDirectInfo,
  geoCoord,
  ...,
  trp-type,

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    ondemandPRS,
    trpTxTeg,
    beam-antenna-info,
    mobile-trp-location-info
}

TRPInformationTypeResponseList ::= SEQUENCE (SIZE(1.. maxnoofTRPInfoTypes)) OF TRPInformationTypeResponseItem

TRPInformationTypeResponseItem ::= CHOICE {
    pCI-NR                        NRPCI,
    nG-RAN-CGI                  NRCGI,
    nRARFCN                     INTEGER (0..maxNRARFCN),
    pRSConfiguration            PRSConfiguration,
    sSBInformation              SSBInformation,
    sFNInitialisationTime       RelativeTime1900,
    spatialDirectionInformation SpatialDirectionInformation,
    geographicalCoordinates      GeographicalCoordinates,
    choice-extension             ProtocolIE-SingleContainer { { TRPInformationTypeResponseItem-ExtIEs } }
}

TRPInformationTypeResponseItem-ExtIEs F1AP-PROTOCOL-IES ::= {
    { ID id-TRPType                CRITICALITY reject      TYPE TRPType                PRESENCE mandatory }|
    { ID id-OnDemandPRS            CRITICALITY reject      TYPE OnDemandPRS-Info        PRESENCE mandatory }|
    { ID id-TRPTxTEGAssociation     CRITICALITY reject      TYPE TRPTxTEGAssociation     PRESENCE mandatory }|
    { ID id-TRPBeamAntennaInformation CRITICALITY reject      TYPE TRPBeamAntennaInformation PRESENCE mandatory }|
    { ID id-Mobile-TRP-LocationInformation CRITICALITY ignore    TYPE Mobile-TRP-LocationInformation PRESENCE mandatory },
    ...
}

TRPList ::= SEQUENCE (SIZE(1.. maxnoofTRPs)) OF TRPListItem

TRPListItem ::= SEQUENCE {
    trPID                        TRPID,
    iE-Extensions                ProtocolExtensionContainer { { TRPListItem-ExtIEs } } OPTIONAL
}

TRPListItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TRPMeasurementQuality ::= SEQUENCE {
    trpMeasurementQuality-Item TRPMeasurementQuality-Item,
    iE-Extensions              ProtocolExtensionContainer { {TRPMeasurementQuality-ExtIEs} } OPTIONAL
}

TRPMeasurementQuality-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TRPMeasurementQuality-Item ::= CHOICE {
    timingMeasurementQuality TimingMeasurementQuality,

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    angleMeasurementQuality      AngleMeasurementQuality,
    choice-extension              ProtocolIE-SingleContainer { { TRPMeasurementQuality-Item-ExtIEs } }
}

TRPMeasurementQuality-Item-ExtIEs F1AP-PROTOCOL-IES ::= {
    {ID id-PhaseQuality          CRITICALITY ignore TYPE PhaseQuality          PRESENCE mandatory},
    ...
}

PhaseQuality ::= SEQUENCE {
    phaseQualityIndex            INTEGER(0..179),
    phaseQualityResolution       ENUMERATED {deg0dot1, deg1, ...},
    iE-Extensions                ProtocolExtensionContainer { { PhaseQuality-ExtIEs } } OPTIONAL
}

PhaseQuality-ExtIEs            F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TRP-MeasurementRequestList ::= SEQUENCE (SIZE (1..maxNoOfMeasTRPs)) OF TRP-MeasurementRequestItem

TRP-MeasurementRequestItem ::= SEQUENCE {
    tRPID                        TRPID,
    search-window-information     Search-window-information OPTIONAL,
    iE-extensions                ProtocolExtensionContainer { { TRP-MeasurementRequestItem-ExtIEs } } OPTIONAL
}

TRP-MeasurementRequestItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-NRCGI                CRITICALITY ignore EXTENSION NRCGI                PRESENCE optional }|
    { ID id-AoA-SearchWindow     CRITICALITY ignore EXTENSION AoA-AssistanceInfo   PRESENCE optional }|
    { ID id-NumberOfTRPRxTEG     CRITICALITY ignore EXTENSION NumberOfTRPRxTEG     PRESENCE optional }|
    { ID id-NumberOfTRPRxTxTEG   CRITICALITY ignore EXTENSION NumberOfTRPRxTxTEG   PRESENCE optional },
    ...
}

TRP-PRS-Info-List ::= SEQUENCE (SIZE(1.. maxnoofPRSTRPs)) OF TRP-PRS-Info-List-Item

TRP-PRS-Info-List-Item ::= SEQUENCE {
    tRP-ID                      TRPID,
    nR-PCI                      NRPCI,
    CGI-NR                      NRCGI                OPTIONAL,
    pRSConfiguration            PRSConfiguration,
    iE-Extensions                ProtocolExtensionContainer { { TRP-PRS-Info-List-Item-ExtIEs } } OPTIONAL,
    ...
}

TRP-PRS-Info-List-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TRPPositionDefinitionType ::= CHOICE {
    direct                      TRPPositionDirect,
    referenced                  TRPPositionReferenced,
}

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    choice-extension                ProtocolIE-SingleContainer { { TRPPositionDefinitionType-ExtIEs } }
}

TRPPositionDefinitionType-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

TRPPositionDirect ::= SEQUENCE {
    accuracy        TRPPositionDirectAccuracy,
    iE-extensions    ProtocolExtensionContainer { { TRPPositionDirect-ExtIEs } } OPTIONAL
}

TRPPositionDirect-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TRPPositionDirectAccuracy ::= CHOICE {
    trPPosition      AccessPointPosition,
    trPHAposition     NGRANHighAccuracyAccessPointPosition,
    choice-extension  ProtocolIE-SingleContainer { { TRPPositionDirectAccuracy-ExtIEs } }
}

TRPPositionDirectAccuracy-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

TRPPositionReferenced ::= SEQUENCE {
    referencePoint      ReferencePoint,
    referencePointType  TRPReferencePointType,
    iE-extensions        ProtocolExtensionContainer { { TRPPositionReferenced-ExtIEs } } OPTIONAL
}

TRPPositionReferenced-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TRPReferencePointType ::= CHOICE {
    trPPositionRelativeGeodetic      RelativeGeodeticLocation,
    trPPositionRelativeCartesian     RelativeCartesianLocation,
    choice-extension                  ProtocolIE-SingleContainer { { TRPReferencePointType-ExtIEs } }
}

TRPReferencePointType-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

TRP-Rx-TEGInformation ::= SEQUENCE {
    trP-Rx-TEGID      INTEGER (0..31),
    trP-Rx-TimingErrorMargin TimingErrorMargin,
    iE-Extensions      ProtocolExtensionContainer { { TRP-Rx-TEGInformation-ExtIEs } } OPTIONAL,
    ...
}

TRP-Rx-TEGInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

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```

    ...
}

TRP-RxTx-TEGInformation ::= SEQUENCE {
    trp-RxTx-TEGID          INTEGER (0..255),
    trp-RxTx-TimingErrorMargin RxTxTimingErrorMargin,
    iE-Extensions           ProtocolExtensionContainer { { TRP-RxTx-TEGInformation-ExtIEs } } OPTIONAL,
    ...
}

TRP-RxTx-TEGInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TRP-Tx-TEGInformation ::= SEQUENCE {
    trp-Tx-TEGID          INTEGER (0..7),
    trp-Tx-TimingErrorMargin TimingErrorMargin,
    iE-Extensions         ProtocolExtensionContainer { { TRP-Tx-TEGInformation-ExtIEs } } OPTIONAL,
    ...
}

TRP-Tx-TEGInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TRPTxTEGAssociation ::= SEQUENCE (SIZE(1.. maxnoTRPTEGs)) OF TRPTEG-Item

TRPTEG-Item ::= SEQUENCE {
    trp-Tx-TEGInformation    TRP-Tx-TEGInformation,
    dl-PRSResourceSetID      PRS-Resource-Set-ID,
    dl-PRSResourceID-List    SEQUENCE (SIZE(1.. maxnoofPRS-ResourcesPerSet)) OF DLPRSResourceID-Item OPTIONAL,
    iE-Extensions           ProtocolExtensionContainer { { TRPTEGItem-ExtIEs } } OPTIONAL,
    ...
}

TRPTEGItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

DLPRSResourceID-Item ::= SEQUENCE {
    dl-PRSResourceID        PRS-Resource-ID,
    iE-Extensions          ProtocolExtensionContainer { { DLPRSResource-Item-ExtIEs } } OPTIONAL,
    ...
}

DLPRSResource-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TypeOfError ::= ENUMERATED {
    not-understood,
    missing,

```



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    ...
}

Transport-Layer-Address-Info ::= SEQUENCE {
    transport-UP-Layer-Address-Info-To-Add-List    Transport-UP-Layer-Address-Info-To-Add-List    OPTIONAL,
    transport-UP-Layer-Address-Info-To-Remove-List Transport-UP-Layer-Address-Info-To-Remove-List OPTIONAL,
    iE-Extensions    ProtocolExtensionContainer { { Transport-Layer-Address-Info-ExtIEs } }    OPTIONAL
}

Transport-Layer-Address-Info-ExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TRPType ::= ENUMERATED {
    prsOnlyTP,
    srsOnlyRP,
    tp,
    rp,
    trp,
    ...,
    mobile-trp
}

TSCAssistanceInformation ::= SEQUENCE {
    periodicity            Periodicity,
    burstArrivalTime      BurstArrivalTime
    iE-Extensions          ProtocolExtensionContainer { {TSCAssistanceInformation-ExtIEs} }    OPTIONAL,
    ...                    OPTIONAL,
}

TSCAssistanceInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-SurvivalTime    CRITICALITY ignore  EXTENSION SurvivalTime    PRESENCE optional }|
    { ID id-RANfeedbacktype CRITICALITY ignore  EXTENSION RANfeedbacktype PRESENCE optional}|
    { ID id-N6JitterInformation CRITICALITY ignore  EXTENSION N6JitterInformation PRESENCE optional },
    ...
}

TSCTrafficCharacteristics ::= SEQUENCE {
    tSCAssistanceInformationDL    TSCAssistanceInformation    OPTIONAL,
    tSCAssistanceInformationUL    TSCAssistanceInformation    OPTIONAL,
    iE-Extensions    ProtocolExtensionContainer { {TSCTrafficCharacteristics-ExtIEs} }    OPTIONAL,
    ...
}

TSCTrafficCharacteristics-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TSCTrafficCharacteristicsFeedback ::= SEQUENCE {
    tSCFeedbackInformationDL    TSCFeedbackInformation    OPTIONAL,
    tSCFeedbackInformationUL    TSCFeedbackInformation    OPTIONAL,
    iE-Extensions    ProtocolExtensionContainer { { TSCTrafficCharacteristicsFeedback-ExtIEs} }    OPTIONAL,
    ...
}

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TSTrafficCharacteristicsFeedback-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TSCFeedbackInformation ::= SEQUENCE {
    burstArrivalTimeOffset          INTEGER (-640000..640000, ...),
    adjustedPeriodicity             Periodicity OPTIONAL,
    iE-Extensions                   ProtocolExtensionContainer { { TSCFeedbackInformation-ExtIEs } } OPTIONAL,
    ...
}

TSCFeedbackInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TRP-MeasurementUpdateList ::= SEQUENCE (SIZE (1..maxNoOfMeasTRPs)) OF TRP-MeasurementUpdateItem

TRP-MeasurementUpdateItem ::= SEQUENCE {
    trp-ID                         TRPID,
    aoA-window-information         AoA-AssistanceInfo OPTIONAL,
    iE-extensions                   ProtocolExtensionContainer { { TRP-MeasurementUpdateItem-ExtIEs } } OPTIONAL,
    ...
}

TRP-MeasurementUpdateItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-NumberOfTRPRxTEG      CRITICALITY ignore EXTENSION NumberOfTRPRxTEG      PRESENCE optional }|
    { ID id-NumberOfTRPRxTxTEG    CRITICALITY ignore EXTENSION NumberOfTRPRxTxTEG    PRESENCE optional },
    ...
}

TwoPHRModeMCG ::= ENUMERATED {enabled, ...}

TwoPHRModeSCG ::= ENUMERATED {enabled, ...}

TxHoppingConfiguration ::= SEQUENCE {
    overlapValue                   ENUMERATED {rb0, rb1, rb2, rb4},
    numberOfHops                   INTEGER (2..6),
    slotOffsetForRemainingHopsList SlotOffsetForRemainingHopsList,
    iE-extensions                   ProtocolExtensionContainer { { TxHoppingConfiguration-ExtIEs } } OPTIONAL,
    ...
}

TxHoppingConfiguration-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

TAInformation-List ::= SEQUENCE (SIZE(1.. maxnoofTAList)) OF TAInformation-Item

TAInformation-Item ::= SEQUENCE {
    nRCGI                         NRCGI,
    tAValue                       TAValue,
    iE-Extensions                   ProtocolExtensionContainer { { TAInformation-Item-ExtIEs } } OPTIONAL,
    ...
}

```

```

}

TAInformation-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  { ID id-TagIDPointer CRITICALITY ignore EXTENSION TagIDPointer PRESENCE optional},
  ...
}

-- U
UAC-Assistance-Info ::= SEQUENCE {
  uACPLMN-List UACPLMN-List,
  iE-Extensions ProtocolExtensionContainer { { UAC-Assistance-InfoExtIEs } } OPTIONAL
}

UAC-Assistance-InfoExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  ...
}

UACPLMN-List ::= SEQUENCE (SIZE(1..maxnoofUACPLMNs)) OF UACPLMN-Item

UACPLMN-Item ::= SEQUENCE {
  pLMNIdentity PLMN-Identity,
  uACType-List UACType-List, iE-Extensions ProtocolExtensionContainer { { UACPLMN-Item-ExtIEs } } OPTIONAL
}

UACPLMN-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  { ID id-NID CRITICALITY ignore EXTENSION NID PRESENCE optional },
  ...
}

UACType-List ::= SEQUENCE (SIZE(1..maxnoofUACperPLMN)) OF UACType-Item

UACType-Item ::= SEQUENCE {
  uACReductionIndication UACReductionIndication,
  uACCategoryType UACCategoryType,
  iE-Extensions ProtocolExtensionContainer { { UACType-Item-ExtIEs } } OPTIONAL
}

UACType-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
  ...
}

UACCategoryType ::= CHOICE {
  uACstandardized UACAction,
  uACOperatorDefined UACOperatorDefined,
  choice-extension ProtocolIE-SingleContainer { { UACCategoryType-ExtIEs } }
}

UACCategoryType-ExtIEs F1AP-PROTOCOL-IES ::= {
  ...
}

UACOperatorDefined ::= SEQUENCE {
  accessCategory INTEGER (32..63,...),

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    accessIdentity          BIT STRING (SIZE(7)),
    iE-Extensions          ProtocolExtensionContainer { { UACOperatorDefined-ExtIEs} } OPTIONAL
}

UACOperatorDefined-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

UACAction ::= ENUMERATED {
    reject-non-emergency-mo-dt,
    reject-rrc-cr-signalling,
    permit-emergency-sessions-and-mobile-terminated-services-only,
    permit-high-priority-sessions-and-mobile-terminated-services-only,
    ...
}

UACReductionIndication ::= INTEGER (0..100)

UE-associatedLogicalF1-ConnectionItem ::= SEQUENCE {
    gNB-CU-UE-F1AP-ID      GNB-CU-UE-F1AP-ID      OPTIONAL,
    gNB-DU-UE-F1AP-ID      GNB-DU-UE-F1AP-ID      OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { UE-associatedLogicalF1-ConnectionItemExtIEs} } OPTIONAL,
    ...
}

UEAssistanceInformation ::= OCTET STRING

UEAssistanceInformationEUTRA ::= OCTET STRING

UE-associatedLogicalF1-ConnectionItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

UE-CapabilityRAT-ContainerList ::= OCTET STRING

UEContextNotRetrievable ::= ENUMERATED {true, ...}

UEIdentityIndexValue ::= CHOICE {
    indexLength10          BIT STRING (SIZE (10)),
    choice-extension        ProtocolIE-SingleContainer { {UEIdentityIndexValueChoice-ExtIEs} }
}

UEIdentityIndexValueChoice-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

UEIdentity-List-For-Paging-Item ::= SEQUENCE {
    uEIdentityIndexValue    UEIdentityIndexValue,
    pagingDRX               PagingDRX            OPTIONAL,
    iE-Extensions           ProtocolExtensionContainer { { UEIdentity-List-For-Paging-Item-ExtIEs} } OPTIONAL
}

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UEIdentity-List-For-Paging-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

UE-MulticastMRBs-ConfirmedToBeModified-Item ::= SEQUENCE {
    mRB-ID MRB-ID,
    mrb-type-reconfiguration MBSPTPretransmissionTunnelRequired OPTIONAL,
    iE-Extensions ProtocolExtensionContainer { { UE-MulticastMRBs-ConfirmedToBeModified-Item-ExtIEs } } OPTIONAL
}

UE-MulticastMRBs-ConfirmedToBeModified-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

UE-MulticastMRBs-RequiredToBeModified-Item ::= SEQUENCE {
    mRB-ID MRB-ID,
    mrb-type-reconfiguration ENUMERATED {true, ...} OPTIONAL,
    mrb-reconfigured-RLCtype ENUMERATED {
        rlc-um-ptp,
        rlc-am-ptp,
        rlc-um-dl-ptm,
        two-rlc-um-dl-ptp-and-dl-ptm,
        three-rlc-um-dl-ptp-ul-ptp-dl-ptm,
        two-rlc-am-ptp-um-dl-ptm,
        ...} OPTIONAL,
    -- The above IE shall be present if the MRB Type Reconfiguration IE is present.
    iE-Extensions ProtocolExtensionContainer { { UE-MulticastMRBs-RequiredToBeModified-Item-ExtIEs } } OPTIONAL
}

UE-MulticastMRBs-RequiredToBeModified-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-MulticastF1UContextReferenceCU CRITICALITY reject EXTENSION MulticastF1UContextReferenceCU PRESENCE
optional},
    ...
}

UE-MulticastMRBs-RequiredToBeReleased-Item ::= SEQUENCE {
    mRB-ID MRB-ID,
    iE-Extensions ProtocolExtensionContainer { { UE-MulticastMRBs-RequiredToBeReleased-Item-ExtIEs } } OPTIONAL
}

UE-MulticastMRBs-RequiredToBeReleased-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

UE-MulticastMRBs-Setup-Item ::= SEQUENCE {
    mRB-ID MRB-ID,
    multicastF1UContextReferenceCU MulticastF1UContextReferenceCU,
    iE-Extensions ProtocolExtensionContainer { { UE-MulticastMRBs-Setup-Item-ExtIEs } } OPTIONAL
}

UE-MulticastMRBs-Setup-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

UE-MulticastMRBs-Setupnew-Item ::= SEQUENCE {

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    mRB-ID                MRB-ID,
    multicastF1UContextReferenceCU MulticastF1UContextReferenceCU,
    iE-Extensions          ProtocolExtensionContainer { { UE-MulticastMRBs-Setupnew-Item-ExtIEs } } OPTIONAL
}

UE-MulticastMRBs-Setupnew-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

UE-MulticastMRBs-ToBeReleased-Item ::= SEQUENCE {
    mRB-ID                MRB-ID,
    iE-Extensions          ProtocolExtensionContainer { { UE-MulticastMRBs-ToBeReleased-Item-ExtIEs } } OPTIONAL
}

UE-MulticastMRBs-ToBeReleased-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

UE-MulticastMRBs-ToBeSetup-Item ::= SEQUENCE {
    mRB-ID                MRB-ID,
    mbsPTPRetransmissionTunnelRequired MBSPTPRetransmissionTunnelRequired OPTIONAL,
    mbsPTPForwardingRequiredInformation MRB-ProgressInformation OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { UE-MulticastMRBs-ToBeSetup-Item-ExtIEs } } OPTIONAL
}

UE-MulticastMRBs-ToBeSetup-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-Source-MRB-ID CRITICALITY ignore EXTENSION MRB-ID PRESENCE optional },
    ...
}

UE-MulticastMRBs-ToBeSetup-atModify-Item ::= SEQUENCE {
    mRB-ID                MRB-ID,
    mbsPTPRetransmissionTunnelRequired MBSPTPRetransmissionTunnelRequired OPTIONAL,
    mbsPTPForwardingRequiredInformation MRB-ProgressInformation OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { { UE-MulticastMRBs-ToBeSetup-atModify-Item-ExtIEs } } OPTIONAL
}

UE-MulticastMRBs-ToBeSetup-atModify-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

UEPagingCapability ::= SEQUENCE {
    iNACTIVEStatePODetermination ENUMERATED {supported, ...} OPTIONAL,
    iE-Extension                  ProtocolExtensionContainer { { UEPagingCapability-ExtIEs } } OPTIONAL,
    ...
}

UEPagingCapability-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-RedCapIndication CRITICALITY ignore EXTENSION RedCapIndication PRESENCE optional },
    ...
}

UEReportingInformation ::= SEQUENCE {

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    reportingAmount          ENUMERATED {ma0, ma1, ma2, ma4, ma8, ma16, ma32, ma64},
    reportingInterval        ENUMERATED {none, one, two, four, eight, ten, sixteen, twenty, thirty-two, sixty-four, ...},
    iE-extensions            ProtocolExtensionContainer { { UEReportingInformation-ExtIEs } } OPTIONAL,
    ...
}

UEReportingInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-ReportingIntervalIMS          CRITICALITY ignore EXTENSION ReportingIntervalIMS    PRESENCE optional },
    ...
}

ULTxDirectCurrentMoreCarrierInformation ::= OCTET STRING

UL-AoA ::= SEQUENCE {
    azimuthAoA                INTEGER (0..3599),
    zenithAoA                 INTEGER (0..1799) OPTIONAL,
    LCS-to-GCS-Translation    LCS-to-GCS-Translation OPTIONAL,
    iE-extensions            ProtocolExtensionContainer { { UL-AoA-ExtIEs } } OPTIONAL,
    ...
}

UL-AoA-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

UL-BH-Non-UP-Traffic-Mapping ::= SEQUENCE {
    uL-BH-Non-UP-Traffic-Mapping-List    UL-BH-Non-UP-Traffic-Mapping-List,
    iE-Extensions    ProtocolExtensionContainer { { UL-BH-Non-UP-Traffic-Mapping-ExtIEs } } OPTIONAL
}

UL-BH-Non-UP-Traffic-Mapping-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

UL-BH-Non-UP-Traffic-Mapping-List ::= SEQUENCE (SIZE(1..maxnoofNonUPTrafficMappings)) OF UL-BH-Non-UP-Traffic-Mapping-Item

UL-BH-Non-UP-Traffic-Mapping-Item ::= SEQUENCE {
    nonUPTrafficType    NonUPTrafficType,
    bhInfo              BHInfo,
    iE-Extensions       ProtocolExtensionContainer { { UL-BH-Non-UP-Traffic-Mapping-ItemExtIEs } } OPTIONAL
}

UL-BH-Non-UP-Traffic-Mapping-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

ULConfiguration ::= SEQUENCE {
    uLUEConfiguration    ULUEConfiguration,
    iE-Extensions    ProtocolExtensionContainer { { ULConfigurationExtIEs } } OPTIONAL,
    ...
}

ULConfigurationExtIEs F1AP-PROTOCOL-EXTENSION ::= {

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    ...
}

UL-GapFR2-Config ::= OCTET STRING

UL-RT0A-Measurement ::= SEQUENCE {
    uL-RT0A-MeasurementItem      UL-RT0A-MeasurementItem,
    additionalPath-List          AdditionalPath-List OPTIONAL,
    iE-Extensions                ProtocolExtensionContainer { { UL-RT0A-Measurement-ExtIEs } } OPTIONAL
}

UL-RT0A-Measurement-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-ExtendedAdditionalPathList CRITICALITY ignore EXTENSION ExtendedAdditionalPathList PRESENCE optional}|
    { ID id-TRPRx-TEGInformation        CRITICALITY ignore EXTENSION TRP-Rx-TEGInformation        PRESENCE optional},
    ...
}

UL-RT0A-MeasurementItem ::= CHOICE {
    k0          INTEGER (0..1970049),
    k1          INTEGER (0..985025),
    k2          INTEGER (0..492513),
    k3          INTEGER (0..246257),
    k4          INTEGER (0..123129),
    k5          INTEGER (0..61565),
    choice-extension ProtocolIE-SingleContainer { { UL-RT0A-MeasurementItem-ExtIEs } }
}

UL-RT0A-MeasurementItem-ExtIEs F1AP-PROTOCOL-IES ::= {
    {ID id-ReportingGranularitykminus1 CRITICALITY ignore TYPE ReportingGranularitykminus1 PRESENCE mandatory}|
    {ID id-ReportingGranularitykminus2 CRITICALITY ignore TYPE ReportingGranularitykminus2 PRESENCE mandatory }|
    {ID id-ReportingGranularitykminus3 CRITICALITY ignore TYPE ReportingGranularitykminus3 PRESENCE mandatory}|
    {ID id-ReportingGranularitykminus4 CRITICALITY ignore TYPE ReportingGranularitykminus4 PRESENCE mandatory}|
    {ID id-ReportingGranularitykminus5 CRITICALITY ignore TYPE ReportingGranularitykminus5 PRESENCE mandatory}|
    {ID id-ReportingGranularitykminus6 CRITICALITY ignore TYPE ReportingGranularitykminus6 PRESENCE mandatory},
    ...
}

UL-SRS-RSRP ::= INTEGER (0..126)

UL-SRS-RSRPP ::= SEQUENCE {
    firstPathRSRPP          INTEGER (0..126),
    iE-extensions            ProtocolExtensionContainer { { UL-SRS-RSRPP-ExtIEs } } OPTIONAL,
    ...
}

UL-SRS-RSRPP-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

UL-RSCP ::= SEQUENCE {
    uLRSCP          INTEGER (0..3599),
    iE-extensions    ProtocolExtensionContainer { { UL-RSCP-ExtIEs } } OPTIONAL,
    ...
}

```



```

UL-RSCP-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

ULUEConfiguration ::= ENUMERATED {no-data, shared, only, ...}

UL-UP-TNL-Information-to-Update-List-Item ::= SEQUENCE {
    uLUPTNLInformation    UPTransportLayerInformation,
    newULUPTNLInformation UPTransportLayerInformation    OPTIONAL,
    bHInfo    BHInfo,
    iE-Extensions    ProtocolExtensionContainer { { UL-UP-TNL-Information-to-Update-List-ItemExtIEs } }    OPTIONAL,
    ...
}

UL-UP-TNL-Information-to-Update-List-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

UL-UP-TNL-Address-to-Update-List-Item ::= SEQUENCE {
    oldIPAddress    TransportLayerAddress,
    newIPAddress    TransportLayerAddress,
    iE-Extensions    ProtocolExtensionContainer { { UL-UP-TNL-Address-to-Update-List-ItemExtIEs } }    OPTIONAL,
    ...
}

UL-UP-TNL-Address-to-Update-List-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

ULUPTNLInformation-ToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofULUPTNLInformation)) OF ULUPTNLInformation-ToBeSetup-Item

ULUPTNLInformation-ToBeSetup-Item ::=SEQUENCE {
    uLUPTNLInformation    UPTransportLayerInformation,
    iE-Extensions    ProtocolExtensionContainer { { ULUPTNLInformation-ToBeSetup-ItemExtIEs } }    OPTIONAL,
    ...
}

ULUPTNLInformation-ToBeSetup-ItemExtIEs    F1AP-PROTOCOL-EXTENSION ::= {
    { ID id-BHInfo    CRITICALITY ignore    EXTENSION BHInfo    PRESENCE optional    }|
    { ID id-DRBMappingInfo    CRITICALITY ignore    EXTENSION UuRLCChannelID    PRESENCE optional    },
    ...
}

Uncertainty ::= INTEGER (0..32767, ...)

UplinkChannelBW-PerSCS-List ::= SEQUENCE (SIZE (1..maxnoSCSs)) OF SCS-SpecificCarrier

UplinkTxDirectCurrentListInformation ::= OCTET STRING

UplinkTxDirectCurrentTwoCarrierListInfo ::= OCTET STRING

ULTCIStateID ::= OCTET STRING

```

```

UPTransportLayerInformation ::= CHOICE {
    gTPTunnel          GTP Tunnel,
    choice-extension   ProtocolIE-SingleContainer { { UPTransportLayerInformation-ExtIEs} }
}

UPTransportLayerInformation-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

URI-address ::= VisibleString

Uncertainty-range-AoA ::= INTEGER (0..3599)

Uncertainty-range-ZoA ::= INTEGER (0..1799)

UuRLCChannelID ::= INTEGER (1..32)

UuRLCChannelQoSInformation ::= CHOICE {
    uuRLCChannelQoS          QoSFlowLevelQoSParameters,
    uuControlPlaneTrafficType ENUMERATED {srb0,srb1,srb2,...},
    choice-extension         ProtocolIE-SingleContainer { { UuRLCChannelQoSInformation-ExtIEs} }
}

UuRLCChannelQoSInformation-ExtIEs F1AP-PROTOCOL-IES ::= {
    ...
}

UuRLCChannelToBeSetupList ::= SEQUENCE (SIZE(1.. maxnoofUuRLCChannels)) OF UuRLCChannelToBeSetupItem

UuRLCChannelToBeSetupItem ::= SEQUENCE {
    uuRLCChannelID          UuRLCChannelID,
    uuRLCChannelQoSInformation UuRLCChannelQoSInformation,
    rLCMode                 RLCMode,
    iE-Extensions           ProtocolExtensionContainer { { UuRLCChannelToBeSetupItem-ExtIEs } } OPTIONAL,
    ...
}

UuRLCChannelToBeSetupItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

UuRLCChannelToBeModifiedList ::= SEQUENCE (SIZE(1.. maxnoofUuRLCChannels)) OF UuRLCChannelToBeModifiedItem

UuRLCChannelToBeModifiedItem ::= SEQUENCE {
    uuRLCChannelID          UuRLCChannelID,
    uuRLCChannelQoSInformation UuRLCChannelQoSInformation OPTIONAL,
    rLCMode                 RLCMode OPTIONAL,
    iE-Extensions           ProtocolExtensionContainer { { UuRLCChannelToBeModifiedItem-ExtIEs } } OPTIONAL,
    ...
}

UuRLCChannelToBeModifiedItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

```

```

    ...
}

UuRLCChannelToBeReleasedList ::= SEQUENCE (SIZE(1.. maxnoofUuRLCChannels)) OF UuRLCChannelToBeReleasedItem

UuRLCChannelToBeReleasedItem ::= SEQUENCE {
    uuRLCChannelID      UuRLCChannelID,
    iE-Extensions       ProtocolExtensionContainer { { UuRLCChannelToBeReleasedItem-ExtIEs } } OPTIONAL,
    ...
}

UuRLCChannelToBeReleasedItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

UuRLCChannelSetupList ::= SEQUENCE (SIZE(1.. maxnoofUuRLCChannels)) OF UuRLCChannelSetupItem

UuRLCChannelSetupItem ::= SEQUENCE {
    uuRLCChannelID      UuRLCChannelID,
    iE-Extensions       ProtocolExtensionContainer { { UuRLCChannelSetupItem-ExtIEs } } OPTIONAL,
    ...
}

UuRLCChannelSetupItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

UuRLCChannelFailedToBeSetupList ::= SEQUENCE (SIZE(1.. maxnoofUuRLCChannels)) OF UuRLCChannelFailedToBeSetupItem

UuRLCChannelFailedToBeSetupItem ::= SEQUENCE {
    uuRLCChannelID      UuRLCChannelID,
    cause               Cause OPTIONAL,
    iE-Extensions       ProtocolExtensionContainer { { UuRLCChannelFailedToBeSetupItem-ExtIEs } } OPTIONAL,
    ...
}

UuRLCChannelFailedToBeSetupItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

UuRLCChannelModifiedList ::= SEQUENCE (SIZE(1.. maxnoofUuRLCChannels)) OF UuRLCChannelModifiedItem

UuRLCChannelModifiedItem ::= SEQUENCE {
    uuRLCChannelID      UuRLCChannelID,
    iE-Extensions       ProtocolExtensionContainer { { UuRLCChannelModifiedItem-ExtIEs } } OPTIONAL,
    ...
}

UuRLCChannelModifiedItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

UuRLCChannelFailedToBeModifiedList ::= SEQUENCE (SIZE(1.. maxnoofUuRLCChannels)) OF UuRLCChannelFailedToBeModifiedItem

```

```

UuRLCChannelFailedToBeModifiedItem ::= SEQUENCE {
    uuRLCChannelID      UuRLCChannelID,
    cause               Cause    OPTIONAL,
    iE-Extensions       ProtocolExtensionContainer { { UuRLCChannelFailedToBeModifiedItem-ExtIEs } } OPTIONAL,
    ...
}

UuRLCChannelFailedToBeModifiedItem-ExtIEs  F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

UuRLCChannelRequiredToBeModifiedList ::= SEQUENCE (SIZE(1.. maxnoofUuRLCChannels)) OF UuRLCChannelRequiredToBeModifiedItem

UuRLCChannelRequiredToBeModifiedItem ::= SEQUENCE {
    uuRLCChannelID      UuRLCChannelID,
    iE-Extensions       ProtocolExtensionContainer { { UuRLCChannelRequiredToBeModifiedItem-ExtIEs } } OPTIONAL,
    ...
}

UuRLCChannelRequiredToBeModifiedItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

UuRLCChannelRequiredToBeReleasedList ::= SEQUENCE (SIZE(1.. maxnoofUuRLCChannels)) OF UuRLCChannelRequiredToBeReleasedItem

UuRLCChannelRequiredToBeReleasedItem ::= SEQUENCE {
    uuRLCChannelID      UuRLCChannelID,
    iE-Extensions       ProtocolExtensionContainer { { UuRLCChannelRequiredToBeReleasedItem-ExtIEs } } OPTIONAL,
    ...
}

UuRLCChannelRequiredToBeReleasedItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

-- V

VictimNBSetID ::= SEQUENCE {
    victimNBSetID      GNBSetID,
    iE-Extensions      ProtocolExtensionContainer { { VictimNBSetID-ExtIEs } } OPTIONAL
}

VictimNBSetID-ExtIEs  F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

VehicleUE ::= ENUMERATED {
    authorized,
    not-authorized,
    ...
}

PedestrianUE ::= ENUMERATED {

```

```

    authorized,
    not-authorized,
    ...
}

-- V

ValidityAreaSpecificSRSInformation ::= SEQUENCE {
    transmissionCombPos      TransmissionCombPos      OPTIONAL,
    resourceMapping          ResourceMapping          OPTIONAL,
    freqDomainShift          INTEGER (0..268)          OPTIONAL,
    c-SRS                    INTEGER (0..63)           OPTIONAL,
    resourceTypePos          ResourceTypePos          OPTIONAL,
    sequenceIDPos            INTEGER (0..65535)        OPTIONAL,
    iE-extensions            ProtocolExtensionContainer { { ValidityAreaSpecificSRSInformation-ExtIEs } } OPTIONAL,
    ...
}

ValidityAreaSpecificSRSInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

ValidityAreaSpecificSRSInformationExtended ::= SEQUENCE {
    posSRSResource-List      PosSRSResource-List      OPTIONAL,
    posSRSResourceSet-List   PosSRSResourceSet-List   OPTIONAL,
    iE-extensions            ProtocolExtensionContainer { { ValidityAreaSpecificSRSInformationExtended-ExtIEs } } OPTIONAL,
    ...
}

ValidityAreaSpecificSRSInformationExtended-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

-- W

-- X
XR-Bcast-Information ::= ENUMERATED {true, ...}

-- Y

-- Z

ZoAInformation ::= SEQUENCE {
    zenithAoA                INTEGER (0..1799),
    lcs-to-GCS-Translation    LCS-to-GCS-Translation    OPTIONAL,
    iE-extensions            ProtocolExtensionContainer { { ZoAInformation-ExtIEs } }    OPTIONAL,
    ...
}

ZoAInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```
END
-- ASN1STOP
```

## 9.4.6 Common Definitions

```
-- ASN1START
-- *****
--
-- Common definitions
--
-- *****

F1AP-CommonDataTypes {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
ngran-access (22) modules (3) flap (3) version1 (1) flap-CommonDataTypes (3) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

Criticality      ::= ENUMERATED { reject, ignore, notify }

Presence        ::= ENUMERATED { optional, conditional, mandatory }

PrivateIE-ID    ::= CHOICE {
    local          INTEGER (0..65535),
    global         OBJECT IDENTIFIER
}

ProcedureCode    ::= INTEGER (0..255)

ProtocolExtensionID ::= INTEGER (0..65535)

ProtocolIE-ID    ::= INTEGER (0..65535)

TriggeringMessage ::= ENUMERATED { initiating-message, successful-outcome, unsuccessful-outcome }

END
-- ASN1STOP
```

## 9.4.7 Constant Definitions

```
-- ASN1START
-- *****
--
-- Constant definitions
--
-- *****

F1AP-Constants {
```

```
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
ngran-access (22) modules (3) f1ap (3) version1 (1) f1ap-Constants (4) }
```

```
DEFINITIONS AUTOMATIC TAGS ::=
```

```
BEGIN
```

```
-- *****
--
-- IE parameter types from other modules.
--
-- *****
```

```
IMPORTS
```

```
    ProcedureCode,
    ProtocolIE-ID
```

```
FROM F1AP-CommonDataTypes;
```

```
-- *****
--
-- Elementary Procedures
--
-- *****
```

|                                     |                      |
|-------------------------------------|----------------------|
| id-Reset                            | ProcedureCode ::= 0  |
| id-F1Setup                          | ProcedureCode ::= 1  |
| id-ErrorIndication                  | ProcedureCode ::= 2  |
| id-gNBDCUConfigurationUpdate        | ProcedureCode ::= 3  |
| id-gNBCUConfigurationUpdate         | ProcedureCode ::= 4  |
| id-UEContextSetup                   | ProcedureCode ::= 5  |
| id-UEContextRelease                 | ProcedureCode ::= 6  |
| id-UEContextModification            | ProcedureCode ::= 7  |
| id-UEContextModificationRequired    | ProcedureCode ::= 8  |
| id-procedure-code-9-not-to-be-used  | ProcedureCode ::= 9  |
| id-UEContextReleaseRequest          | ProcedureCode ::= 10 |
| id-InitialULRRRCMessageTransfer     | ProcedureCode ::= 11 |
| id-DLRRRCMessageTransfer            | ProcedureCode ::= 12 |
| id-ULRRRCMessageTransfer            | ProcedureCode ::= 13 |
| id-privateMessage                   | ProcedureCode ::= 14 |
| id-UEInactivityNotification         | ProcedureCode ::= 15 |
| id-gNBDCUResourceCoordination       | ProcedureCode ::= 16 |
| id-SystemInformationDeliveryCommand | ProcedureCode ::= 17 |
| id-Paging                           | ProcedureCode ::= 18 |
| id-Notify                           | ProcedureCode ::= 19 |
| id-WriteReplaceWarning              | ProcedureCode ::= 20 |
| id-PWSCancel                        | ProcedureCode ::= 21 |
| id-PWSRestartIndication             | ProcedureCode ::= 22 |
| id-PWSFailureIndication             | ProcedureCode ::= 23 |
| id-gNBDCUStatusIndication           | ProcedureCode ::= 24 |
| id-RRCDeliveryReport                | ProcedureCode ::= 25 |
| id-F1Removal                        | ProcedureCode ::= 26 |
| id-NetworkAccessRateReduction       | ProcedureCode ::= 27 |

|                                             |                      |
|---------------------------------------------|----------------------|
| id-TraceStart                               | ProcedureCode ::= 28 |
| id-DeactivateTrace                          | ProcedureCode ::= 29 |
| id-DUCURadioInformationTransfer             | ProcedureCode ::= 30 |
| id-CUDURadioInformationTransfer             | ProcedureCode ::= 31 |
| id-BAPMappingConfiguration                  | ProcedureCode ::= 32 |
| id-GNBDUResourceConfiguration               | ProcedureCode ::= 33 |
| id-IABTNLAddressAllocation                  | ProcedureCode ::= 34 |
| id-IABUPConfigurationUpdate                 | ProcedureCode ::= 35 |
| id-resourceStatusReportingInitiation        | ProcedureCode ::= 36 |
| id-resourceStatusReporting                  | ProcedureCode ::= 37 |
| id-accessAndMobilityIndication              | ProcedureCode ::= 38 |
| id-accessSuccess                            | ProcedureCode ::= 39 |
| id-cellTrafficTrace                         | ProcedureCode ::= 40 |
| id-PositioningMeasurementExchange           | ProcedureCode ::= 41 |
| id-PositioningAssistanceInformationControl  | ProcedureCode ::= 42 |
| id-PositioningAssistanceInformationFeedback | ProcedureCode ::= 43 |
| id-PositioningMeasurementReport             | ProcedureCode ::= 44 |
| id-PositioningMeasurementAbort              | ProcedureCode ::= 45 |
| id-PositioningMeasurementFailureIndication  | ProcedureCode ::= 46 |
| id-PositioningMeasurementUpdate             | ProcedureCode ::= 47 |
| id-TRPInformationExchange                   | ProcedureCode ::= 48 |
| id-PositioningInformationExchange           | ProcedureCode ::= 49 |
| id-PositioningActivation                    | ProcedureCode ::= 50 |
| id-PositioningDeactivation                  | ProcedureCode ::= 51 |
| id-E-CIDMeasurementInitiation               | ProcedureCode ::= 52 |
| id-E-CIDMeasurementFailureIndication        | ProcedureCode ::= 53 |
| id-E-CIDMeasurementReport                   | ProcedureCode ::= 54 |
| id-E-CIDMeasurementTermination              | ProcedureCode ::= 55 |
| id-PositioningInformationUpdate             | ProcedureCode ::= 56 |
| id-ReferenceTimeInformationReport           | ProcedureCode ::= 57 |
| id-ReferenceTimeInformationReportingControl | ProcedureCode ::= 58 |
| id-BroadcastContextSetup                    | ProcedureCode ::= 59 |
| id-BroadcastContextRelease                  | ProcedureCode ::= 60 |
| id-BroadcastContextReleaseRequest           | ProcedureCode ::= 61 |
| id-BroadcastContextModification             | ProcedureCode ::= 62 |
| id-MulticastGroupPaging                     | ProcedureCode ::= 63 |
| id-MulticastContextSetup                    | ProcedureCode ::= 64 |
| id-MulticastContextRelease                  | ProcedureCode ::= 65 |
| id-MulticastContextReleaseRequest           | ProcedureCode ::= 66 |
| id-MulticastContextModification             | ProcedureCode ::= 67 |
| id-MulticastDistributionSetup               | ProcedureCode ::= 68 |
| id-MulticastDistributionRelease             | ProcedureCode ::= 69 |
| id-PDCMeasurementInitiation                 | ProcedureCode ::= 70 |
| id-PDCMeasurementReport                     | ProcedureCode ::= 71 |
| id-procedure-code-72-not-to-be-used         | ProcedureCode ::= 72 |
| id-procedure-code-73-not-to-be-used         | ProcedureCode ::= 73 |
| id-procedure-code-74-not-to-be-used         | ProcedureCode ::= 74 |
| id-pRSConfigurationExchange                 | ProcedureCode ::= 75 |
| id-measurementPreconfiguration              | ProcedureCode ::= 76 |
| id-measurementActivation                    | ProcedureCode ::= 77 |
| id-QoEInformationTransfer                   | ProcedureCode ::= 78 |
| id-PDCMeasurementTerminationCommand         | ProcedureCode ::= 79 |
| id-PDCMeasurementFailureIndication          | ProcedureCode ::= 80 |
| id-PosSystemInformationDeliveryCommand      | ProcedureCode ::= 81 |



|                                          |                      |
|------------------------------------------|----------------------|
| id-DUCUCellSwitchNotification            | ProcedureCode ::= 82 |
| id-CUDUCellSwitchNotification            | ProcedureCode ::= 83 |
| id-DUCUTAIInformationTransfer            | ProcedureCode ::= 84 |
| id-CUDUTAIInformationTransfer            | ProcedureCode ::= 85 |
| id-QoEInformationTransferControl         | ProcedureCode ::= 86 |
| id-RachIndication                        | ProcedureCode ::= 87 |
| id-TimingSynchronisationStatus           | ProcedureCode ::= 88 |
| id-TimingSynchronisationStatusReport     | ProcedureCode ::= 89 |
| id-MIABF1SetupTriggering                 | ProcedureCode ::= 90 |
| id-MIABF1SetupOutcomeNotification        | ProcedureCode ::= 91 |
| id-MulticastContextNotification          | ProcedureCode ::= 92 |
| id-MulticastCommonConfiguration          | ProcedureCode ::= 93 |
| id-BroadcastTransportResourceRequest     | ProcedureCode ::= 94 |
| id-DUCUAccessAndMobilityIndication       | ProcedureCode ::= 95 |
| id-SRSInformationReservationNotification | ProcedureCode ::= 96 |
| id-CUDUMobilityInitiationRequest         | ProcedureCode ::= 97 |

```
-- *****
--
-- Extension constants
--
-- *****
```

|                       |                   |
|-----------------------|-------------------|
| maxPrivateIEs         | INTEGER ::= 65535 |
| maxProtocolExtensions | INTEGER ::= 65535 |
| maxProtocolIEs        | INTEGER ::= 65535 |

```
-- *****
--
-- Lists
--
-- *****
```

|                                       |                     |
|---------------------------------------|---------------------|
| maxNRARFCN                            | INTEGER ::= 3279165 |
| maxnoofErrors                         | INTEGER ::= 256     |
| maxnoofIndividualF1ConnectionsToReset | INTEGER ::= 65536   |
| maxCellingNBDU                        | INTEGER ::= 512     |
| maxnoofSCells                         | INTEGER ::= 32      |
| maxnoofSRBs                           | INTEGER ::= 8       |
| maxnoofDRBs                           | INTEGER ::= 64      |
| maxnoofULUPTNLInformation             | INTEGER ::= 2       |
| maxnoofDLUPTNLInformation             | INTEGER ::= 2       |
| maxnoofBPLMNs                         | INTEGER ::= 6       |
| maxnoofCandidateSpCells               | INTEGER ::= 64      |
| maxnoofPotentialSpCells               | INTEGER ::= 64      |
| maxnoofNrCellBands                    | INTEGER ::= 32      |
| maxnoofSIBTypes                       | INTEGER ::= 32      |
| maxnoofSITypes                        | INTEGER ::= 32      |
| maxnoofPagingCells                    | INTEGER ::= 512     |
| maxnoofTNLAssociations                | INTEGER ::= 32      |
| maxnoofQoSFlows                       | INTEGER ::= 64      |

|                                     |                      |
|-------------------------------------|----------------------|
| maxnoofSliceItems                   | INTEGER ::= 1024     |
| maxCelllineNB                       | INTEGER ::= 256      |
| maxnoofExtendedBPLMNs               | INTEGER ::= 6        |
| maxnoofUEIDs                        | INTEGER ::= 65536    |
| maxnoofBPLMNsNR                     | INTEGER ::= 12       |
| maxnoofUACPLMNs                     | INTEGER ::= 12       |
| maxnoofUACperPLMN                   | INTEGER ::= 64       |
| maxnoofAdditionalSIBs               | INTEGER ::= 63       |
| maxnoofSlots                        | INTEGER ::= 5120     |
| maxnoofTLAs                         | INTEGER ::= 16       |
| maxnoofGTPTLAs                      | INTEGER ::= 16       |
| maxnoofBHRLCChannels                | INTEGER ::= 65536    |
| maxnoofRoutingEntries               | INTEGER ::= 1024     |
| maxnoofIABSTCInfo                   | INTEGER ::= 45       |
| maxnoofSymbols                      | INTEGER ::= 14       |
| maxnoofServingCells                 | INTEGER ::= 32       |
| maxnoofDUFSlots                     | INTEGER ::= 320      |
| maxnoofHSNASlots                    | INTEGER ::= 5120     |
| maxnoofServedCellsIAB               | INTEGER ::= 512      |
| maxnoofSSBarea                      | INTEGER ::= 64       |
| maxnoofChildIABNodes                | INTEGER ::= 1024     |
| maxnoofNonUPTrafficMappings         | INTEGER ::= 32       |
| maxnoofTLAsIAB                      | INTEGER ::= 1024     |
| maxnoofMappingEntries               | INTEGER ::= 67108864 |
| maxnoofDSInfo                       | INTEGER ::= 64       |
| maxnoofEgressLinks                  | INTEGER ::= 2        |
| maxnoofULUPTNLInformationforIAB     | INTEGER ::= 32678    |
| maxnoofUPTNLAddresses               | INTEGER ::= 8        |
| maxnoofSLDRBs                       | INTEGER ::= 512      |
| maxnoofQoSParaSets                  | INTEGER ::= 8        |
| maxnoofPC5QoSFlows                  | INTEGER ::= 2048     |
| maxnoofSSBAreas                     | INTEGER ::= 64       |
| maxnoofPhysicalResourceBlocks       | INTEGER ::= 275      |
| maxnoofPhysicalResourceBlocks-1     | INTEGER ::= 274      |
| maxnoofPRACHconfigs                 | INTEGER ::= 16       |
| maxnoofRARReports                   | INTEGER ::= 64       |
| maxnoofRLFReports                   | INTEGER ::= 64       |
| maxnoofAdditionalPDCPDuplicationTNL | INTEGER ::= 2        |
| maxnoofRLCDuplicationState          | INTEGER ::= 3        |
| maxnoofCHOcells                     | INTEGER ::= 8        |
| maxnoofMDTPLMNs                     | INTEGER ::= 16       |
| maxnoofCAGsupported                 | INTEGER ::= 12       |
| maxnoofNIDsupported                 | INTEGER ::= 12       |
| maxnoofNRSCSs                       | INTEGER ::= 5        |
| maxnoofExtSliceItems                | INTEGER ::= 65535    |
| maxnoofPosMeas                      | INTEGER ::= 16384    |
| maxnoofTRPInfoTypes                 | INTEGER ::= 64       |
| maxnoofTRPs                         | INTEGER ::= 65535    |
| maxnoofSRSTriggerStates             | INTEGER ::= 3        |
| maxnoofSpatialRelations             | INTEGER ::= 64       |
| maxnoBcastCell                      | INTEGER ::= 16384    |
| maxnoofAngleInfo                    | INTEGER ::= 65535    |
| maxnooflcs-gcs-translation          | INTEGER ::= 3        |
| maxnoofPath                         | INTEGER ::= 2        |

|                                  |                  |
|----------------------------------|------------------|
| maxnoofMeasE-CID                 | INTEGER ::= 64   |
| maxnoofSSBs                      | INTEGER ::= 255  |
| maxnoSRS-ResourceSets            | INTEGER ::= 16   |
| maxnoSRS-ResourcePerSet          | INTEGER ::= 16   |
| maxnoSRS-Carriers                | INTEGER ::= 32   |
| maxnoSCSs                        | INTEGER ::= 5    |
| maxnoSRS-Resources               | INTEGER ::= 64   |
| maxnoSRS-PosResources            | INTEGER ::= 64   |
| maxnoSRS-PosResourceSets         | INTEGER ::= 16   |
| maxnoSRS-PosResourcePerSet       | INTEGER ::= 16   |
| maxnoofPRS-ResourceSets          | INTEGER ::= 2    |
| maxnoofPRS-ResourcesPerSet       | INTEGER ::= 64   |
| maxNoOfMeasTRPs                  | INTEGER ::= 64   |
| maxnoofPRSresourceSets           | INTEGER ::= 8    |
| maxnoofPRSresources              | INTEGER ::= 64   |
| maxnoofSuccessfulH0Reports       | INTEGER ::= 64   |
| maxnoofNR-UChannelIDs            | INTEGER ::= 16   |
| maxServedCellforSON              | INTEGER ::= 256  |
| maxNeighbourCellforSON           | INTEGER ::= 32   |
| maxAffectedCells                 | INTEGER ::= 32   |
| maxnoofMRBs                      | INTEGER ::= 32   |
| maxnoofMBSQoSFlows               | INTEGER ::= 64   |
| maxnoofMBSFSAs                   | INTEGER ::= 256  |
| maxnoofUEIDforPaging             | INTEGER ::= 4096 |
| maxnoofCellsforMBS               | INTEGER ::= 512  |
| maxnoofTAIforMBS                 | INTEGER ::= 512  |
| maxnoofMBSAreaSessionIDs         | INTEGER ::= 256  |
| maxnoofMBSServiceAreaInformation | INTEGER ::= 256  |
| maxnoofIABCongInd                | INTEGER ::= 1024 |
| maxnoofNeighbourNodeCellsIAB     | INTEGER ::= 1024 |
| maxnoofRBsetsPerCell             | INTEGER ::= 8    |
| maxnoofRBsetsPerCell-1           | INTEGER ::= 7    |
| maxnoofMeasPDC                   | INTEGER ::= 16   |
| maxnoARPs                        | INTEGER ::= 16   |
| maxnoofULAoAs                    | INTEGER ::= 8    |
| maxNoPathExtended                | INTEGER ::= 8    |
| maxnoTRPTEGs                     | INTEGER ::= 8    |
| maxFreqLayers                    | INTEGER ::= 4    |
| maxNumResourcesPerAngle          | INTEGER ::= 24   |
| maxnoAzimuthAngles               | INTEGER ::= 3600 |
| maxnoElevationAngles             | INTEGER ::= 1801 |
| maxnoofPRSTRPs                   | INTEGER ::= 256  |
| maxnoofQoEInformation            | INTEGER ::= 16   |
| maxnoofUuRLCChannels             | INTEGER ::= 32   |
| maxnoofPC5RLCChannels            | INTEGER ::= 512  |
| maxnoofSMBRValues                | INTEGER ::= 8    |
| maxnoofMRBsforUE                 | INTEGER ::= 64   |
| maxnoofMBSSessionsofUE           | INTEGER ::= 256  |
| maxnoofSLdestinations            | INTEGER ::= 32   |
| maxnoofNSAGs                     | INTEGER ::= 256  |
| maxnoofSDTBearers                | INTEGER ::= 72   |
| maxnoofServingCellMOs            | INTEGER ::= 16   |
| maxNrOfBWPs                      | INTEGER ::= 8    |
| maxnoofPosSITypes                | INTEGER ::= 32   |

|                                       |                  |
|---------------------------------------|------------------|
| maxnoofUETypes                        | INTEGER ::= 8    |
| maxnoofLTMCells                       | INTEGER ::= 8    |
| maxnoofTAList                         | INTEGER ::= 8    |
| maxnoofLTMGNB-DUs                     | INTEGER ::= 8    |
| maxnoofUEsInQMCTransferControlMessage | INTEGER ::= 512  |
| maxnoofUEsforRAREportIndications      | INTEGER ::= 64   |
| maxnoofSuccessfulPSCellChangeReports  | INTEGER ::= 64   |
| maxnoofPeriodicities                  | INTEGER ::= 8    |
| maxnoofThresholdMBS-1                 | INTEGER ::= 7    |
| maxMBSsessionsinSessionInfoList       | INTEGER ::= 1024 |
| maxnoofLBTFailureInformation          | INTEGER ::= 64   |
| maxnoofRSPPQoSFlows                   | INTEGER ::= 2048 |
| maxnoVACell                           | INTEGER ::= 32   |
| maxnoAggregatedSRS-Resources          | INTEGER ::= 3    |
| maxnoAggregatedPosSRSResourceSets     | INTEGER ::= 3    |
| maxnoAggregatedPosPRSResourceSets     | INTEGER ::= 3    |
| maxnoofTimeWindowSRS                  | INTEGER ::= 16   |
| maxnoofTimeWindowMea                  | INTEGER ::= 16   |
| maxnoPreconfiguredSRS                 | INTEGER ::= 16   |
| maxnoHopsMinusOne                     | INTEGER ::= 5    |
| maxnoAggCombinations                  | INTEGER ::= 2    |
| maxnoAggregatedPosSRSCombinations     | INTEGER ::= 32   |
| maxnoofCandidateCells                 | INTEGER ::= 8    |
| maxnoofSSBIndices                     | INTEGER ::= 64   |

```
-- *****
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-- IEs
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-- *****
```

|                                           |                      |
|-------------------------------------------|----------------------|
| id-Cause                                  | ProtocolIE-ID ::= 0  |
| id-Cells-Failed-to-be-Activated-List      | ProtocolIE-ID ::= 1  |
| id-Cells-Failed-to-be-Activated-List-Item | ProtocolIE-ID ::= 2  |
| id-Cells-to-be-Activated-List             | ProtocolIE-ID ::= 3  |
| id-Cells-to-be-Activated-List-Item        | ProtocolIE-ID ::= 4  |
| id-Cells-to-be-Deactivated-List           | ProtocolIE-ID ::= 5  |
| id-Cells-to-be-Deactivated-List-Item      | ProtocolIE-ID ::= 6  |
| id-CriticalityDiagnostics                 | ProtocolIE-ID ::= 7  |
| id-CUtoDURRCInformation                   | ProtocolIE-ID ::= 9  |
| id-DRBs-FailedToBeModified-Item           | ProtocolIE-ID ::= 12 |
| id-DRBs-FailedToBeModified-List           | ProtocolIE-ID ::= 13 |
| id-DRBs-FailedToBeSetup-Item              | ProtocolIE-ID ::= 14 |
| id-DRBs-FailedToBeSetup-List              | ProtocolIE-ID ::= 15 |
| id-DRBs-FailedToBeSetupMod-Item           | ProtocolIE-ID ::= 16 |
| id-DRBs-FailedToBeSetupMod-List           | ProtocolIE-ID ::= 17 |
| id-DRBs-ModifiedConf-Item                 | ProtocolIE-ID ::= 18 |
| id-DRBs-ModifiedConf-List                 | ProtocolIE-ID ::= 19 |
| id-DRBs-Modified-Item                     | ProtocolIE-ID ::= 20 |

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|------------------------------------------|----------------------|
| id-DRBs-Modified-List                    | ProtocolIE-ID ::= 21 |
| id-DRBs-Required-ToBeModified-Item       | ProtocolIE-ID ::= 22 |
| id-DRBs-Required-ToBeModified-List       | ProtocolIE-ID ::= 23 |
| id-DRBs-Required-ToBeReleased-Item       | ProtocolIE-ID ::= 24 |
| id-DRBs-Required-ToBeReleased-List       | ProtocolIE-ID ::= 25 |
| id-DRBs-Setup-Item                       | ProtocolIE-ID ::= 26 |
| id-DRBs-Setup-List                       | ProtocolIE-ID ::= 27 |
| id-DRBs-SetupMod-Item                    | ProtocolIE-ID ::= 28 |
| id-DRBs-SetupMod-List                    | ProtocolIE-ID ::= 29 |
| id-DRBs-ToBeModified-Item                | ProtocolIE-ID ::= 30 |
| id-DRBs-ToBeModified-List                | ProtocolIE-ID ::= 31 |
| id-DRBs-ToBeReleased-Item                | ProtocolIE-ID ::= 32 |
| id-DRBs-ToBeReleased-List                | ProtocolIE-ID ::= 33 |
| id-DRBs-ToBeSetup-Item                   | ProtocolIE-ID ::= 34 |
| id-DRBs-ToBeSetup-List                   | ProtocolIE-ID ::= 35 |
| id-DRBs-ToBeSetupMod-Item                | ProtocolIE-ID ::= 36 |
| id-DRBs-ToBeSetupMod-List                | ProtocolIE-ID ::= 37 |
| id-DRXCycle                              | ProtocolIE-ID ::= 38 |
| id-DUtoCURRCInformation                  | ProtocolIE-ID ::= 39 |
| id-gNB-CU-UE-F1AP-ID                     | ProtocolIE-ID ::= 40 |
| id-gNB-DU-UE-F1AP-ID                     | ProtocolIE-ID ::= 41 |
| id-gNB-DU-ID                             | ProtocolIE-ID ::= 42 |
| id-gNB-DU-Served-Cells-Item              | ProtocolIE-ID ::= 43 |
| id-gNB-DU-Served-Cells-List              | ProtocolIE-ID ::= 44 |
| id-gNB-DU-Name                           | ProtocolIE-ID ::= 45 |
| id-ProtocolIE-ID-46-not-to-be-used       | ProtocolIE-ID ::= 46 |
| id-oldgNB-DU-UE-F1AP-ID                  | ProtocolIE-ID ::= 47 |
| id-ResetType                             | ProtocolIE-ID ::= 48 |
| id-ResourceCoordinationTransferContainer | ProtocolIE-ID ::= 49 |
| id-RRCContainer                          | ProtocolIE-ID ::= 50 |
| id-SCell-ToBeRemoved-Item                | ProtocolIE-ID ::= 51 |
| id-SCell-ToBeRemoved-List                | ProtocolIE-ID ::= 52 |
| id-SCell-ToBeSetup-Item                  | ProtocolIE-ID ::= 53 |
| id-SCell-ToBeSetup-List                  | ProtocolIE-ID ::= 54 |
| id-SCell-ToBeSetupMod-Item               | ProtocolIE-ID ::= 55 |
| id-SCell-ToBeSetupMod-List               | ProtocolIE-ID ::= 56 |
| id-Served-Cells-To-Add-Item              | ProtocolIE-ID ::= 57 |
| id-Served-Cells-To-Add-List              | ProtocolIE-ID ::= 58 |
| id-Served-Cells-To-Delete-Item           | ProtocolIE-ID ::= 59 |
| id-Served-Cells-To-Delete-List           | ProtocolIE-ID ::= 60 |
| id-Served-Cells-To-Modify-Item           | ProtocolIE-ID ::= 61 |
| id-Served-Cells-To-Modify-List           | ProtocolIE-ID ::= 62 |
| id-SpCell-ID                             | ProtocolIE-ID ::= 63 |
| id-SRBID                                 | ProtocolIE-ID ::= 64 |
| id-SRBs-FailedToBeSetup-Item             | ProtocolIE-ID ::= 65 |
| id-SRBs-FailedToBeSetup-List             | ProtocolIE-ID ::= 66 |
| id-SRBs-FailedToBeSetupMod-Item          | ProtocolIE-ID ::= 67 |
| id-SRBs-FailedToBeSetupMod-List          | ProtocolIE-ID ::= 68 |
| id-SRBs-Required-ToBeReleased-Item       | ProtocolIE-ID ::= 69 |
| id-SRBs-Required-ToBeReleased-List       | ProtocolIE-ID ::= 70 |
| id-SRBs-ToBeReleased-Item                | ProtocolIE-ID ::= 71 |
| id-SRBs-ToBeReleased-List                | ProtocolIE-ID ::= 72 |
| id-SRBs-ToBeSetup-Item                   | ProtocolIE-ID ::= 73 |
| id-SRBs-ToBeSetup-List                   | ProtocolIE-ID ::= 74 |

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| id-SRBs-ToBeSetupMod-Item                            | ProtocolIE-ID ::= 75  |
| id-SRBs-ToBeSetupMod-List                            | ProtocolIE-ID ::= 76  |
| id-TimeToWait                                        | ProtocolIE-ID ::= 77  |
| id-TransactionID                                     | ProtocolIE-ID ::= 78  |
| id-TransmissionActionIndicator                       | ProtocolIE-ID ::= 79  |
| id-UE-associatedLogicalF1-ConnectionItem             | ProtocolIE-ID ::= 80  |
| id-UE-associatedLogicalF1-ConnectionListResAck       | ProtocolIE-ID ::= 81  |
| id-gNB-CU-Name                                       | ProtocolIE-ID ::= 82  |
| id-SCell-FailedtoSetup-List                          | ProtocolIE-ID ::= 83  |
| id-SCell-FailedtoSetup-Item                          | ProtocolIE-ID ::= 84  |
| id-SCell-FailedtoSetupMod-List                       | ProtocolIE-ID ::= 85  |
| id-SCell-FailedtoSetupMod-Item                       | ProtocolIE-ID ::= 86  |
| id-RRCReconfigurationCompleteIndicator               | ProtocolIE-ID ::= 87  |
| id-Cells-Status-Item                                 | ProtocolIE-ID ::= 88  |
| id-Cells-Status-List                                 | ProtocolIE-ID ::= 89  |
| id-Candidate-SpCell-List                             | ProtocolIE-ID ::= 90  |
| id-Candidate-SpCell-Item                             | ProtocolIE-ID ::= 91  |
| id-Potential-SpCell-List                             | ProtocolIE-ID ::= 92  |
| id-Potential-SpCell-Item                             | ProtocolIE-ID ::= 93  |
| id-FullConfiguration                                 | ProtocolIE-ID ::= 94  |
| id-C-RNTI                                            | ProtocolIE-ID ::= 95  |
| id-SpCellULConfigured                                | ProtocolIE-ID ::= 96  |
| id-InactivityMonitoringRequest                       | ProtocolIE-ID ::= 97  |
| id-InactivityMonitoringResponse                      | ProtocolIE-ID ::= 98  |
| id-DRB-Activity-Item                                 | ProtocolIE-ID ::= 99  |
| id-DRB-Activity-List                                 | ProtocolIE-ID ::= 100 |
| id-EUTRA-NR-CellResourceCoordinationReq-Container    | ProtocolIE-ID ::= 101 |
| id-EUTRA-NR-CellResourceCoordinationReqAck-Container | ProtocolIE-ID ::= 102 |
| id-Protected-EUTRA-Resources-List                    | ProtocolIE-ID ::= 105 |
| id-RequestType                                       | ProtocolIE-ID ::= 106 |
| id-ServCellIndex                                     | ProtocolIE-ID ::= 107 |
| id-RAT-FrequencyPriorityInformation                  | ProtocolIE-ID ::= 108 |
| id-ExecuteDuplication                                | ProtocolIE-ID ::= 109 |
| id-NRCGI                                             | ProtocolIE-ID ::= 111 |
| id-PagingCell-Item                                   | ProtocolIE-ID ::= 112 |
| id-PagingCell-List                                   | ProtocolIE-ID ::= 113 |
| id-PagingDRX                                         | ProtocolIE-ID ::= 114 |
| id-PagingPriority                                    | ProtocolIE-ID ::= 115 |
| id-SItype-List                                       | ProtocolIE-ID ::= 116 |
| id-UEIdentityIndexValue                              | ProtocolIE-ID ::= 117 |
| id-gNB-CUSystemInformation                           | ProtocolIE-ID ::= 118 |
| id-HandoverPreparationInformation                    | ProtocolIE-ID ::= 119 |
| id-gNB-CU-TNL-Association-To-Add-Item                | ProtocolIE-ID ::= 120 |
| id-gNB-CU-TNL-Association-To-Add-List                | ProtocolIE-ID ::= 121 |
| id-gNB-CU-TNL-Association-To-Remove-Item             | ProtocolIE-ID ::= 122 |
| id-gNB-CU-TNL-Association-To-Remove-List             | ProtocolIE-ID ::= 123 |
| id-gNB-CU-TNL-Association-To-Update-Item             | ProtocolIE-ID ::= 124 |
| id-gNB-CU-TNL-Association-To-Update-List             | ProtocolIE-ID ::= 125 |
| id-MaskedIMEISV                                      | ProtocolIE-ID ::= 126 |
| id-PagingIdentity                                    | ProtocolIE-ID ::= 127 |
| id-DutoCURRCContainer                                | ProtocolIE-ID ::= 128 |
| id-Cells-to-be-Barred-List                           | ProtocolIE-ID ::= 129 |
| id-Cells-to-be-Barred-Item                           | ProtocolIE-ID ::= 130 |
| id-TAISliceSupportList                               | ProtocolIE-ID ::= 131 |

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| id-GNB-CU-TNL-Association-Setup-List           | ProtocolIE-ID ::= 132 |
| id-GNB-CU-TNL-Association-Setup-Item           | ProtocolIE-ID ::= 133 |
| id-GNB-CU-TNL-Association-Failed-To-Setup-List | ProtocolIE-ID ::= 134 |
| id-GNB-CU-TNL-Association-Failed-To-Setup-Item | ProtocolIE-ID ::= 135 |
| id-DRB-Notify-Item                             | ProtocolIE-ID ::= 136 |
| id-DRB-Notify-List                             | ProtocolIE-ID ::= 137 |
| id-ProtocolIE-ID-138-not-to-be-used            | ProtocolIE-ID ::= 138 |
| id-RANAC                                       | ProtocolIE-ID ::= 139 |
| id-PWSSystemInformation                        | ProtocolIE-ID ::= 140 |
| id-RepetitionPeriod                            | ProtocolIE-ID ::= 141 |
| id-NumberOfBroadcastRequest                    | ProtocolIE-ID ::= 142 |
| id-Cells-To-Be-Broadcast-List                  | ProtocolIE-ID ::= 144 |
| id-Cells-To-Be-Broadcast-Item                  | ProtocolIE-ID ::= 145 |
| id-Cells-Broadcast-Completed-List              | ProtocolIE-ID ::= 146 |
| id-Cells-Broadcast-Completed-Item              | ProtocolIE-ID ::= 147 |
| id-Broadcast-To-Be-Cancelled-List              | ProtocolIE-ID ::= 148 |
| id-Broadcast-To-Be-Cancelled-Item              | ProtocolIE-ID ::= 149 |
| id-Cells-Broadcast-Cancelled-List              | ProtocolIE-ID ::= 150 |
| id-Cells-Broadcast-Cancelled-Item              | ProtocolIE-ID ::= 151 |
| id-NR-CGI-List-For-Restart-List                | ProtocolIE-ID ::= 152 |
| id-NR-CGI-List-For-Restart-Item                | ProtocolIE-ID ::= 153 |
| id-PWS-Failed-NR-CGI-List                      | ProtocolIE-ID ::= 154 |
| id-PWS-Failed-NR-CGI-Item                      | ProtocolIE-ID ::= 155 |
| id-ConfirmedUEID                               | ProtocolIE-ID ::= 156 |
| id-Cancel-all-Warning-Messages-Indicator       | ProtocolIE-ID ::= 157 |
| id-GNB-DU-UE-AMBR-UL                           | ProtocolIE-ID ::= 158 |
| id-DRXConfigurationIndicator                   | ProtocolIE-ID ::= 159 |
| id-RLC-Status                                  | ProtocolIE-ID ::= 160 |
| id-DLPDCPSNLength                              | ProtocolIE-ID ::= 161 |
| id-GNB-DUConfigurationQuery                    | ProtocolIE-ID ::= 162 |
| id-MeasurementTimingConfiguration              | ProtocolIE-ID ::= 163 |
| id-DRB-Information                             | ProtocolIE-ID ::= 164 |
| id-ServingPLMN                                 | ProtocolIE-ID ::= 165 |
| id-Protected-EUTRA-Resources-Item              | ProtocolIE-ID ::= 168 |
| id-GNB-CU-RRC-Version                          | ProtocolIE-ID ::= 170 |
| id-GNB-DU-RRC-Version                          | ProtocolIE-ID ::= 171 |
| id-GNBDUOverloadInformation                    | ProtocolIE-ID ::= 172 |
| id-CellGroupConfig                             | ProtocolIE-ID ::= 173 |
| id-RLCFailureIndication                        | ProtocolIE-ID ::= 174 |
| id-UplinkTxDirectCurrentListInformation        | ProtocolIE-ID ::= 175 |
| id-DC-Based-Duplication-Configured             | ProtocolIE-ID ::= 176 |
| id-DC-Based-Duplication-Activation             | ProtocolIE-ID ::= 177 |
| id-SULAccessIndication                         | ProtocolIE-ID ::= 178 |
| id-AvailablePLMNList                           | ProtocolIE-ID ::= 179 |
| id-PDUSessionID                                | ProtocolIE-ID ::= 180 |
| id-ULPDUSessionAggregateMaximumBitRate         | ProtocolIE-ID ::= 181 |
| id-ServingCellMO                               | ProtocolIE-ID ::= 182 |
| id-QoSFlowMappingIndication                    | ProtocolIE-ID ::= 183 |
| id-RRCDeliveryStatusRequest                    | ProtocolIE-ID ::= 184 |
| id-RRCDeliveryStatus                           | ProtocolIE-ID ::= 185 |
| id-BearerTypeChange                            | ProtocolIE-ID ::= 186 |
| id-RLCMode                                     | ProtocolIE-ID ::= 187 |
| id-Duplication-Activation                      | ProtocolIE-ID ::= 188 |
| id-Dedicated-SIDelivery-NeededUE-List          | ProtocolIE-ID ::= 189 |

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| id-Dedicated-SIDelivery-NeededUE-Item       | ProtocolIE-ID ::= 190 |
| id-DRX-LongCycleStartOffset                 | ProtocolIE-ID ::= 191 |
| id-ULPDCPSNLength                           | ProtocolIE-ID ::= 192 |
| id-SelectedBandCombinationIndex             | ProtocolIE-ID ::= 193 |
| id-SelectedFeatureSetEntryIndex             | ProtocolIE-ID ::= 194 |
| id-ResourceCoordinationTransferInformation  | ProtocolIE-ID ::= 195 |
| id-ExtendedServedPLMNs-List                 | ProtocolIE-ID ::= 196 |
| id-ExtendedAvailablePLMN-List               | ProtocolIE-ID ::= 197 |
| id-Associated-SCell-List                    | ProtocolIE-ID ::= 198 |
| id-latest-RRC-Version-Enhanced              | ProtocolIE-ID ::= 199 |
| id-Associated-SCell-Item                    | ProtocolIE-ID ::= 200 |
| id-Cell-Direction                           | ProtocolIE-ID ::= 201 |
| id-SRBs-Setup-List                          | ProtocolIE-ID ::= 202 |
| id-SRBs-Setup-Item                          | ProtocolIE-ID ::= 203 |
| id-SRBs-SetupMod-List                       | ProtocolIE-ID ::= 204 |
| id-SRBs-SetupMod-Item                       | ProtocolIE-ID ::= 205 |
| id-SRBs-Modified-List                       | ProtocolIE-ID ::= 206 |
| id-SRBs-Modified-Item                       | ProtocolIE-ID ::= 207 |
| id-Ph-InfoSCG                               | ProtocolIE-ID ::= 208 |
| id-RequestedBandCombinationIndex            | ProtocolIE-ID ::= 209 |
| id-RequestedFeatureSetEntryIndex            | ProtocolIE-ID ::= 210 |
| id-RequestedP-MaxFR2                        | ProtocolIE-ID ::= 211 |
| id-DRX-Config                               | ProtocolIE-ID ::= 212 |
| id-IgnoreResourceCoordinationContainer      | ProtocolIE-ID ::= 213 |
| id-UEAssistanceInformation                  | ProtocolIE-ID ::= 214 |
| id-NeedforGap                               | ProtocolIE-ID ::= 215 |
| id-PagingOrigin                             | ProtocolIE-ID ::= 216 |
| id-new-gNB-CU-UE-F1AP-ID                    | ProtocolIE-ID ::= 217 |
| id-RedirectedRRCmessage                     | ProtocolIE-ID ::= 218 |
| id-new-gNB-DU-UE-F1AP-ID                    | ProtocolIE-ID ::= 219 |
| id-NotificationInformation                  | ProtocolIE-ID ::= 220 |
| id-PLMNAssistanceInfoForNetShar             | ProtocolIE-ID ::= 221 |
| id-UEContextNotRetrievable                  | ProtocolIE-ID ::= 222 |
| id-BPLMN-ID-Info-List                       | ProtocolIE-ID ::= 223 |
| id-SelectedPLMNID                           | ProtocolIE-ID ::= 224 |
| id-UAC-Assistance-Info                      | ProtocolIE-ID ::= 225 |
| id-RANUEID                                  | ProtocolIE-ID ::= 226 |
| id-GNB-DU-TNL-Association-To-Remove-Item    | ProtocolIE-ID ::= 227 |
| id-GNB-DU-TNL-Association-To-Remove-List    | ProtocolIE-ID ::= 228 |
| id-TNLAssociationTransportLayerAddressgNBdu | ProtocolIE-ID ::= 229 |
| id-portNumber                               | ProtocolIE-ID ::= 230 |
| id-AdditionalSIBMessageList                 | ProtocolIE-ID ::= 231 |
| id-Cell-Type                                | ProtocolIE-ID ::= 232 |
| id-IgnorePRACHConfiguration                 | ProtocolIE-ID ::= 233 |
| id-CG-Config                                | ProtocolIE-ID ::= 234 |
| id-PDCCH-BlindDetectionSCG                  | ProtocolIE-ID ::= 235 |
| id-Requested-PDCCH-BlindDetectionSCG        | ProtocolIE-ID ::= 236 |
| id-Ph-InfoMCG                               | ProtocolIE-ID ::= 237 |
| id-MeasGapSharingConfig                     | ProtocolIE-ID ::= 238 |
| id-systemInformationAreaID                  | ProtocolIE-ID ::= 239 |
| id-areaScope                                | ProtocolIE-ID ::= 240 |
| id-RRCContainer-RRCSetupComplete            | ProtocolIE-ID ::= 241 |
| id-TraceActivation                          | ProtocolIE-ID ::= 242 |
| id-TraceID                                  | ProtocolIE-ID ::= 243 |



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| id-Neighbour-Cell-Information-List          | ProtocolIE-ID ::= 244 |
| id-ProtocolIE-ID-246-not-to-be-used         | ProtocolIE-ID ::= 246 |
| id-ProtocolIE-ID-247-not-to-be-used         | ProtocolIE-ID ::= 247 |
| id-AdditionalRRMPriorityIndex               | ProtocolIE-ID ::= 248 |
| id-DUCURadioInformationType                 | ProtocolIE-ID ::= 249 |
| id-CUDURadioInformationType                 | ProtocolIE-ID ::= 250 |
| id-AggressorNBSetID                         | ProtocolIE-ID ::= 251 |
| id-VictimNBSetID                            | ProtocolIE-ID ::= 252 |
| id-LowerLayerPresenceStatusChange           | ProtocolIE-ID ::= 253 |
| id-Transport-Layer-Address-Info             | ProtocolIE-ID ::= 254 |
| id-Neighbour-Cell-Information-Item          | ProtocolIE-ID ::= 255 |
| id-IntendedTDD-DL-ULConfig                  | ProtocolIE-ID ::= 256 |
| id-QosMonitoringRequest                     | ProtocolIE-ID ::= 257 |
| id-BHChannels-ToBeSetup-List                | ProtocolIE-ID ::= 258 |
| id-BHChannels-ToBeSetup-Item                | ProtocolIE-ID ::= 259 |
| id-BHChannels-Setup-List                    | ProtocolIE-ID ::= 260 |
| id-BHChannels-Setup-Item                    | ProtocolIE-ID ::= 261 |
| id-BHChannels-ToBeModified-Item             | ProtocolIE-ID ::= 262 |
| id-BHChannels-ToBeModified-List             | ProtocolIE-ID ::= 263 |
| id-BHChannels-ToBeReleased-Item             | ProtocolIE-ID ::= 264 |
| id-BHChannels-ToBeReleased-List             | ProtocolIE-ID ::= 265 |
| id-BHChannels-ToBeSetupMod-Item             | ProtocolIE-ID ::= 266 |
| id-BHChannels-ToBeSetupMod-List             | ProtocolIE-ID ::= 267 |
| id-BHChannels-FailedToBeModified-Item       | ProtocolIE-ID ::= 268 |
| id-BHChannels-FailedToBeModified-List       | ProtocolIE-ID ::= 269 |
| id-BHChannels-FailedToBeSetupMod-Item       | ProtocolIE-ID ::= 270 |
| id-BHChannels-FailedToBeSetupMod-List       | ProtocolIE-ID ::= 271 |
| id-BHChannels-Modified-Item                 | ProtocolIE-ID ::= 272 |
| id-BHChannels-Modified-List                 | ProtocolIE-ID ::= 273 |
| id-BHChannels-SetupMod-Item                 | ProtocolIE-ID ::= 274 |
| id-BHChannels-SetupMod-List                 | ProtocolIE-ID ::= 275 |
| id-BHChannels-Required-ToBeReleased-Item    | ProtocolIE-ID ::= 276 |
| id-BHChannels-Required-ToBeReleased-List    | ProtocolIE-ID ::= 277 |
| id-BHChannels-FailedToBeSetup-Item          | ProtocolIE-ID ::= 278 |
| id-BHChannels-FailedToBeSetup-List          | ProtocolIE-ID ::= 279 |
| id-BHInfo                                   | ProtocolIE-ID ::= 280 |
| id-BAPAddress                               | ProtocolIE-ID ::= 281 |
| id-ConfiguredBAPAddress                     | ProtocolIE-ID ::= 282 |
| id-BH-Routing-Information-Added-List        | ProtocolIE-ID ::= 283 |
| id-BH-Routing-Information-Added-List-Item   | ProtocolIE-ID ::= 284 |
| id-BH-Routing-Information-Removed-List      | ProtocolIE-ID ::= 285 |
| id-BH-Routing-Information-Removed-List-Item | ProtocolIE-ID ::= 286 |
| id-UL-BH-Non-UP-Traffic-Mapping             | ProtocolIE-ID ::= 287 |
| id-Activated-Cells-to-be-Updated-List       | ProtocolIE-ID ::= 288 |
| id-Child-Nodes-List                         | ProtocolIE-ID ::= 289 |
| id-IAB-Info-IAB-DU                          | ProtocolIE-ID ::= 290 |
| id-IAB-Info-IAB-donor-CU                    | ProtocolIE-ID ::= 291 |
| id-IAB-TNL-Addresses-To-Remove-List         | ProtocolIE-ID ::= 292 |
| id-IAB-TNL-Addresses-To-Remove-Item         | ProtocolIE-ID ::= 293 |
| id-IAB-Allocated-TNL-Address-List           | ProtocolIE-ID ::= 294 |
| id-IAB-Allocated-TNL-Address-Item           | ProtocolIE-ID ::= 295 |
| id-IABIPv6RequestType                       | ProtocolIE-ID ::= 296 |
| id-IABv4AddressesRequested                  | ProtocolIE-ID ::= 297 |
| id-IAB-Barred                               | ProtocolIE-ID ::= 298 |

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| id-TrafficMappingInformation                 | ProtocolIE-ID ::= 299 |
| id-UL-UP-TNL-Information-to-Update-List      | ProtocolIE-ID ::= 300 |
| id-UL-UP-TNL-Information-to-Update-List-Item | ProtocolIE-ID ::= 301 |
| id-UL-UP-TNL-Address-to-Update-List          | ProtocolIE-ID ::= 302 |
| id-UL-UP-TNL-Address-to-Update-List-Item     | ProtocolIE-ID ::= 303 |
| id-DL-UP-TNL-Address-to-Update-List          | ProtocolIE-ID ::= 304 |
| id-DL-UP-TNL-Address-to-Update-List-Item     | ProtocolIE-ID ::= 305 |
| id-NRV2XServicesAuthorized                   | ProtocolIE-ID ::= 306 |
| id-LTEV2XServicesAuthorized                  | ProtocolIE-ID ::= 307 |
| id-NRUESidelinkAggregateMaximumBitrate       | ProtocolIE-ID ::= 308 |
| id-LTEUESidelinkAggregateMaximumBitrate      | ProtocolIE-ID ::= 309 |
| id-SIB12-message                             | ProtocolIE-ID ::= 310 |
| id-SIB13-message                             | ProtocolIE-ID ::= 311 |
| id-SIB14-message                             | ProtocolIE-ID ::= 312 |
| id-SLDRBs-FailedToBeModified-Item            | ProtocolIE-ID ::= 313 |
| id-SLDRBs-FailedToBeModified-List            | ProtocolIE-ID ::= 314 |
| id-SLDRBs-FailedToBeSetup-Item               | ProtocolIE-ID ::= 315 |
| id-SLDRBs-FailedToBeSetup-List               | ProtocolIE-ID ::= 316 |
| id-SLDRBs-Modified-Item                      | ProtocolIE-ID ::= 317 |
| id-SLDRBs-Modified-List                      | ProtocolIE-ID ::= 318 |
| id-SLDRBs-Required-ToBeModified-Item         | ProtocolIE-ID ::= 319 |
| id-SLDRBs-Required-ToBeModified-List         | ProtocolIE-ID ::= 320 |
| id-SLDRBs-Required-ToBeReleased-Item         | ProtocolIE-ID ::= 321 |
| id-SLDRBs-Required-ToBeReleased-List         | ProtocolIE-ID ::= 322 |
| id-SLDRBs-Setup-Item                         | ProtocolIE-ID ::= 323 |
| id-SLDRBs-Setup-List                         | ProtocolIE-ID ::= 324 |
| id-SLDRBs-ToBeModified-Item                  | ProtocolIE-ID ::= 325 |
| id-SLDRBs-ToBeModified-List                  | ProtocolIE-ID ::= 326 |
| id-SLDRBs-ToBeReleased-Item                  | ProtocolIE-ID ::= 327 |
| id-SLDRBs-ToBeReleased-List                  | ProtocolIE-ID ::= 328 |
| id-SLDRBs-ToBeSetup-Item                     | ProtocolIE-ID ::= 329 |
| id-SLDRBs-ToBeSetup-List                     | ProtocolIE-ID ::= 330 |
| id-SLDRBs-ToBeSetupMod-Item                  | ProtocolIE-ID ::= 331 |
| id-SLDRBs-ToBeSetupMod-List                  | ProtocolIE-ID ::= 332 |
| id-SLDRBs-SetupMod-List                      | ProtocolIE-ID ::= 333 |
| id-SLDRBs-FailedToBeSetupMod-List            | ProtocolIE-ID ::= 334 |
| id-SLDRBs-SetupMod-Item                      | ProtocolIE-ID ::= 335 |
| id-SLDRBs-FailedToBeSetupMod-Item            | ProtocolIE-ID ::= 336 |
| id-SLDRBs-ModifiedConf-List                  | ProtocolIE-ID ::= 337 |
| id-SLDRBs-ModifiedConf-Item                  | ProtocolIE-ID ::= 338 |
| id-UEAssistanceInformationEUTRA              | ProtocolIE-ID ::= 339 |
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| id-TwoPHRModeSCG                            | ProtocolIE-ID ::= 693 |
| id-ExtendedUEIdentityIndexValue             | ProtocolIE-ID ::= 694 |
| id-ServingCellMO-List                       | ProtocolIE-ID ::= 695 |
| id-ServingCellMO-List-Item                  | ProtocolIE-ID ::= 696 |
| id-ServingCellMO-encoded-in-CGC-List        | ProtocolIE-ID ::= 697 |
| id-HashedUEIdentityIndexValue               | ProtocolIE-ID ::= 698 |
| id-UE-MulticastMRBs-Setupnew-List           | ProtocolIE-ID ::= 699 |
| id-UE-MulticastMRBs-Setupnew-Item           | ProtocolIE-ID ::= 700 |
| id-ncd-SSB-RedCapInitialBWP-SDT             | ProtocolIE-ID ::= 701 |
| id-nrofSymbolsExtended                      | ProtocolIE-ID ::= 702 |
| id-repetitionFactorExtended                 | ProtocolIE-ID ::= 703 |
| id-startRBHopping                           | ProtocolIE-ID ::= 704 |
| id-startRBIndex                             | ProtocolIE-ID ::= 705 |
| id-transmissionCombn8                       | ProtocolIE-ID ::= 706 |
| id-ServCellInfoList                         | ProtocolIE-ID ::= 707 |
| id-DedicatedSIDeliveryIndication            | ProtocolIE-ID ::= 708 |
| id-Configured-BWP-List                      | ProtocolIE-ID ::= 709 |
| id-Preconfigured-measurement-GAP-Request    | ProtocolIE-ID ::= 710 |
| id-BWP-Id                                   | ProtocolIE-ID ::= 711 |
| id-NetworkControlledRepeaterAuthorized      | ProtocolIE-ID ::= 712 |
| id-MT-SDT-Information                       | ProtocolIE-ID ::= 713 |
| id-ExtendedResourceSymbolOffset             | ProtocolIE-ID ::= 714 |
| id-NeedForInterruptionInfoNR                | ProtocolIE-ID ::= 715 |
| id-SDT-Volume-Threshold                     | ProtocolIE-ID ::= 716 |
| id-SupportedUETypeList                      | ProtocolIE-ID ::= 717 |
| id-MusimCapabilityRestrictionIndication     | ProtocolIE-ID ::= 718 |
| id-duplicationIndication                    | ProtocolIE-ID ::= 719 |
| id-LTMInformation-Setup                     | ProtocolIE-ID ::= 720 |
| id-LTMConfigurationIDMappingList            | ProtocolIE-ID ::= 721 |
| id-LTMInformation-Modify                    | ProtocolIE-ID ::= 722 |
| id-LTMCCells-ToBeReleased-List              | ProtocolIE-ID ::= 723 |
| id-ProtocolIE-ID-724-not-to-be-used         | ProtocolIE-ID ::= 724 |
| id-LTMConfiguration                         | ProtocolIE-ID ::= 725 |
| id-EarlySyncInformation-Request             | ProtocolIE-ID ::= 726 |
| id-EarlySyncInformation                     | ProtocolIE-ID ::= 727 |
| id-EarlySyncCandidateCellInformation-List   | ProtocolIE-ID ::= 728 |
| id-LTMCCellsSwitchInformation               | ProtocolIE-ID ::= 729 |
| id-DutoCUTAINformation-List                 | ProtocolIE-ID ::= 730 |
| id-ProtocolIE-ID-731-not-to-be-used         | ProtocolIE-ID ::= 731 |
| id-dRB-List                                 | ProtocolIE-ID ::= 732 |
| id-DeactivationIndication                   | ProtocolIE-ID ::= 733 |
| id-RARReportIndicationList                  | ProtocolIE-ID ::= 734 |
| id-ChannelOccupancyTimePercentageUL         | ProtocolIE-ID ::= 735 |

|                                                      |                       |
|------------------------------------------------------|-----------------------|
| id-SuccessfulPSCellChangeReportInformationList       | ProtocolIE-ID ::= 736 |
| id-RadioResourceStatusNR-U                           | ProtocolIE-ID ::= 737 |
| id-FiveG-ProSeLayer2Multipath                        | ProtocolIE-ID ::= 738 |
| id-FiveG-ProSeLayer2UEtoUERelay                      | ProtocolIE-ID ::= 739 |
| id-FiveG-ProSeLayer2UEtoUERemote                     | ProtocolIE-ID ::= 740 |
| id-PathAdditionInformation                           | ProtocolIE-ID ::= 741 |
| id-Recommended-SSBs-List                             | ProtocolIE-ID ::= 742 |
| id-Recommended-SSBs-for-Paging-List                  | ProtocolIE-ID ::= 743 |
| id-SSBs-withinTheCell-to-be-Activated-List           | ProtocolIE-ID ::= 744 |
| id-Cells-With-SSBs-Activated-List                    | ProtocolIE-ID ::= 745 |
| id-Cells-Allowed-to-be-Deactivated-List              | ProtocolIE-ID ::= 746 |
| id-Cells-Allowed-to-be-Deactivated-List-Item         | ProtocolIE-ID ::= 747 |
| id-Coverage-Modification-Cause                       | ProtocolIE-ID ::= 748 |
| id-RANTSSRequestType                                 | ProtocolIE-ID ::= 749 |
| id-RANTimingSynchronisationStatusInfo                | ProtocolIE-ID ::= 750 |
| id-TSCTrafficCharacteristicsFeedback                 | ProtocolIE-ID ::= 751 |
| id-RANfeedbackType                                   | ProtocolIE-ID ::= 752 |
| id-Mobile-TRP-LocationInformation                    | ProtocolIE-ID ::= 753 |
| id-Mobile-IAB-MT-UE-ID                               | ProtocolIE-ID ::= 754 |
| id-Target-gNB-ID                                     | ProtocolIE-ID ::= 755 |
| id-Target-gNB-IP-address                             | ProtocolIE-ID ::= 756 |
| id-Target-SeGW-IP-address                            | ProtocolIE-ID ::= 757 |
| id-Activated-Cells-Mapping-List                      | ProtocolIE-ID ::= 758 |
| id-Activated-Cells-Mapping-List-Item                 | ProtocolIE-ID ::= 759 |
| id-F1SetupOutcome                                    | ProtocolIE-ID ::= 760 |
| id-RRC-Terminating-IAB-Donor-Related-Info            | ProtocolIE-ID ::= 761 |
| id-RRC-Terminating-IAB-Donor-gNB-ID                  | ProtocolIE-ID ::= 762 |
| id-NCGI-to-be-Updated-List                           | ProtocolIE-ID ::= 763 |
| id-NCGI-to-be-Updated-List-Item                      | ProtocolIE-ID ::= 764 |
| id-Mobile-IAB-MTUserLocationInformation              | ProtocolIE-ID ::= 765 |
| id-MobileAccessPointLocation                         | ProtocolIE-ID ::= 766 |
| id-AssociatedSessionID                               | ProtocolIE-ID ::= 767 |
| id-IndicationMCInactiveReception                     | ProtocolIE-ID ::= 768 |
| id-MulticastCU2DURRCInfo                             | ProtocolIE-ID ::= 769 |
| id-MBSMulticastSessionReceptionState                 | ProtocolIE-ID ::= 770 |
| id-F1UTunnelNotEstablished                           | ProtocolIE-ID ::= 771 |
| id-MulticastDU2CURRCInfo                             | ProtocolIE-ID ::= 772 |
| id-SIB24-message                                     | ProtocolIE-ID ::= 773 |
| id-MulticastCU2DUCCommonRRCInfo                      | ProtocolIE-ID ::= 774 |
| id-PDUSetQoSParameters                               | ProtocolIE-ID ::= 775 |
| id-N6JitterInformation                               | ProtocolIE-ID ::= 776 |
| id-ECNMarkingorCongestionInformationReportingRequest | ProtocolIE-ID ::= 777 |
| id-ECNMarkingorCongestionInformationReportingStatus  | ProtocolIE-ID ::= 778 |
| id-NRA2XServicesAuthorized                           | ProtocolIE-ID ::= 779 |
| id-LTEA2XServicesAuthorized                          | ProtocolIE-ID ::= 780 |
| id-NRUESidelinkAggregateMaximumBitrateForA2X         | ProtocolIE-ID ::= 781 |
| id-LTEUESidelinkAggregateMaximumBitrateForA2X        | ProtocolIE-ID ::= 782 |
| id-NReRedCapUEIndication                             | ProtocolIE-ID ::= 783 |
| id-ERedcap-Bcast-Information                         | ProtocolIE-ID ::= 784 |
| id-NRPaginglongeDRXInformationforRRGINACTIVE         | ProtocolIE-ID ::= 785 |
| id-SCPAC-Request                                     | ProtocolIE-ID ::= 786 |
| id-Target-F1-Terminating-Donor-gNB-ID                | ProtocolIE-ID ::= 787 |
| id-MobileIAB-Barred                                  | ProtocolIE-ID ::= 788 |
| id-Broadcast-MRBs-Transport-Request-List             | ProtocolIE-ID ::= 789 |

|                                                     |                       |
|-----------------------------------------------------|-----------------------|
| id-Broadcast-MRBs-Transport-Request-Item            | ProtocolIE-ID ::= 790 |
| id-S-CPACLowerLayerReferenceConfigRequest           | ProtocolIE-ID ::= 791 |
| id-S-CPAC-Configuration                             | ProtocolIE-ID ::= 792 |
| id-MusimCandidateBandList                           | ProtocolIE-ID ::= 793 |
| id-DLLBTFailureInformationRequest                   | ProtocolIE-ID ::= 794 |
| id-DLLBTFailureInformationList                      | ProtocolIE-ID ::= 795 |
| id-PSIbasedSDUdiscardUL                             | ProtocolIE-ID ::= 796 |
| id-SIB22-message                                    | ProtocolIE-ID ::= 797 |
| id-CutoDUTAIInformation-List                        | ProtocolIE-ID ::= 798 |
| id-U2URLCChannelQoS                                 | ProtocolIE-ID ::= 799 |
| id-SL-PHY-MAC-RLC-ConfigExt                         | ProtocolIE-ID ::= 800 |
| id-SLPositioning-Ranging-Service-Info               | ProtocolIE-ID ::= 801 |
| id-TimeWindowInformation-SRS-List                   | ProtocolIE-ID ::= 802 |
| id-TimeWindowInformation-Measurement-List           | ProtocolIE-ID ::= 803 |
| id-UL-RSCP                                          | ProtocolIE-ID ::= 804 |
| id-BW-Aggregation-Request-Indication                | ProtocolIE-ID ::= 805 |
| id-ReportingGranularitykminus1                      | ProtocolIE-ID ::= 806 |
| id-ReportingGranularitykminus2                      | ProtocolIE-ID ::= 807 |
| id-ReportingGranularitykminus1additionalpath        | ProtocolIE-ID ::= 808 |
| id-ReportingGranularitykminus2additionalpath        | ProtocolIE-ID ::= 809 |
| id-TimingReportingGranularityFactorExtended         | ProtocolIE-ID ::= 810 |
| id-SRSPosRRCInactiveValidityAreaConfig              | ProtocolIE-ID ::= 811 |
| id-PosValidityAreaCellList                          | ProtocolIE-ID ::= 812 |
| id-SRSReservationType                               | ProtocolIE-ID ::= 813 |
| id-SymbolIndex                                      | ProtocolIE-ID ::= 814 |
| id-PRSBWAggregationRequestInfoList                  | ProtocolIE-ID ::= 815 |
| id-AggregatedPosSRSResourceIDList                   | ProtocolIE-ID ::= 816 |
| id-AggregatedPRSResourceSetList                     | ProtocolIE-ID ::= 817 |
| id-PhaseQuality                                     | ProtocolIE-ID ::= 818 |
| id-MeasuredFrequencyHops                            | ProtocolIE-ID ::= 819 |
| id-TxHoppingConfiguration                           | ProtocolIE-ID ::= 820 |
| id-ReportingGranularitykminus3                      | ProtocolIE-ID ::= 821 |
| id-ReportingGranularitykminus4                      | ProtocolIE-ID ::= 822 |
| id-ReportingGranularitykminus5                      | ProtocolIE-ID ::= 823 |
| id-ReportingGranularitykminus6                      | ProtocolIE-ID ::= 824 |
| id-ReportingGranularitykminus3additionalpath        | ProtocolIE-ID ::= 825 |
| id-ReportingGranularitykminus4additionalpath        | ProtocolIE-ID ::= 826 |
| id-ReportingGranularitykminus5additionalpath        | ProtocolIE-ID ::= 827 |
| id-ReportingGranularitykminus6additionalpath        | ProtocolIE-ID ::= 828 |
| id-AggregatedPosSRSResourceSetList                  | ProtocolIE-ID ::= 829 |
| id-RequestedSRSPreconfigurationCharacteristics-List | ProtocolIE-ID ::= 830 |
| id-SRSPreconfiguration-List                         | ProtocolIE-ID ::= 831 |
| id-SRSInformation                                   | ProtocolIE-ID ::= 832 |
| id-ValidityAreaSpecificSRSInformation               | ProtocolIE-ID ::= 833 |
| id-E-CID-MeasuredResultsAssociatedInfoList          | ProtocolIE-ID ::= 834 |
| id-XR-Bcast-Information                             | ProtocolIE-ID ::= 835 |
| id-MaxDataBurstVolume                               | ProtocolIE-ID ::= 836 |
| id-TAInformation-List                               | ProtocolIE-ID ::= 837 |
| id-NonIntegerDRXCycle                               | ProtocolIE-ID ::= 838 |
| id-PointA                                           | ProtocolIE-ID ::= 839 |
| id-SCS-SpecificCarrier                              | ProtocolIE-ID ::= 840 |
| id-NR-PCI                                           | ProtocolIE-ID ::= 841 |
| id-PeerUE-ID                                        | ProtocolIE-ID ::= 842 |
| id-EarlySyncServingCellInformation                  | ProtocolIE-ID ::= 843 |

|                                               |                       |
|-----------------------------------------------|-----------------------|
| id-RANSharingAssistanceInformation            | ProtocolIE-ID ::= 844 |
| id-LTMCFRAResourceConfig-List                 | ProtocolIE-ID ::= 845 |
| id-F1U-PathFailure                            | ProtocolIE-ID ::= 846 |
| id-MeasBasedOnAggregatedResources             | ProtocolIE-ID ::= 847 |
| id-SIB23-message                              | ProtocolIE-ID ::= 848 |
| id-BarringExemptionforEmerCallInfo            | ProtocolIE-ID ::= 849 |
| id-SIB17bis-message                           | ProtocolIE-ID ::= 850 |
| id-ReportingIntervalIMs                       | ProtocolIE-ID ::= 851 |
| id-Transmission-Bandwidth-asymmetric          | ProtocolIE-ID ::= 852 |
| id-TagIDPointer                               | ProtocolIE-ID ::= 853 |
| id-LocalOrigin                                | ProtocolIE-ID ::= 854 |
| id-LTMResetInformation                        | ProtocolIE-ID ::= 855 |
| id-SRSPosPeriodicConfigHypersFNIndex          | ProtocolIE-ID ::= 856 |
| id-PreconfiguredSRSInformation                | ProtocolIE-ID ::= 857 |
| id-candidatePSCellsToCancel                   | ProtocolIE-ID ::= 858 |
| id-MobilityInitiation                         | ProtocolIE-ID ::= 859 |
| id-ValidityAreaSpecificSRSInformationExtended | ProtocolIE-ID ::= 860 |
| id-PLMNIndexNRAssistanceInfoForNetShar        | ProtocolIE-ID ::= 861 |

END  
-- ASN1STOP

## 9.4.8 Container Definitions

```
-- ASN1START
-- *****
--
-- Container definitions
--
-- *****

F1AP-Containers {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
ngran-access (22) modules (3) f1ap (3) version1 (1) f1ap-Containers (5) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- *****
--
-- IE parameter types from other modules.
--
-- *****

IMPORTS
    Criticality,
    Presence,
    PrivateIE-ID,
    ProtocolExtensionID,
```

```

    ProtocolIE-ID

FROM F1AP-CommonDataTypes
    maxPrivateIEs,
    maxProtocolExtensions,
    maxProtocolIEs

FROM F1AP-Constants;

-- *****
--
-- Class Definition for Protocol IEs
--
-- *****

F1AP-PROTOCOL-IES ::= CLASS {
    &id                ProtocolIE-ID                UNIQUE,
    &criticality        Criticality,
    &Value,
    &presence           Presence
}
WITH SYNTAX {
    ID                &id
    CRITICALITY        &criticality
    TYPE                &Value
    PRESENCE           &presence
}

-- *****
--
-- Class Definition for Protocol IEs
--
-- *****

F1AP-PROTOCOL-IES-PAIR ::= CLASS {
    &id                ProtocolIE-ID                UNIQUE,
    &firstCriticality    Criticality,
    &FirstValue,
    &secondCriticality    Criticality,
    &SecondValue,
    &presence           Presence
}
WITH SYNTAX {
    ID                &id
    FIRST CRITICALITY    &firstCriticality
    FIRST TYPE           &FirstValue
    SECOND CRITICALITY    &secondCriticality
    SECOND TYPE           &SecondValue
    PRESENCE            &presence
}

-- *****
--
-- Class Definition for Protocol Extensions

```

```

--
-- *****

F1AP-PROTOCOL-EXTENSION ::= CLASS {
    &id          ProtocolExtensionID          UNIQUE,
    &criticality  Criticality,
    &Extension,
    &presence     Presence
}
WITH SYNTAX {
    ID          &id
    CRITICALITY &criticality
    EXTENSION   &Extension
    PRESENCE    &presence
}

-- *****
--
-- Class Definition for Private IEs
--
-- *****

F1AP-PRIVATE-IES ::= CLASS {
    &id          PrivateIE-ID,
    &criticality  Criticality,
    &Value,
    &presence     Presence
}
WITH SYNTAX {
    ID          &id
    CRITICALITY &criticality
    TYPE        &Value
    PRESENCE    &presence
}

-- *****
--
-- Container for Protocol IEs
--
-- *****

ProtocolIE-Container {F1AP-PROTOCOL-IES : IEsSetParam} ::=
    SEQUENCE (SIZE (0..maxProtocolIEs)) OF
        ProtocolIE-Field {{IEsSetParam}}

ProtocolIE-SingleContainer {F1AP-PROTOCOL-IES : IEsSetParam} ::=
    ProtocolIE-Field {{IEsSetParam}}

ProtocolIE-Field {F1AP-PROTOCOL-IES : IEsSetParam} ::= SEQUENCE {
    id          F1AP-PROTOCOL-IES.&id          ({IEsSetParam}),
    criticality  F1AP-PROTOCOL-IES.&criticality  ({IEsSetParam}{@id}),
    value       F1AP-PROTOCOL-IES.&Value       ({IEsSetParam}{@id})
}

```

```

-- *****
--
-- Container for Protocol IE Pairs
--
-- *****

ProtocolIE-ContainerPair {F1AP-PROTOCOL-IES-PAIR : IEsSetParam} ::=
    SEQUENCE (SIZE (0..maxProtocolIEs)) OF
        ProtocolIE-FieldPair {{IEsSetParam}}

ProtocolIE-FieldPair {F1AP-PROTOCOL-IES-PAIR : IEsSetParam} ::= SEQUENCE {
    id                F1AP-PROTOCOL-IES-PAIR.&id                ({IEsSetParam}),
    firstCriticality   F1AP-PROTOCOL-IES-PAIR.&firstCriticality   ({IEsSetParam}{@id}),
    firstValue         F1AP-PROTOCOL-IES-PAIR.&firstValue         ({IEsSetParam}{@id}),
    secondCriticality  F1AP-PROTOCOL-IES-PAIR.&secondCriticality  ({IEsSetParam}{@id}),
    secondValue        F1AP-PROTOCOL-IES-PAIR.&secondValue        ({IEsSetParam}{@id})
}

-- *****
--
-- Container for Protocol Extensions
--
-- *****

ProtocolExtensionContainer {F1AP-PROTOCOL-EXTENSION : ExtensionSetParam} ::=
    SEQUENCE (SIZE (1..maxProtocolExtensions)) OF
        ProtocolExtensionField {{ExtensionSetParam}}

ProtocolExtensionField {F1AP-PROTOCOL-EXTENSION : ExtensionSetParam} ::= SEQUENCE {
    id                F1AP-PROTOCOL-EXTENSION.&id                ({ExtensionSetParam}),
    criticality        F1AP-PROTOCOL-EXTENSION.&criticality        ({ExtensionSetParam}{@id}),
    extensionValue     F1AP-PROTOCOL-EXTENSION.&extension         ({ExtensionSetParam}{@id})
}

-- *****
--
-- Container for Private IEs
--
-- *****

PrivateIE-Container {F1AP-PRIVATE-IES : IEsSetParam} ::=
    SEQUENCE (SIZE (1.. maxPrivateIEs)) OF
        PrivateIE-Field {{IEsSetParam}}

PrivateIE-Field {F1AP-PRIVATE-IES : IEsSetParam} ::= SEQUENCE {
    id                F1AP-PRIVATE-IES.&id                ({IEsSetParam}),
    criticality        F1AP-PRIVATE-IES.&criticality        ({IEsSetParam}{@id}),
    value              F1AP-PRIVATE-IES.&value              ({IEsSetParam}{@id})
}

END
-- ASN1STOP

```

## 9.5 Message Transfer Syntax

F1AP shall use the ASN.1 Basic Packed Encoding Rules (BASIC-PER) Aligned Variant as transfer syntax, as specified in ITU-T Recommendation X.691 [5].

## 9.6 Timers

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# 10 Handling of unknown, unforeseen and erroneous protocol data

Clause 10 of TS 38.413 [3] is applicable for the purposes of the present document, with the following additions for non-UE-associated procedures:

- In case of Abstract Syntax Error, when reporting the *Criticality Diagnostics* IE for not comprehended IE/IEgroups or missing IE/IE groups, the *Transaction ID* IE shall also be included;
- In case of Logical Error, when reporting the *Criticality Diagnostics* IE, the *Transaction ID* IE shall also be included;
- In case of Logical Error in a response message of a Class 1 procedure, or failure to comprehend *Transaction ID* IE from a received message, the procedure shall be considered as unsuccessfully terminated or not terminated (e.g., transaction ID unknown in response message), and local error handling shall be initiated.



## Annex A (informative): Change History

| Change history |         |           |      |     |     |                                                                                         |             |
|----------------|---------|-----------|------|-----|-----|-----------------------------------------------------------------------------------------|-------------|
| Date           | Meeting | TDoc      | CR   | Rev | Cat | Subject/Comment                                                                         | New version |
| 2017-06        | R3 NR#2 | R3-172493 | -    | -   | -   | First version                                                                           | 0.1.0       |
| 2017-07        | R3 NR#2 | R3-172640 | -    | -   | -   | Incorporated agreed TPs from R3 NR#2 Adhoc                                              | 0.2.0       |
| 2017-08        | R3#97   | R3-173451 | -    | -   | -   | Incorporated agreed TPs from R3#97                                                      | 0.3.0       |
| 2017-10        | R3#97b  | R3-174247 | -    | -   | -   | Incorporated agreed TPs from R3#97b                                                     | 0.4.0       |
| 2017-12        | R3#98   | R3-175062 | -    | -   | -   | Incorporated agreed TPs from R3#98                                                      | 0.5.0       |
| 2017-12        | RAN#78  | RP-172287 |      |     |     | Submitted for approval to RAN                                                           | 1.0.0       |
| 2017-12        | RAN#78  |           |      |     |     | TR approved by RAN plenary                                                              | 15.0.0      |
| 2018-03        | RP-79   | RP-180468 | 0001 | 2   | B   | Baseline CR for March version of TS 38.473 covering agreements of RAN3#99               | 15.1.0      |
| 2018-04        |         |           |      |     |     | Editorial correction to ASN.1 (correction to id-TimeToWait ProtocolE-ID)                | 15.1.1      |
| 2018-06        | RP-80   | RP-181237 | 0011 | 6   | B   | Introduction of SA NR (38.473 Baseline CR covering RAN3 agreements)                     | 15.2.0      |
| 2018-06        | RP-80   | RP-181239 | 0043 | 3   | F   | Essential corrections of EN-DC for NSA NR (38.473 Baseline CR covering RAN3 agreements) | 15.2.0      |
| 2018-06        | RP-80   | RP-181237 | 0045 | -   | B   | F1 support for LTE - NR coexistence                                                     | 15.2.0      |
| 2018-06        | RP-80   |           |      |     |     | Correction to ASN.1 and to Change History table                                         | 15.2.1      |
| 2018-09        | RP-81   | RP-181920 | 0055 | 2   | F   | Introduction of DU Configuration Query                                                  | 15.3.0      |
| 2018-09        | RP-81   | RP-181921 | 0056 | 4   | F   | CR to 38.473 on further clarifications on System information transfer over F1           | 15.3.0      |
| 2018-09        | RP-81   | RP-181921 | 0058 | 4   | F   | CR to 38.473 on corrections to System information delivery                              | 15.3.0      |
| 2018-09        | RP-81   | RP-181920 | 0059 | 1   | F   | CR to 38.473 on corrections to PWS transfer over F1                                     | 15.3.0      |
| 2018-09        | RP-81   | RP-181921 | 0063 | 3   | F   | CR to 38.473 on PDCCP SN over F1 interface                                              | 15.3.0      |
| 2018-09        | RP-81   | RP-181922 | 0064 | 3   | F   | NR Corrections (38.473 Baseline CR covering RAN3-101 agreements)                        | 15.3.0      |
| 2018-09        | RP-81   | RP-181997 | 0068 | -   | F   | Introduction of UL AMBR on F1                                                           | 15.3.0      |
| 2018-09        | RP-81   | RP-181921 | 0072 | 3   | F   | Correction on cell management                                                           | 15.3.0      |
| 2018-09        | RP-81   | RP-181921 | 0073 | 2   | F   | RLC Mode Indication over F1                                                             | 15.3.0      |
| 2018-09        | RP-81   | RP-181921 | 0076 | 3   | F   | CR to 38.473 on UE Identity Index value                                                 | 15.3.0      |
| 2018-09        | RP-81   | RP-181920 | 0077 | 1   | F   | Correction for UE Context Modification on presence of ServCellIndex IE                  | 15.3.0      |
| 2018-09        | RP-81   | RP-181920 | 0078 | -   | F   | Executing duplication for RRC-container                                                 | 15.3.0      |
| 2018-09        | RP-81   | RP-181921 | 0079 | 1   | F   | Indication of RLC re-establishment at the gNB-DU                                        | 15.3.0      |
| 2018-09        | RP-81   | RP-181920 | 0080 | -   | F   | Exchange of SMTC over F1                                                                | 15.3.0      |
| 2018-09        | RP-81   | RP-181920 | 0081 | -   | F   | Solving remaining issues with QoS parameters – TS 38.473                                | 15.3.0      |
| 2018-09        | RP-81   | RP-181921 | 0090 |     | F   | Correction of 5GS TAC                                                                   | 15.3.0      |
| 2018-09        | RP-81   | RP-181921 | 0095 | 1   | F   | Extend the RANAC size to 8bits                                                          | 15.3.0      |
| 2018-09        | RP-81   | RP-181921 | 0097 | -   | F   | Corrections of Choice                                                                   | 15.3.0      |
| 2018-09        | RP-81   | RP-181921 | 0098 | 1   | F   | Correction of TNL criticality                                                           | 15.3.0      |
| 2018-09        | RP-81   | RP-181921 | 0099 | 1   | F   | Corrections of usage of single container                                                | 15.3.0      |
| 2018-09        | RP-81   | RP-181921 | 0105 | 2   | B   | RRC version handling                                                                    | 15.3.0      |
| 2018-09        | RP-81   | RP-181921 | 0106 | 1   | B   | Introduction of Overload Handling in F1-C                                               | 15.3.0      |
| 2018-09        | RP-81   | RP-181921 | 0113 | -   | F   | CR to 38.473 on presence of QoS information                                             | 15.3.0      |
| 2018-09        | RP-81   | RP-181921 | 0114 | 1   | F   | Correction C-RNTI format                                                                | 15.3.0      |
| 2018-09        | RP-81   | RP-181921 | 0115 | -   | F   | Correction of QoS Parameters                                                            | 15.3.0      |
| 2018-09        | RP-81   | RP-181921 | 0116 | 1   | F   | Correction on F1 Setup Request                                                          | 15.3.0      |
| 2018-12        | RP-82   | RP-182446 | 0070 | 3   | F   | RRC Delivery Indication                                                                 | 15.4.0      |
| 2018-12        | RP-82   | RP-182446 | 0117 | 1   | F   | Correction of AMBR Enforcement                                                          | 15.4.0      |
| 2018-12        | RP-82   | RP-182446 | 0138 | -   | F   | CR for correction on Initial UL RRC message transfer                                    | 15.4.0      |
| 2018-12        | RP-82   | RP-182446 | 0140 | 1   | F   | CR to 38.473 on bearer type change indication                                           | 15.4.0      |
| 2018-12        | RP-82   | RP-182446 | 0142 | 1   | F   | CR to 38.473 on correction to PWS System Information                                    | 15.4.0      |
| 2018-12        | RP-82   | RP-182446 | 0144 | 2   | F   | CR to 38.473 on asymmetric mapping for UL and DL QoS flow                               | 15.4.0      |
| 2018-12        | RP-82   | RP-182447 | 0145 | 4   | F   | Corrections on UE-associated LTE/NR resource coordination                               | 15.4.0      |
| 2018-12        | RP-82   | RP-182446 | 0147 | 2   | F   | CR for F1 Cell Management                                                               | 15.4.0      |
| 2018-12        | RP-82   | RP-182447 | 0150 | 1   | F   | Missing Transaction ID in non-UE-associated procedures                                  | 15.4.0      |
| 2018-12        | RP-82   | RP-182446 | 0157 | 1   | F   | CR to 38.473 on mapping of servingCellMO and Serving Cell                               | 15.4.0      |
| 2018-12        | RP-82   | RP-182446 | 0160 | 1   | F   | CR to 38.473 on UE context modification required procedure                              | 15.4.0      |
| 2018-12        | RP-82   | RP-182447 | 0165 | 1   | F   | Addition of the RLC Mode information for bearer modification                            | 15.4.0      |
| 2018-12        | RP-82   | RP-182448 | 0167 | 2   | F   | Rapporteur CR to align tabular                                                          | 15.4.0      |
| 2018-12        | RP-82   | RP-182448 | 0168 | 2   | F   | Rapporteur CR to align ASN.1                                                            | 15.4.0      |
| 2018-12        | RP-82   | RP-182447 | 0169 | 2   | F   | Correction of MaxNoofBPLMNs                                                             | 15.4.0      |
| 2018-12        | RP-82   | RP-182351 | 0174 | 2   | F   | Correction on PDCCP SN length on F1                                                     | 15.4.0      |
| 2018-12        | RP-82   | RP-182447 | 0178 | 2   | F   | CR for TS 38.473 for MR-DC coordination                                                 | 15.4.0      |

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| 2018-12 | RP-82 | RP-182447 | 0179 | 2 | F | Support of system information update for active UE without CSS                                                  | 15.4.0 |
| 2018-12 | RP-82 | RP-182447 | 0187 | 1 | F | CR to 38.473 on clarification to the presence of UE AMBR                                                        | 15.4.0 |
| 2018-12 | RP-82 | RP-182506 | 0195 | 2 | F | CR on Scell release for RLC failure                                                                             | 15.4.0 |
| 2018-12 | RP-82 | RP-182447 | 0205 | 1 | F | About bandcombinationindex and featureSetEntryIndex                                                             | 15.4.0 |
| 2018-12 | RP-82 | RP-182447 | 0211 | 1 | F | CR to 38.473 on DRB PDCP duplication                                                                            | 15.4.0 |
| 2018-12 | RP-82 | RP-182447 | 0216 | 1 | F | CR to 38.473 on clarifications on system information update over F1                                             | 15.4.0 |
| 2018-12 | RP-82 | RP-182448 | 0219 | - | F | Correction of RRC version handling and UE inactivity notification                                               | 15.4.0 |
| 2019-01 | RP-82 |           |      |   |   | - correction to ASN.1:<br>adding a missing change to "WriteReplaceWarningResponseEs<br>F1AP-PROTOCOL-IES ::= {" | 15.4.1 |
| 2019-03 | RP-83 | RP-190555 | 0202 | 2 | F | Indication that cells are only UL or DL on F1                                                                   | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0204 | 1 | F | AMF initiated UE Context Release failure cause                                                                  | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0220 | 1 | F | Correction to reconfiguration with sync for gNB-DU                                                              | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0225 | 1 | F | Introduction of PH-InforSCG in DU to CU RRC Information                                                         | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0226 | 1 | F | CR to 38.473 on Measurement gap coordination                                                                    | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0228 | 1 | F | CR for TS 38.473 for MR-DC coordination                                                                         | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0229 | 2 | F | Condition for inclusion of the Dedicated SI Delivery Needed UE List IE                                          | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0230 | 1 | F | Correction of the Transmission stop/restart indication                                                          | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0231 | - | F | Corrections on gNB-CU/gNB-DU Configuration Update                                                               | 15.5.0 |
| 2019-03 | RP-83 | RP-190556 | 0236 | 2 | F | Correction of QoS Flow Mapping Indication                                                                       | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0244 | - | F | Release due to pre-emption                                                                                      | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0245 | 2 | F | CR on RRC container in UE context modification request message                                                  | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0246 | 2 | F | CR on UE context modification refuse                                                                            | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0247 | - | F | Transaction ID in Error Indication procedure                                                                    | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0249 | 2 | F | Cells to be deactivated over F1                                                                                 | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0251 | 1 | F | CR to 38.473 on SRB duplication and LCID                                                                        | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0258 | - | F | CR to 38.473 on corrections for removal of PDCP duplication for SRB                                             | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0263 | 1 | F | CR to 38.473 on transferring UEAssistanceInformation over F1                                                    | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0265 | - | F | Rapporteur updates                                                                                              | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0266 | 1 | F | Correction on gNB-DU Resource Coordination                                                                      | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0267 | 1 | F | Endpoint IP address and port                                                                                    | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0268 | 1 | F | Correction to add paging origin IE                                                                              | 15.5.0 |
| 2019-03 | RP-83 | RP-190555 | 0269 | 2 | F | Multiple SCTP associations over F1AP                                                                            | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0272 | 1 | F | About Cells Failed to be Activated IE in gNB-CU Configuration Update Ack                                        | 15.5.0 |
| 2019-03 | RP-83 | RP-190556 | 0273 | 1 | F | gNB-DU UE Aggregate Maximum Bit Rate Uplink correction                                                          | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0276 | 1 | F | RRC Reconfiguration failure                                                                                     | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0278 | 1 | F | Node behaviour at reception of DU to CU RRC Information                                                         | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0281 | - | F | Addition of Transaction ID to Initial UL RRC Message Transfer                                                   | 15.5.0 |
| 2019-07 | RP-84 | RP-191397 | 0200 | 5 | F | RAN sharing with multiple Cell ID broadcast                                                                     | 15.6.0 |
| 2019-07 | RP-84 | RP-191397 | 0270 | 5 | F | Addition of Network Access Rate Reduction message                                                               | 15.6.0 |
| 2019-07 | RP-84 | RP-191397 | 0271 | 3 | F | RAN UE ID for F1                                                                                                | 15.6.0 |
| 2019-07 | RP-84 | RP-191396 | 0283 | 2 | F | MR-DC resource coordination in F1                                                                               | 15.6.0 |
| 2019-07 | RP-84 | RP-191396 | 0316 | 2 | F | Full configuration indication from gNB-CU to gNB-DU.                                                            | 15.6.0 |
| 2019-07 | RP-84 | RP-191396 | 0322 | 2 | F | CR to 38.473 on clarification to RRC reconfigure complete indicator                                             | 15.6.0 |
| 2019-07 | RP-84 | RP-191394 | 0326 | 2 | F | CR to 38.473 on deconfiguring CA based PDCP duplication for DRB                                                 | 15.6.0 |
| 2019-07 | RP-84 | RP-191395 | 0330 | 3 | F | CR to 38.473 on Removal of Multiple TNLAs                                                                       | 15.6.0 |
| 2019-07 | RP-84 | RP-191396 | 0348 | - | F | Full configuration in UE Context Setup                                                                          | 15.6.0 |
| 2019-07 | RP-84 | RP-191396 | 0351 | 2 | F | CR on PWS segmentation over F1                                                                                  | 15.6.0 |
| 2019-07 | RP-84 | RP-191396 | 0352 | 1 | F | CR on cell type over F1                                                                                         | 15.6.0 |
| 2019-07 | RP-84 | RP-191396 | 0357 | - | F | Rapporteur updates: Alignment and editorials                                                                    | 15.5.0 |
| 2019-07 | RP-84 | RP-191396 | 0358 | - | F | Rapporteur update: Correction of Presence for DRB information                                                   | 15.6.0 |
| 2019-07 | RP-84 | RP-191396 | 0359 | - | F | Rapporteur updates: Correction of Presence for E-UTRA PRACH Configuration                                       | 15.6.0 |
| 2019-07 | RP-84 | RP-191396 | 0370 | - | F | Full configuration IE included in the UE Context Modification Response.                                         | 15.6.0 |
| 2019-07 | RP-84 | RP-191396 | 0376 |   | F | CR to 38.473 on clarification for UP TNL Information IE over F1                                                 | 15.6.0 |
| 2019-07 | RP-84 | RP-191396 | 0377 | 2 | F | Procedure description on optional IEs in CU to DU RRC information IE.                                           | 15.6.0 |
| 2019-09 | RP-85 | RP-192166 | 0343 | 3 | F | CR on MR-DC low layer coordination with an MgNB-DU                                                              | 15.7.0 |
| 2019-09 | RP-85 | RP-192166 | 0344 | 2 | F | CR on MCG PHR format in MgNB-DU                                                                                 | 15.7.0 |
| 2019-09 | RP-85 | RP-192166 | 0388 |   | F | CR on DC Coordination for PDCCH Blind Detection                                                                 | 15.7.0 |
| 2019-09 | RP-85 | RP-192167 | 0393 | 1 | F | Rapporteur update - clarification of semantics                                                                  | 15.7.0 |
| 2019-09 | RP-85 | RP-192166 | 0399 | 1 | F | Clarification for TNLA removal                                                                                  | 15.7.0 |
| 2019-12 | RP-86 | RP-192915 | 0318 | 5 | F | Correction about gNB-CU System Information IE                                                                   | 15.8.0 |
| 2019-12 | RP-86 | RP-192915 | 0447 | 1 | F | On CellGroupConfig handling                                                                                     | 15.8.0 |

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| 2019-12 | RP-86   | RP-192915                 | 0458 | 1  | F | Correction of S-NSSAI coding                                                                            | 15.8.0 |
| 2019-12 | RP-86   | RP-192915                 | 0459 | 1  | F | Removal of Requested P-MaxFR2                                                                           | 15.8.0 |
| 2019-12 | RP-86   | RP-192915                 | 0479 | 2  | F | Addition of Message Identifier and Serial Number to PWS Cancel Request                                  | 15.8.0 |
| 2019-12 | RP-86   | RP-192916                 | 0482 | 2  | F | Clarifications on SCell lists                                                                           | 15.8.0 |
| 2019-12 | RP-86   | RP-192916                 | 0494 | -  | F | RRC Container in Modification Procedure                                                                 | 15.8.0 |
| 2019-12 | RP-86   | RP-192916                 | 0508 | 0  | F | CR to 38.473 on applicability of the IE Selected BandCombinationIndex and Selected FeatureSetEntryIndex | 15.8.0 |
| 2019-12 | RP-86   | RP-192916                 | 0509 | 1  | F | CR to 38.473 on MeasGapSharingConfig and gNB-CU System Information                                      | 15.8.0 |
| 2019-12 | RP-86   | RP-192916                 | 0510 | 1  | F | CR to 38.473 on cause values over F1                                                                    | 15.8.0 |
| 2019-12 | RP-86   | RP-192916                 | 0515 | 2  | F | Clarification on Initial UL RRC Message Transfer procedure                                              | 15.8.0 |
| 2019-12 | RP-86   | RP-192913                 | 0280 | 7  | F | Trace function support for F1AP                                                                         | 16.0.0 |
| 2019-12 | RP-86   | RP-192908                 | 0287 | 7  | B | Support for CLI                                                                                         | 16.0.0 |
| 2019-12 | RP-86   | RP-192913                 | 0314 | 5  | B | Introduction of Additional RRM Policy Index (ARPI)                                                      | 16.0.0 |
| 2019-12 | RP-86   | RP-192908                 | 0339 | 6  | B | CR to F1-AP for RIM new message                                                                         | 16.0.0 |
| 2019-12 | RP-86   | RP-192915                 | 0460 |    | F | Removal of unused IEs                                                                                   | 16.0.0 |
| 2019-12 | RP-86   | RP-192913                 | 0463 | 1  | C | Extending the MDBV Range                                                                                | 16.0.0 |
| 2019-12 | RP-86   | RP-192910                 | 0514 | 3  | B | CR for TS38.473 on supporting SN Resume during the RRCResume procedure                                  | 16.0.0 |
| 2019-12 | RP-86   | RP-192914                 | 0518 | 2  | F | Support for setting up IPsec a priori in F1                                                             | 16.0.0 |
| 2020-03 | RP-87-e | RP-200428                 | 0522 | 1  | A | Correction of PWS Failure Indication                                                                    | 16.1.0 |
| 2020-03 | RP-87-e | RP-200428                 | 0525 | -  | A | Correction of the presence of UL UP TNL Information to be setup List IE in tabular                      | 16.1.0 |
| 2020-03 | RP-87-e | RP-200425                 | 0527 | 2  | F | Corrections to CLI                                                                                      | 16.1.0 |
| 2020-03 | RP-87-e | RP-200425                 | 0528 | 1  | D | Rapporteur: Editorial updates                                                                           | 16.1.0 |
| 2020-03 | RP-87-e | RP-200425                 | 0530 | 2  | B | E2E delay measurement for Qos monitoring for URLLC                                                      | 16.1.0 |
| 2020-03 | RP-87-e | RP-200428                 | 0534 | 1  | A | Correction relating to Initial UL RRC Message Transfer procedure CR 38.473                              | 16.1.0 |
| 2020-07 | RP-88-e | RP-201077                 | 0285 | 17 | B | BL CR to 38.473: Support for IAB                                                                        | 16.2.0 |
| 2020-07 | RP-88-e | RP-201074                 | 0432 | 12 | B | Support of NR V2X over F1                                                                               | 16.2.0 |
| 2020-07 | RP-88-e | RP-201082                 | 0441 | 12 | B | Addition of SON features                                                                                | 16.2.0 |
| 2020-07 | RP-88-e | RP-201079                 | 0477 | 8  | B | Introduction of NR_IOT support to TS 38.473                                                             | 16.2.0 |
| 2020-07 | RP-88-e | RP-201075                 | 0481 | 10 | B | Baseline CR for introducing Rel-16 NR mobility enhancement                                              | 16.2.0 |
| 2020-07 | RP-88-e | RP-201082                 | 0492 | 6  | B | Addition of MDT features                                                                                | 16.2.0 |
| 2020-07 | RP-88-e | RP-201080                 | 0502 | 7  | B | Introduction of NPN                                                                                     | 16.2.0 |
| 2020-07 | RP-88-e | RP-201076                 | 0537 | 1  | B | CR38.473 on TDD pattern for NR-DC power control coordination for sol1                                   | 16.2.0 |
| 2020-07 | RP-88-e | RP-201085                 | 0539 | -  | F | Rapporteur: Corrections after implementation                                                            | 16.2.0 |
| 2020-07 | RP-88-e | RP-201090                 | 0543 | 2  | A | Encoding PLMNs in served cell information NR                                                            | 16.2.0 |
| 2020-07 | RP-88-e | RP-201091                 | 0545 | 1  | A | Correction for usage of Cell Broadcast Cancelled List                                                   | 16.2.0 |
| 2020-07 | RP-88-e | RP-201091                 | 0548 | 1  | A | Correction on UE CONTEXT MODIFICATION REQUIRED message                                                  | 16.2.0 |
| 2020-07 | RP-88-e | RP-201085                 | 0561 | 1  | F | Correction on CLI                                                                                       | 16.2.0 |
| 2020-07 | RP-88-e | RP-201090                 | 0567 | -  | A | Encoding PLMNs in served cell information IEs - semantics corrections                                   | 16.2.0 |
| 2020-07 | RP-88-e | RP-201092                 | 0570 | 1  | A | Correction for UL UP TNL Information                                                                    | 16.2.0 |
| 2020-07 | RP-88-e | RP-201092                 | 0572 | -  | A | Correction on RRC Container in Initial UL RRC Messag Transfer                                           | 16.2.0 |
| 2020-07 | RP-88-e | RP-201092                 | 0576 | 1  | A | Correction on RRC Connection Reconfiguration Complete Indicator                                         | 16.2.0 |
| 2020-07 | RP-88-e | RP-201092                 | 0581 | 2  | F | Corrections of Inactive UE Context stored at gNB-DU                                                     | 16.2.0 |
| 2020-07 | RP-88-e | RP-201085                 | 0600 | 2  | F | Correction on RF parameters in NR cell information                                                      | 16.2.0 |
| 2020-07 | RP-88-e | RP-201090                 | 0601 | 4  | F | Correction of S-NSSAI range                                                                             | 16.2.0 |
| 2020-07 | RP-88-e | RP-201092                 | 0603 | 2  | A | Correction for Handover Preparation Information                                                         | 16.2.0 |
| 2020-07 | RP-88-e | RP-201092                 | 0607 | 1  | A | CR on Concurrent Warning Message Indicator over F1 (Rel-16)                                             | 16.2.0 |
| 2020-07 | RP-88-e | RP-201092                 | 0615 | -  | A | Section renumbering for PWS cancel                                                                      | 16.2.0 |
| 2020-07 | RP-88-e | RP-201092                 | 0616 | -  | A | Correction on DL RRC MESSAGE TRANSFER                                                                   | 16.2.0 |
| 2020-07 | RP-88-e | RP-201092                 | 0618 |    | A | Addition of abnormal conditions in PWS Cancel procedure                                                 | 16.2.0 |
| 2020-09 | RP-89-e | <a href="#">RP-201850</a> | 0495 | 10 | B | Introduction of positioning support over F1AP                                                           | 16.3.0 |
| 2020-09 | RP-89-e | RP-201956                 | 0557 | 2  | A | Support of PSCell/SCell-only operation mode                                                             | 16.3.0 |
| 2020-09 | RP-89-e | RP-201956                 | 0583 | 5  | F | Cell Creation Rejection when max number of supported cells is exceeded at CU CR 38.473                  | 16.3.0 |
| 2020-09 | RP-89-e | RP-201956                 | 0587 | 5  | A | Measurement gap deactivation over F1AP CR 38.473                                                        | 16.3.0 |
| 2020-09 | RP-89-e | RP-201949                 | 0619 | 2  | F | Slot list length correction in TDD UL-DL Configuration                                                  | 16.3.0 |
| 2020-09 | RP-89-e | RP-201956                 | 0625 | 1  | F | Addition of abnormal conditions in Write-Replace Warning procedure                                      | 16.3.0 |
| 2020-09 | RP-89-e | RP-201956                 | 0628 | 2  | A | Correction of PSCell/SCell-only mode                                                                    | 16.3.0 |
| 2020-09 | RP-89-e | RP-201956                 | 0634 | 1  | A | Correction on UE Context Modification Procedure                                                         | 16.3.0 |
| 2020-09 | RP-89-e | RP-201956                 | 0639 | 1  | F | Rapporteur Corrections                                                                                  | 16.3.0 |
| 2020-09 | RP-89-e | RP-201949                 | 0640 | -  | F | Correction of procedure ID                                                                              | 16.3.0 |
| 2020-09 | RP-89-e | RP-201956                 | 0642 | -  | A | Correction of PWS cancel                                                                                | 16.3.0 |
| 2020-09 | RP-89-e | RP-201949                 | 0643 | 1  | F | Corrections on PC5 Link Aggregated Bit Rate                                                             | 16.3.0 |
| 2020-09 | RP-89-e | RP-201949                 | 0660 | -  | F | Correction on the Maximum Number of CHO Preparations in F1AP                                            | 16.3.0 |

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| 2020-09 | RP-89-e | RP-201956 | 0663 | 1 | F | Corrections to 38.473 on node name type                                                                | 16.3.0 |
| 2020-09 | RP-89-e | RP-201947 | 0664 | 1 | F | Correction on IAB-DU configuration                                                                     | 16.3.0 |
| 2020-09 | RP-89-e | RP-201982 | 0671 |   | F | Correction on IAB-DU configuration                                                                     | 16.3.0 |
| 2020-09 | RP-89-e |           |      |   |   | Correct wrong numbering of protocol IE-ID in clause 9.4.7                                              | 16.3.1 |
| 2020-12 | RP-90-e | RP-202310 | 0645 | 2 | F | Uniqueness of BH RLC channel ID                                                                        | 16.4.0 |
| 2020-12 | RP-90-e | RP-202310 | 0658 | 3 | F | Correction on V2X related information                                                                  | 16.4.0 |
| 2020-12 | RP-90-e | RP-202310 | 0665 | 2 | F | Correction on unsuccessful operations of IAB procedures                                                | 16.4.0 |
| 2020-12 | RP-90-e | RP-202310 | 0666 | 1 | F | Correction on the identification of IAB-donor-DU                                                       | 16.4.0 |
| 2020-12 | RP-90-e | RP-202310 | 0667 | 2 | F | Correction on the Context Setup procedure for IAB node                                                 | 16.4.0 |
| 2020-12 | RP-90-e | RP-202310 | 0668 | 1 | F | Correction on BAP address                                                                              | 16.4.0 |
| 2020-12 | RP-90-e | RP-202310 | 0672 | 1 | F | CR on F1-C transfer for Rel-16 IAB                                                                     | 16.4.0 |
| 2020-12 | RP-90-e | RP-202311 | 0677 | - | F | Correction of F1AP positioning procedures                                                              | 16.4.0 |
| 2020-12 | RP-90-e | RP-202311 | 0678 | 1 | F | Corrections to tabular and asn.1 for NR positioning (F1AP)                                             | 16.4.0 |
| 2020-12 | RP-90-e | RP-202310 | 0681 | 1 | F | Correction of alternative QoS profile                                                                  | 16.4.0 |
| 2020-12 | RP-90-e | RP-202313 | 0683 | - | F | Removal of duplicated imports                                                                          | 16.4.0 |
| 2020-12 | RP-90-e | RP-202312 | 0684 | 2 | F | Corrections of UL and DL carrier list                                                                  | 16.4.0 |
| 2020-12 | RP-90-e | RP-202311 | 0689 | 1 | F | RRC alignment and various correction including ASN.1                                                   | 16.4.0 |
| 2020-12 | RP-90-e | RP-202311 | 0691 | 1 | F | Correction of RLC Duplication Information over F1                                                      | 16.4.0 |
| 2020-12 | RP-90-e | RP-202288 | 0695 | 3 | A | Correction on value range of UAC reduction Indication                                                  | 16.4.0 |
| 2020-12 | RP-90-e | RP-202311 | 0709 | 1 | F | Coupling TRP ID and Cell ID in Measurement procedures                                                  | 16.4.0 |
| 2021-03 | RP-91-e | RP-210123 | 0431 | 7 | B | Introduction of SFN Offset per cell over F1                                                            | 16.5.0 |
| 2021-03 | RP-91-e | RP-210240 | 0632 | 6 | A | Correction on Overlapping Band Handling over F1                                                        | 16.5.0 |
| 2021-03 | RP-91-e | RP-210235 | 0676 | 2 | F | Correction on PRACH coordination                                                                       | 16.5.0 |
| 2021-03 | RP-91-e | RP-210239 | 0702 | 3 | F | Cause value on F1 for insufficient UE capabilities CR 38.473                                           | 16.5.0 |
| 2021-03 | RP-91-e | RP-210239 | 0711 | 1 | F | Update on QoS monitoring control                                                                       | 16.5.0 |
| 2021-03 | RP-91-e | RP-210233 | 0715 | 2 | F | Stage-3 CR on transmission stop for Rel-16 DAPS handover                                               | 16.5.0 |
| 2021-03 | RP-91-e | RP-210232 | 0720 | 1 | F | Correction of NPN related Cell Information                                                             | 16.5.0 |
| 2021-03 | RP-91-e | RP-210231 | 0721 | - | F | Correction on IAB configuration                                                                        | 16.5.0 |
| 2021-03 | RP-91-e | RP-210231 | 0722 | - | F | Correction on BAP address configuration for IAB-donor-DU                                               | 16.5.0 |
| 2021-03 | RP-91-e | RP-210230 | 0725 | 1 | F | Including SRS frequency information in Positioning Information Request                                 | 16.5.0 |
| 2021-03 | RP-91-e | RP-210231 | 0728 | 2 | F | CR to 38.473: Correction on IAB related definitions and unsuccessful establishment of a BH RLC channel | 16.5.0 |
| 2021-03 | RP-91-e | RP-210230 | 0736 | - | F | Correction of the PCI IE presence in the ASN.1 for the SRS Configuration                               | 16.5.0 |
| 2021-06 | RP-92-e | RP-211334 | 0704 | 4 | A | How to release SCG configuration between MN-CU and MN-DU CR 38.473                                     | 16.6.0 |
| 2021-06 | RP-92-e | RP-211315 | 0712 | 2 | F | Clarification on TAI Slice Support List                                                                | 16.6.0 |
| 2021-06 | RP-92-e | RP-211323 | 0740 | 2 | F | Enabling CHO with SCG configuration                                                                    | 16.6.0 |
| 2021-06 | RP-92-e | RP-211327 | 0743 | - | F | Correction of Spatial Relation Information                                                             | 16.6.0 |
| 2021-06 | RP-92-e | RP-211317 | 0744 | - | F | Correction on reference to RACH-Report                                                                 | 16.6.0 |
| 2021-06 | RP-92-e | RP-211330 | 0753 |   | F | Stage-3 CR on system information message over F1 (Rel-16)                                              | 16.6.0 |
| 2021-06 | RP-92-e | RP-211333 | 0760 | - | A | Correction on SRB ID                                                                                   | 16.6.0 |
| 2021-06 | RP-92-e | RP-211334 | 0762 | 3 | A | gNB-DU UE Aggregate Maximum Bit Rate Uplink correction                                                 | 16.6.0 |
| 2021-06 | RP-92-e | RP-211322 | 0763 | - | F | Miscellaneous corrections on IAB in TS 38.473                                                          | 16.6.0 |
| 2021-06 | RP-92-e | RP-211327 | 0765 | 1 | F | Correction on SFN Initialisation Time                                                                  | 16.6.0 |
| 2021-06 | RP-92-e | RP-211327 | 0766 | - | F | Correction on relative cartesian coordinate                                                            | 16.6.0 |
| 2021-06 | RP-92-e | RP-211322 | 0770 | 1 | F | Correction on BH RLC CH configured for BAP control PDU                                                 | 16.6.0 |
| 2021-06 | RP-92-e | RP-211322 | 0771 | - | F | Correction on gNB-DU Resource Configuration                                                            | 16.6.0 |
| 2021-06 | RP-92-e | RP-211322 | 0772 | 1 | F | Correction on UL BH information configuration for DRBs support CA based duplication                    | 16.6.0 |
| 2021-06 | RP-92-e | RP-211317 | 0776 | 1 | F | Correction on MLB for TS 38.473                                                                        | 16.6.0 |
| 2021-09 | RP-93-e | RP-211876 | 0790 | 1 | F | Correction of served cell information for NPN                                                          | 16.7.0 |
| 2021-09 | RP-93-e | RP-211880 | 0792 | 1 | F | Correction of wrong CR implementation for Stage-3 CR on transmission stop for Rel-16 DAPS handover     | 16.7.0 |
| 2021-09 | RP-93-e | RP-211883 | 0796 | 1 | F | Adding procedural text for System Frame Number and Slot Number                                         | 16.7.0 |
| 2021-09 | RP-93-e | RP-211881 | 0800 | - | A | Correction of the IE related to E-UTRA resource coordination in F1AP                                   | 16.7.0 |
| 2021-12 | RP-94-e | RP-212864 | 0804 | 1 | A | Correction on F1 Removal for RAN Sharing in Rel-16                                                     | 16.8.0 |
| 2021-12 | RP-94-e | RP-212864 | 0811 | 4 | F | Incorrect Node Name IE in ASN.1                                                                        | 16.8.0 |
| 2021-12 | RP-94-e | RP-213174 | 0822 | 3 | F | Correction on PRS-only TRP                                                                             | 16.8.0 |
| 2021-12 | RP-94-e | RP-212867 | 0827 | 1 | F | Support of providing spatial relation per SRS resource from gNB-CU to gNB-DU                           | 16.8.0 |
| 2022-03 | RP-95-e | RP-220279 | 0778 | 4 | F | Support of dynamic ACL during dual connectivity                                                        | 16.9.0 |
| 2022-03 | RP-95-e | RP-220276 | 0837 | 1 | F | Correction on packet delay budget for IAB access link in TS 38.473                                     | 16.9.0 |
| 2022-03 | RP-95-e | RP-220276 | 0838 | - | F | CR to 38.473: Correction on IAB TNL Address Allocation procedure                                       | 16.9.0 |
| 2022-03 | RP-95-e | RP-220242 | 0844 | 2 | F | CR to TS38.473: Correction on PC5 QoS parameters for NR V2X                                            | 16.9.0 |
| 2022-03 | RP-95-e | RP-220281 | 0847 | 1 | F | Correction on positioning information configuration                                                    | 16.9.0 |
| 2022-03 | RP-95-e | RP-220281 | 0848 | 1 | F | Correction on Measurement Periodicity                                                                  | 16.9.0 |
| 2022-03 | RP-95-e | RP-220281 | 0849 | 1 | F | Correction on PRS Beam Information                                                                     | 16.9.0 |

|         |         |           |      |    |   |                                                                        |        |
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| 2022-03 | RP-95-e | RP-220281 | 0850 |    | F | CR for the correction on measurement gap configuration for position    | 16.9.0 |
| 2022-03 | RP-95-e | RP-220278 | 0854 | 1  | F | Correction of frequency information for DL only or UL only cell        | 16.9.0 |
| 2022-03 | RP-95-e | RP-220276 | 0860 |    | F | (Stage-3) Clarification on IAB Address Remove                          | 16.9.0 |
| 2022-03 | RP-95-e | RP-220221 | 0710 | 9  | B | Addition of SON features enhancement                                   | 17.0.0 |
| 2022-03 | RP-95-e | RP-220224 | 0716 | 6  | B | Introduction of NR MBS                                                 | 17.0.0 |
| 2022-03 | RP-95-e | RP-220222 | 0737 | 13 | B | CP-based Congestion Indication for IAB Networks                        | 17.0.0 |
| 2022-03 | RP-95-e | RP-220221 | 0738 | 7  | B | BLCR to 38.473: Support of MDT enhancement                             | 17.0.0 |
| 2022-03 | RP-95-e | RP-220223 | 0751 | 7  | B | Introduction of Enhanced IIoT support over F1                          | 17.0.0 |
| 2022-03 | RP-95-e | RP-220218 | 0777 | 10 | B | SCG BL CR to TS 38.473                                                 | 17.0.0 |
| 2022-03 | RP-95-e | RP-220218 | 0795 | 5  | B | BLCR to TS 38.473 for Conditional PScell Change/Addition               | 17.0.0 |
| 2022-03 | RP-95-e | RP-220228 | 0803 | 6  | B | Introduction of NR Positioning enhancements                            | 17.0.0 |
| 2022-03 | RP-95-e | RP-220230 | 0806 | 6  | B | BL CR to F1AP on Rel-17 RedCap                                         | 17.0.0 |
| 2022-03 | RP-95-e | RP-220236 | 0817 | 2  | B | Addition of NR Timing Advance reporting for NR UL E-CID [NRTADV]       | 17.0.0 |
| 2022-03 | RP-95-e | RP-220229 | 0826 | 7  | B | Support of QoE information transfer                                    | 17.0.0 |
| 2022-03 | RP-95-e | RP-220233 | 0833 | 3  | B | CG-SDT BLCR to TS38.473                                                | 17.0.0 |
| 2022-03 | RP-95-e | RP-220233 | 0834 | 3  | B | Support of RACH-based SDT                                              | 17.0.0 |
| 2022-03 | RP-95-e | RP-220231 | 0842 | 3  | B | Introduction of SideLink Relay                                         | 17.0.0 |
| 2022-03 | RP-95-e | RP-220219 | 0852 | 4  | B | Introduction of MultiSIM support over F1                               | 17.0.0 |
| 2022-03 | RP-95-e | RP-220235 | 0855 | 4  | B | Support for UE Power Saving Enhancements                               | 17.0.0 |
| 2022-03 | RP-95-e | RP-220232 | 0856 | 1  | B | (BLCR to TS 38.473) Supporting network slicing enhancement             | 17.0.0 |
| 2022-03 | RP-95-e | RP-220236 | 0858 |    | D | Editorial corrections                                                  | 17.0.0 |
| 2022-06 | RP-96   | RP-221143 | 0862 | 2  | F | QoE Rel-17 Corrections                                                 | 17.1.0 |
| 2022-06 | RP-96   | RP-221132 | 0863 | -  | F | Correction of PDC Measurement Periodicity values                       | 17.1.0 |
| 2022-06 | RP-96   | RP-221141 | 0864 | 1  | F | Correction of R17 SON features enhancement                             | 17.1.0 |
| 2022-06 | RP-96   | RP-221134 | 0865 | 1  | F | Corrections on NR MBS in F1AP                                          | 17.1.0 |
| 2022-06 | RP-96   | RP-221134 | 0866 | -  | F | NR MBS F1AP asn.1 correction                                           | 17.1.0 |
| 2022-06 | RP-96   | RP-221136 | 0868 | 2  | F | Correction on CG based SDT                                             | 17.1.0 |
| 2022-06 | RP-96   | RP-221150 | 0879 | 1  | A | F1AP CR for ACL remaining issues                                       | 17.1.0 |
| 2022-06 | RP-96   | RP-221145 | 0880 | 4  | F | CR to 38.473 on Measurement Amount                                     | 17.1.0 |
| 2022-06 | RP-96   | RP-221139 | 0884 | -  | F | ASN.1 corrections on NR SL relay for 38.473                            | 17.1.0 |
| 2022-06 | RP-96   | RP-221137 | 0887 | 2  | F | Correction to MUSIM                                                    | 17.1.0 |
| 2022-06 | RP-96   | RP-221139 | 0892 | 1  | F | Corrections for SL relay (F1AP)                                        | 17.1.0 |
| 2022-06 | RP-96   | RP-221126 | 0894 | 1  | F | Correction on RedCap Broadcast Information for TS38.473                | 17.1.0 |
| 2022-06 | RP-96   | RP-221131 | 0896 | 1  | F | F1AP ASN.1 review for NR Positioning Enhancements                      | 17.1.0 |
| 2022-06 | RP-96   | RP-221134 | 0897 |    | F | Remove the editor's notes                                              | 17.1.0 |
| 2022-06 | RP-96   | RP-221136 | 0900 | 1  | F | Correction on SRB SDT indication                                       | 17.1.0 |
| 2022-06 | RP-96   | RP-221136 | 0901 | 1  | F | Correction on SDT termination request in F1                            | 17.1.0 |
| 2022-06 | RP-96   | RP-221141 | 0902 | 1  | F | Correction on SON feature enhancements - F1AP                          | 17.1.0 |
| 2022-06 | RP-96   | RP-221131 | 0905 | 3  | F | Positioning corrections for F1AP                                       | 17.1.0 |
| 2022-06 | RP-96   | RP-221132 | 0908 | 2  | F | Correction of PDC Measurement Initiation Failure message               | 17.1.0 |
| 2022-06 | RP-96   | RP-221805 | 0910 | 2  | F | Correction for IAB inter-donor DU re-routing and resource multiplexing | 17.1.0 |
| 2022-06 | RP-96   | RP-221149 | 0913 | 1  | A | Correction on IAB-DU cell resource configuration                       | 17.1.0 |
| 2022-06 | RP-96   | RP-221130 | 0916 | 2  | F | CR to TS38.473: Correction on PC5 DRX parameters for NR V2X            | 17.1.0 |
| 2022-06 | RP-96   | RP-221139 | 0920 |    | F | Corrections on Remote UE Local ID                                      | 17.1.0 |
| 2022-06 | RP-96   | RP-221141 | 0921 | 2  | F | F1AP corrections for NR-U                                              | 17.1.0 |
| 2022-06 | RP-96   | RP-221152 | 0923 | 2  | A | Correction for PRS Muting                                              | 17.1.0 |
| 2022-06 | RP-96   | RP-221132 | 0924 | 2  | F | NR-IIoT F1AP correction                                                | 17.1.0 |
| 2022-06 | RP-96   | RP-221129 | 0927 | 2  | F | Supporting network slice AS group                                      | 17.1.0 |
| 2022-06 | RP-96   | RP-221129 | 0928 | 1  | F | Correction of the presence of UE-Slice-MBR                             | 17.1.0 |
| 2022-06 | RP-96   | RP-221141 | 0929 | -  | F | Corrections to Load Balancing Enhancements                             | 17.1.0 |
| 2022-06 | RP-96   | RP-221139 | 0930 | 2  | F | Corrections for SL relay                                               | 17.1.0 |
| 2022-06 | RP-96   | RP-221145 | 0932 | 2  | D | Editorial corrections                                                  | 17.1.0 |
| 2022-06 | RP-96   | RP-221134 | 0938 | 1  | F | Correction on MBS features                                             | 17.1.0 |
| 2022-06 | RP-96   | RP-221136 | 0939 | 1  | F | Correction on SDT in F1AP                                              | 17.1.0 |
| 2022-06 | RP-96   | RP-221136 | 0940 | 1  | F | Correction on Rel-17 SDT (F1AP)                                        | 17.1.0 |
| 2022-06 | RP-96   | RP-221141 | 0945 | 1  | F | Correction on update management based MDT user consent                 | 17.1.0 |
| 2022-06 | RP-96   | RP-221131 | 0948 | 2  | F | Support of multiple measurement instances                              | 17.1.0 |
| 2022-06 | RP-96   | RP-221145 | 0949 | 1  | F | Supporting the disaster roaming information [MINT]                     | 17.1.0 |
| 2022-06 | RP-96   | RP-221150 | 0951 | 2  | A | SIB Issues Rel-17                                                      | 17.1.0 |
| 2022-06 | RP-96   | RP-221150 | 0953 | 1  | A | gNB-CU and gNB-DU Name in Configuration Update Procedures              | 17.1.0 |
| 2022-06 | RP-96   | RP-221137 | 0957 | -  | F | Clarification on the paging cause                                      | 17.1.0 |
| 2022-06 | RP-96   | RP-221143 | 0958 | 1  | F | CR to 38.473 on ASN.1 corrections of QoE measurement                   | 17.1.0 |
| 2022-06 | RP-96   | RP-221152 | 0964 |    | A | ASN.1 correction for UL-AoA                                            | 17.1.0 |
| 2022-06 | RP-96   | RP-221141 | 0965 | 1  | F | ASN.1 corrections                                                      | 17.1.0 |
| 2022-06 | RP-96   | RP-221141 | 0968 | 1  | F | CCO corrections                                                        | 17.1.0 |
| 2022-06 | RP-96   | RP-221131 | 0969 | -  | F | Corrections to Measurement Pre-configuration Information Transfer      | 17.1.0 |
| 2022-06 | RP-96   | RP-221628 | 0971 | -  | F | Removal of UE Tx TEG Association from F1AP                             | 17.1.0 |
| 2022-09 | RP-97-e | RP-222201 | 0889 | 2  | A | Correction on interFrequencyConfig-NoGap                               | 17.2.0 |

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|---------|---------|-----------|------|---|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| 2022-09 | RP-97-e | RP-222189 | 0890 | 2 | F | Correction to SDT for supporting delta signaling                                                                                                                                                                                        | 17.2.0 |
| 2022-09 | RP-97-e | RP-222188 | 0978 | - | F | Correction on Broadcast and Unicast co-existence                                                                                                                                                                                        | 17.2.0 |
| 2022-09 | RP-97-e | RP-222183 | 0981 | 1 | F | Miscellaneous Correction on IAB                                                                                                                                                                                                         | 17.2.0 |
| 2022-09 | RP-97-e | RP-222188 | 0984 | 1 | F | Further Corrections for NR MBS                                                                                                                                                                                                          | 17.2.0 |
| 2022-09 | RP-97-e | RP-222188 | 0985 | 2 | F | Corrections for the establishment of F1-U ptp retransmission tunnels                                                                                                                                                                    | 17.2.0 |
| 2022-09 | RP-97-e | RP-222185 | 0986 | 3 | B | CR for TS38.473 on Extending NR Operation to 71GHz                                                                                                                                                                                      | 17.2.0 |
| 2022-09 | RP-97-e | RP-222186 | 0988 | - | F | Addition of SRS port index                                                                                                                                                                                                              | 17.2.0 |
| 2022-09 | RP-97-e | RP-222190 | 0989 | 1 | F | SL relay corrections                                                                                                                                                                                                                    | 17.2.0 |
| 2022-09 | RP-97-e | RP-222187 | 0994 | 1 | F | Correction of UE Paging Capability                                                                                                                                                                                                      | 17.2.0 |
| 2022-09 | RP-97-e | RP-222201 | 0997 | 1 | F | Correction on measurement gap configuration over F1 in Rel-17                                                                                                                                                                           | 17.2.0 |
| 2022-09 | RP-97-e | RP-222186 | 0998 | 2 | F | Support of timing error margins for TEGs in F1AP                                                                                                                                                                                        | 17.2.0 |
| 2022-09 | RP-97-e | RP-222188 | 1000 | 1 | F | Introduction of MBS specific cause values                                                                                                                                                                                               | 17.2.0 |
| 2022-09 | RP-97-e | RP-222188 | 1001 | 1 | F | Correction on Multicast Group Paging                                                                                                                                                                                                    | 17.2.0 |
| 2022-09 | RP-97-e | RP-222188 | 1002 | 1 | F | Correction on MRB ID Change                                                                                                                                                                                                             | 17.2.0 |
| 2022-09 | RP-97-e | RP-222603 | 1004 | 4 | A | CR to 38.473 on E-CID measurement periodicity                                                                                                                                                                                           | 17.2.0 |
| 2022-09 | RP-97-e | RP-222088 | 1013 | 3 | F | Correction on RedCap paging capability                                                                                                                                                                                                  | 17.2.0 |
| 2022-09 | RP-97-e | RP-222186 | 1016 | 1 | F | Rel-17 ePos correction for the missing support of SRS-PosRRC-InactiveConfig-r17 configuration                                                                                                                                           | 17.2.0 |
| 2022-09 | RP-97-e | RP-222189 | 1017 | 1 | F | Transferring CG-SDT configuration and SRS positioning Inactive configuration from DU to CU                                                                                                                                              | 17.2.0 |
| 2022-09 | RP-97-e | RP-222088 | 1019 | 1 | F | Correction of the maximum PTW length of IDLE eDRX                                                                                                                                                                                       | 17.2.0 |
| 2022-09 | RP-97-e | RP-222189 | 1021 | 1 | F | Correction on Rel-17 SDT                                                                                                                                                                                                                | 17.2.0 |
| 2022-09 | RP-97-e | RP-222638 | 1025 | 3 | F | Introduction of uplink GapFR2 [NR_RF_FR2_req_enh2-Core]                                                                                                                                                                                 | 17.2.0 |
| 2022-09 | RP-97-e | RP-222186 | 1027 | 2 | F | Correction to positioning gap configuration                                                                                                                                                                                             | 17.2.0 |
| 2022-09 | RP-97-e | RP-222191 | 1031 | - | F | Correction to Report Characteristics                                                                                                                                                                                                    | 17.2.0 |
| 2022-09 | RP-97-e | RP-222186 | 1034 | - | F | Correction on Measurement Time Occasion                                                                                                                                                                                                 | 17.2.0 |
| 2022-09 | RP-97-e | RP-222191 | 1035 | 1 | F | Correction on NR-U MLB                                                                                                                                                                                                                  | 17.2.0 |
| 2022-12 | RP-98-e | RP-222883 | 0975 | 4 | A | R17CR for DAPS over F1 to TS38.473                                                                                                                                                                                                      | 17.3.0 |
| 2022-12 | RP-98-e | RP-222884 | 1012 | 1 | A | Correction of on-demand SI for connected UE                                                                                                                                                                                             | 17.3.0 |
| 2022-12 | RP-98-e | RP-222879 | 1039 | 1 | F | Further correction to Report Characteristics                                                                                                                                                                                            | 17.3.0 |
| 2022-12 | RP-98-e | RP-222882 | 1043 | 3 | F | Provision of MBS Multicast F1-U references to UE Context in gNB-CU enabling retrieval of data forwarding progress information                                                                                                           | 17.3.0 |
| 2022-12 | RP-98-e | RP-222886 | 1046 | 2 | F | Correction of TRP TEG                                                                                                                                                                                                                   | 17.3.0 |
| 2022-12 | RP-98-e | RP-222884 | 1052 | 2 | A | Correction on generation of gap type over F1 in Rel-17                                                                                                                                                                                  | 17.3.0 |
| 2022-12 | RP-98-e | RP-222886 | 1054 | 1 | F | Correction of Timing Error Margin                                                                                                                                                                                                       | 17.3.0 |
| 2022-12 | RP-98-e | RP-222887 | 1057 | 1 | A | CR to 38.473 on SRS periodicity                                                                                                                                                                                                         | 17.3.0 |
| 2022-12 | RP-98-e | RP-222886 | 1058 | 1 | F | Correction of ASN.1 for UL RTOA Measurement                                                                                                                                                                                             | 17.3.0 |
| 2022-12 | RP-98-e | RP-222887 | 1060 | 3 | A | Correction on positioning SI delivery over F1AP                                                                                                                                                                                         | 17.3.0 |
| 2022-12 | RP-98-e | RP-222881 | 1061 | 1 | F | Correction on resource configuration for IAB                                                                                                                                                                                            | 17.3.0 |
| 2022-12 | RP-98-e | RP-222886 | 1072 | - | F | Correction on presence of timing error margin for TRP TEGs                                                                                                                                                                              | 17.3.0 |
| 2022-12 | RP-98-e | RP-222883 | 1075 | 1 | A | CR for DAPS state transfer in case of split gNB deployment to Rel-17 38.473                                                                                                                                                             | 17.3.0 |
| 2022-12 | RP-98-e | RP-222888 | 1076 | 1 | F | SL relay corrections                                                                                                                                                                                                                    | 17.3.0 |
| 2022-12 | RP-98-e | RP-222888 | 1077 | 4 | F | Correction to 38.473 for SL relay (R17)                                                                                                                                                                                                 | 17.3.0 |
| 2022-12 | RP-98-e | RP-222957 | 1081 | 5 | A | Support of DC Location for two UL CCs in Split architecture                                                                                                                                                                             | 17.3.0 |
| 2022-12 | RP-98-e | RP-222882 | 1083 | 1 | F | Correction on NR MBS over F1AP                                                                                                                                                                                                          | 17.3.0 |
| 2022-12 | RP-98-e | RP-222882 | 1084 | 1 | F | Correction on MRB QoS Information                                                                                                                                                                                                       | 17.3.0 |
| 2022-12 | RP-98-e | RP-222879 | 1091 | 2 | F | Correction on Resource Status Reporting procedure over F1                                                                                                                                                                               | 17.3.0 |
| 2022-12 | RP-98-e | RP-222885 | 1094 | 2 | F | Support of DC Location for more carriers in Split architecture (The CR is not implemented. The CR is postponed to next plenary meeting due to the fact that it is impossible to modify a paragraph via 2 separate CRs without CR clash) | 17.3.0 |
| 2022-12 | RP-98-e | RP-222886 | 1100 | 1 | F | Support of DC Location for more carriers in Split architecture                                                                                                                                                                          | 17.3.0 |
| 2023-03 | RAN#99  | RP-230591 | 1029 | 4 | B | Introduction of two PHR mode [NR_feMIMO-Core]                                                                                                                                                                                           | 17.4.0 |
| 2023-03 | RAN#99  | RP-230582 | 1090 | 4 | F | Correction to conditional MCG configuration in CPAC                                                                                                                                                                                     | 17.4.0 |
| 2023-03 | RAN#99  | RP-230589 | 1093 | 4 | F | Correction to support NCD-SSB RedCap requirements in F1AP                                                                                                                                                                               | 17.4.0 |
| 2023-03 | RAN#99  | RP-230593 | 1094 | 3 | F | Correction for supporting DC Location for more carriers in Split architecture                                                                                                                                                           | 17.4.0 |
| 2023-03 | RAN#99  | RP-230585 | 1097 | 2 | F | Correction of NR PRACH Configuration List for FR2-2                                                                                                                                                                                     | 17.4.0 |
| 2023-03 | RAN#99  | RP-230581 | 1113 | 1 | F | Correction on missing cause value for CG-SDT                                                                                                                                                                                            | 17.4.0 |
| 2023-03 | RAN#99  | RP-230589 | 1114 | 2 | F | Correction on the UE identity index for paging RedCap UE to TS38.473                                                                                                                                                                    | 17.4.0 |
| 2023-03 | RAN#99  | RP-230596 | 1116 | - | A | Correction on IAB UP configuration update                                                                                                                                                                                               | 17.4.0 |
| 2023-03 | RAN#99  | RP-230583 | 1117 | 1 | F | Correction on NR MBS Broadcast aspects                                                                                                                                                                                                  | 17.4.0 |
| 2023-03 | RAN#99  | RP-230587 | 1118 | 1 | F | Correction of gNB Rx-Tx Time Difference                                                                                                                                                                                                 | 17.4.0 |
| 2023-03 | RAN#99  | RP-230590 | 1120 | 1 | F | Correction of RRC references for SLrelay                                                                                                                                                                                                | 17.4.0 |
| 2023-03 | RAN#99  | RP-230593 | 1121 | - | F | Correction of RRC references for DRX                                                                                                                                                                                                    | 17.4.0 |
| 2023-03 | RAN#99  | RP-230593 | 1122 | - | F | Correction of RRC references                                                                                                                                                                                                            | 17.4.0 |
| 2023-03 | RAN#99  | RP-230591 | 1124 | 2 | B | Missing transmission bandwidth configurations in F1AP                                                                                                                                                                                   | 17.4.0 |
| 2023-03 | RAN#99  | RP-230583 | 1125 | 1 | F | Correction of F1 Broadcast Setup                                                                                                                                                                                                        | 17.4.0 |
| 2023-03 | RAN#99  | RP-230588 | 1126 | - | F | PRS configuration procedure correction                                                                                                                                                                                                  | 17.4.0 |

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| 2023-03 | RAN#99  | RP-230581 | 1127 | 1  | F | Correction to CellGroupConfig handling for SDT                                                                        | 17.4.0 |
| 2023-03 | RAN#99  | RP-230584 | 1131 | 2  | F | Correction on NR-U Channel ID                                                                                         | 17.4.0 |
| 2023-03 | RAN#99  | RP-230595 | 1137 | 2  | A | ASN.1 Correction of M6 Configuration                                                                                  | 17.4.0 |
| 2023-03 | RAN#99  | RP-230586 | 1138 | 1  | F | Correction to TS 38.473 on Re-routing Enable Indicator                                                                | 17.4.0 |
| 2023-04 | RAN#99  | -         | -    | -  | - | Editorial Changes(font, style, line break)                                                                            | 17.4.1 |
| 2023-06 | RAN#100 | RP-231073 | 1119 | 2  | F | Correction of Burst Arrival Time semantics description                                                                | 17.5.0 |
| 2023-06 | RAN#100 | RP-231075 | 1135 | 3  | A | Correction of SIType List                                                                                             | 17.5.0 |
| 2023-06 | RAN#100 | RP-231075 | 1144 | 2  | A | Corrections on TNL association addition, update and removal (F1AP)                                                    | 17.5.0 |
| 2023-06 | RAN#100 | RP-231072 | 1145 | 2  | F | Correction to TS 38.473 on RB Set Configuration                                                                       | 17.5.0 |
| 2023-06 | RAN#100 | RP-231079 | 1146 | 2  | F | Introduction of the UE hashed ID to 38.473                                                                            | 17.5.0 |
| 2023-06 | RAN#100 | RP-231074 | 1147 | 2  | F | Correction on Broadcast Partial Success                                                                               | 17.5.0 |
| 2023-06 | RAN#100 | RP-231081 | 1150 | 3  | A | ASN.1 Correction of PRACH Configuration                                                                               | 17.5.0 |
| 2023-06 | RAN#100 | RP-231071 | 1158 | 2  | F | F1AP Rel-17 correction for NR-U metrics                                                                               | 17.5.0 |
| 2023-06 | RAN#100 | RP-231080 | 1159 | 2  | F | Correction on F1AP for L2 U2N Relay                                                                                   | 17.5.0 |
| 2023-06 | RAN#100 | RP-231084 | 1162 | 2  | F | Correction of Extended Packet Delay Budget                                                                            | 17.5.0 |
| 2023-06 | RAN#100 | RP-231075 | 1165 | 2  | A | Correction on E-UTRA - NR Cell Resource Coordination                                                                  | 17.5.0 |
| 2023-06 | RAN#100 | RP-231074 | 1166 | 2  | F | Transfer of MBSInterestIndication from CU to DU                                                                       | 17.5.0 |
| 2023-06 | RAN#100 | RP-231074 | 1170 | 1  | F | Correction of MRB Setup                                                                                               | 17.5.0 |
| 2023-06 | RAN#100 | RP-231079 | 1172 | 0  | F | Correction of RedCap-specific initial DL BWP without CD-SSB for SDT                                                   | 17.5.0 |
| 2023-06 | RAN#100 | RP-231077 | 1177 | 1  | F | SRS Resource correction on Comb 8, Number of Symbols and Repetition Factor                                            | 17.5.0 |
| 2023-06 | RAN#100 | RP-231077 | 1179 | 1  | F | Subcarrier Spacing correction                                                                                         | 17.5.0 |
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| 2023-09 | RAN#101 | RP-231896 | 1203 | -  | A | Configuration of BH information for DRBs support CA based duplication                                                 | 17.6.0 |
| 2023-09 | RAN#101 | RP-231897 | 1205 | 1  | F | Correction on condition of successful MBS Broadcast Context Setup                                                     | 17.6.0 |
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| 2023-12 | RAN#102 | RP-233851 | 1220 | 3  | F | Correction on SI delivery to RedCap UE                                                                                | 17.7.0 |
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| 2023-12 | RAN#102 | RP-233847 | 1247 | 1  | F | Correction on NR-Mode-Info IE of SON                                                                                  | 17.7.0 |
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| 2023-12 | RAN#102 | RP-233833 | 1070 | 11 | B | Introduction of R18 QoE measurement enhancements                                                                      | 18.0.0 |
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| 2023-12 | RAN#102 | RP-233822 | 1123 | 10 | B | Support for NR Sidelink Relay Enhancements                                                                            | 18.0.0 |
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| 2023-12 | RAN#102 | RP-233838 | 1168 | 8  | B | Introduction of 5G Timing Resiliency and URLLC enhancements                                                           | 18.0.0 |
| 2023-12 | RAN#102 | RP-233816 | 1169 | 8  | B | Introduction on NR Redcap Enhancement                                                                                 | 18.0.0 |
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| 2023-12 | RAN#102 | RP-233829 | 1189 | 7  | B | Introduction of NR MBS enhancements                                                                                   | 18.0.0 |
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| 2023-12 | RAN#102 | RP-233845 | 1213 | 3  | B | Switching from SDT to RRC connected state [Large SDT Uplink Data]                                                     | 18.0.0 |
| 2023-12 | RAN#102 | RP-233830 | 1219 | 5  | B | Support for NR XR                                                                                                     | 18.0.0 |
| 2023-12 | RAN#102 | RP-233841 | 1221 | 2  | B | Introduction of 3 MHz channel bandwidth                                                                               | 18.0.0 |
| 2023-12 | RAN#102 | RP-233839 | 1226 | 2  | B | RAN impact on supporting Network Slice Service continuity scenario                                                    | 18.0.0 |
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| 2023-12 | RAN#102 | RP-233845 | 1231 | 2  | B | Introduction of RedCap UE MBS Broadcast reception [RedcapMBS]                                                         | 18.0.0 |
| 2023-12 | RAN#102 | RP-233821 | 1232 | 1  | B | Introduction of early capability restriction for Multi-SIM                                                            | 18.0.0 |
| 2023-12 | RAN#102 | RP-233813 | 1248 | 1  | B | Introduction of SL CA over F1 interface                                                                               | 18.0.0 |
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| 2024-03 | RAN#103 | RP-240620 | 1180 | 11 | B | Support of NR Positioning Enhancements                                                                                | 18.1.0 |
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| 2024-03 | RAN#103 | RP-240637 | 1269 | 3 | F | Corrections for mobile IAB                                                                          | 18.1.0 |
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| 2024-03 | RAN#103 | RP-240636 | 1300 | 3 | F | Corrections on QoE enhancements                                                                     | 18.1.0 |
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| 2024-06 | RAN#104 | RP-241106 | 1367 | 3 | F | Correction for early sync and TCI state of LTM                                                      | 18.2.0 |
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| 2024-06 | RAN#104 | RP-241101 | 1410 | 3 | F | Various corrections on Rel-18 Positioning                                                           | 18.2.0 |
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| 2024-12 | RAN#106 | RP-243104 | 1524 | 2 | F | Correction on Positioning SRS Resource                                                    | 18.4.0 |
| 2024-12 | RAN#106 | RP-243104 | 1528 | 1 | F | Correction on Measurement Time Window                                                     | 18.4.0 |
| 2025-03 | RAN#107 | RP-250139 | 1533 | 1 | F | Clarification on UE Context Modification Failure for LTM                                  | 18.5.0 |
| 2025-03 | RAN#107 | RP-250141 | 1535 | - | F | Correction on criticality of SRS Reservation Type                                         | 18.5.0 |
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| 2025-06 | RAN#108 | RP-251150 | 1536 | 5 | F | Correction on the mobile IAB procedures                                                   | 18.6.0 |
| 2025-06 | RAN#108 | RP-251154 | 1550 | 1 | F | Corrections for multi-path relay                                                          | 18.6.0 |
| 2025-06 | RAN#108 | RP-251144 | 1552 | 4 | A | Correction to CPAC MCG configuration cancellation                                         | 18.6.0 |
| 2025-06 | RAN#108 | RP-251149 | 1555 | 2 | F | Clarification on Carrier Bandwidth less than 5MHz                                         | 18.6.0 |
| 2025-06 | RAN#108 | RP-251152 | 1558 | 6 | F | F1 support of L3 measurements-based LTM                                                   | 18.6.0 |
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| 2025-06 | RAN#108 | RP-251153 | 1569 |   | F | Correction to SRS information                                                             | 18.6.0 |
| 2025-06 | RAN#108 | RP-251154 | 1571 | 1 | F | Corrections on PDCP duplication for inter-DU multi-path relay                             | 18.6.0 |
| 2025-06 | RAN#108 | RP-251146 | 1574 | 1 | F | NPN Assistance Information for RAN sharing with multiple cell-ID broadcast                | 18.6.0 |

# History

| Document history |                |             |
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| V18.1.0          | May 2024       | Publication |
| V18.2.0          | August 2024    | Publication |
| V18.3.0          | September 2024 | Publication |
| V18.4.0          | January 2025   | Publication |
| V18.5.0          | March 2025     | Publication |
| V18.6.0          | July 2025      | Publication |