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Contents

Foreword

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1 Scope

The present document defines the E-UTRA UE Radio Access Capability Parameters.

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 36.323: "Evolved Universal Terrestrial Radio Access (E-UTRA) Packet Data Convergence Protocol (PDCP) specification".

[3] 3GPP TS 36.322: "Evolved Universal Terrestrial Radio Access (E-UTRA) Radio Link Control (RLC) specification".

[4] 3GPP TS 36.321: "Evolved Universal Terrestrial Radio Access (E-UTRA) Medium Access Control (MAC) specification".

[5] 3GPP TS 36.331: "Evolved Universal Terrestrial Radio Access (E-UTRA) Radio Resource Control (RRC) specification".

[6] 3GPP TS 36.101: "Evolved Universal Terrestrial Radio Access (E-UTRA) radio transmission and reception".

[7] IETF RFC 5795: "The RObust Header Compression (ROHC) Framework".

[8] IETF RFC 6846: "RObust Header Compression (ROHC): A Profile for TCP/IP (ROHC-TCP)".

[9] IETF RFC 3095: "RObust Header Compression (RoHC): Framework and four profiles: RTP, UDP, ESP and uncompressed".

[10] IETF RFC 3843: "RObust Header Compression (RoHC): A Compression Profile for IP".

[11] IETF RFC 4815: "RObust Header Compression (ROHC): Corrections and Clarifications to RFC 3095".

[12] IETF RFC 5225: "RObust Header Compression (ROHC) Version 2: Profiles for RTP, UDP, IP, ESP and UDP Lite".

[13] 3GPP TS 36.355: "Evolved Universal Terrestrial Radio Access (E-UTRA) LTE Positioning Protocol (LPP)".

[14] 3GPP TS 36.304: "Evolved Universal Terrestrial Radio Access (E-UTRA); UE Procedures in Idle Mode".

[15] 3GPP TS 37.320: "Universal Terrestrial Radio Access (UTRA) and Evolved Universal Terrestrial Radio Access (E-UTRA); Radio measurement collection for Minimization of Drive Tests (MDT); Overall description; Stage 2".

[16] 3GPP TS 36.133: "Evolved Universal Terrestrial Radio Access (E-UTRA); Requirements for support of radio resource management".

[17] 3GPP TS 36.211: "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical Channels and Modulation".

[18] 3GPP TS 23.401: "General Packet Radio Service (GPRS) enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access".

[19] 3GPP TS 23.216: "Single Radio Voice Call Continuity (SRVCC)".

[20] 3GPP TS 25.307: "Requirement on User Equipments (UEs) supporting a release-independent frequency band".

[21] 3GPP TS 24.312: "Access Network Discovery and Selection Function (ANDSF) Management Object (MO)".

[22] 3GPP TS 36.213: "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical layer procedures".

[23] 3GPP TS 36.214: "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical layer - Measurements".

[24] 3GPP TS 23.303: "Proximity-based services (ProSe); Stage 2".

[25] 3GPP TS 36.314: "Evolved Universal Terrestrial Radio Access (E-UTRA); Layer 2-Measurements".

[26] 3GPP TS 36.212: "Evolved Universal Terrestrial Radio Access (E-UTRA); Multiplexing and channel coding".

[27] 3GPP TS 36.307: "Evolved Universal Terrestrial Radio Access (E-UTRA); Requirements on User Equipments (UEs) supporting a release-independent frequency band".

[28] 3GPP TS 24.301: "Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3".

[29] 3GPP TS 23.285: "Technical Specification Group Services and System Aspects; Architecture enhancements for V2X services".

[30] 3GPP TS 36.300: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access (E-UTRAN); Overall description; Stage 2".

[31] 3GPP TS 23.246: "Multimedia Broadcast/Multicast Service (MBMS); Architecture and functional description".

[32] 3GPP TS 38.306 "NR; UE Radio Access Capabilities".

[33] 3GPP TS 38.101-1: "NR User Equipment (UE) radio transmission and reception Part 1: Range 1 Standalone".

[34] 3GPP TS 38.101-2: "NR User Equipment (UE) radio transmission and reception Part 2: Range 2 Standalone".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in TR 21.905 [1].

Fallback band combination: A band combination that would result from another band combination (parent band combination) by releasing at least one SCell or uplink configuration of SCell. A fallback band combination and the parent band combination support the same bandwidths for each band of the fallback band combination. An intra-band non-contiguous band combination is not considered to be a fallback band combination of an intra-band contiguous band combination.

NB-IoT: NB-IoT allows access to network services via E-UTRA with a channel bandwidth limited to 200 kHz (corresponding to one PRB).

Primary Cell: The cell, operating on the primary frequency, in which the UE either performs the initial connection establishment procedure or initiates the connection re-establishment procedure, or the cell indicated as the primary cell in the handover procedure. In this specification, Primary Cell also refers to PSCell defined in TS 36.331 [5] unless explicitly stated otherwise.

Sidelink: UE to UE interface for sidelink communication, V2X sidelink communication and sidelink discovery. The Sidelink corresponds to the PC5 interface as defined in TS 23.303 [24].

Sidelink communication: AS functionality enabling ProSe Direct Communication as defined in TS 23.303 [24], between two or more nearby UEs, using E-UTRA technology but not traversing any network node. In this version, the terminology "sidelink communication" without "V2X" prefix only concerns PS unless specifically stated otherwise.

Sidelink discovery: AS functionality enabling ProSe Direct Discovery as defined in TS 23.303 [24], using E-UTRA technology but not traversing any network node.

V2X sidelink communication: AS functionality enabling V2X Communication as defined in TS 23.285 [29], between nearby UEs, using E-UTRA technology but not traversing any network node.

3.2 Symbols

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

<symbol> <Explanation>

3.3 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].

1xRTT	CDMA2000 1x Radio Transmission Technology
ACK	Acknowledgement
ACDC	Application specific Congestion control for Data Communication
ANDSF	Access Network Discovery and Selection Function
BCCH	Broadcast Control Channel
CG	Cell Group
CRS	Cell-specific Rerefence Signal
CSG	Closed Subscriber Group
CSI	Channel State Information
DC	Dual Connectivity
DCI	Downlink Control Information
DL-SCH	Downlink Shared Channel
E-UTRA	Evolved Universal Terrestrial Radio Access
E-UTRAN	Evolved Universal Terrestrial Radio Access Network
FDD	Frequency Division Duplex
GERAN	GSM/EDGE Radio Access Network
HARQ	Hybrid Automatic Repeat Request
HRPD	High Rate Packet Data
IRC	Interference Rejection Combining
MAC	Medium Access Control
MMSE	Minimum Mean Squared Error
MRO	Mobility Robustness Optimisation
MTSI	Multimedia Telephony Service for IMS
MUST	MultiUser Superposition Transmission
NAICS	Network Assisted Interference Cancellation/Suppression
NB-IoT	Narrow Band Internet of Things
OS	OFDM Symbol
PCell	Primary Cell
PDCCH	Physical Downlink Control Channel

PDCP	Packet Data Convergence Protocol
PDSCH	Physical Downlink Shared Channel
PHR	Power Headroom Reporting
ProSe	Proximity-based Services
PUCCH	Physical Uplink Control Channel
PUSCH	Physical Uplink Shared Channel
QoE	Quality of Experience
RACH	Random Access CHannel
RAI	Release Assistance Indication
RAT	Radio Access Technology
RLC	Radio Link Control
ROHC	RObust Header Compression
RRC	Radio Resource Control
SC-PTM	Single Cell Point to Multipoint
SCC	Secondary Component Carrier
SCell	Secondary Cell
SI	System Information
SL	Sidelink
SL-DCH	Sidelink Discovery CHannel
SL-SCH	Sidelink Shared CHannel
SON	Self Organizing Networks
SPT	Short Processing Time
SR	Scheduling Request
SSAC	Service Specific Access Control
SSTD	SFN and Subframe Timing Difference
STTI	Short TTI
TDD	Time Division Duplex
TTI	Transmission Time Interval
UCI	Uplink Control Information
UDC	Uplink Data Compression
UE	User Equipment
UL-SCH	Uplink Shared Channel
UMTS	Universal Mobile Telecommunications System
UTRA	UMTS Terrestrial Radio Access
V2X	Vehicle-to-Everything
WLAN	Wireless Local Area Network

4 UE radio access capability parameters

The following subclauses define the UE radio access capability parameters and minimum capabilities for MBMS capable UE. Only parameters for which there is the possibility for UEs to signal different values are considered as UE radio access capability parameters. Therefore, mandatory features without capability parameters that are the same for all UEs are not listed here. Also capabilities which are optional or conditionally mandatory for UEs to implement but do not have UE radio access capability parameter are listed in this specification.

E-UTRAN needs to respect the signalled UE radio access capability parameters when configuring the UE and when scheduling the UE.

All parameters shown in italics are signalled and correspond to a field defined in TS 36.331 [5].

For optional features, the UE radio access capability parameter indicates whether the feature has been implemented and successfully tested. For mandatory features with the UE radio access capability parameter, the parameter indicates whether the feature has been successfully tested.

The mandatory features required to be supported by a UE are the same for all UE categories unless explicitly specified elsewhere in the specifications.

Unless otherwise stated, the requirements on the maximum number of transport block bits are applicable for a TTI length of 1 ms. For other TTI lengths, the requirements shall be scaled according to clause 7.1.7 in 3GPP TS 36.213 [22] in order to get the corresponding requirement.

The following UE radio access capability parameters specified in Chapter 4 are applicable in NB-IoT:

- *ue-Category-NB* in NB-IoT (clause 4.1C)
- *supportedROHC-Profiles-r13* (clause 4.3.1.1A)
- *maxNumberROHC-ContextSessions-r13* (clause 4.3.1.2A)
- *rlc-UM-r15 (*clause *4.3.2.5)*
- *multiTone-r13* (clause 4.3.4.55)
- *multiCarrier-r13* (clause 4.3.4.56)
- *twoHARQ-Processes-r14* (clause 4.3.4.62)
- *multiCarrier-NPRACH-r14* (clause 4.3.4.75)
- *multiCarrierPaging-r14* (clause 4.3.4.76)
- *interferenceRandomisation-r14* (clause 4.3.4.80)
- *wakeUpSignal-r15* (clause 4.3.4.113)
- *wakeUpSignalMinGap-eDRX-r15* (clause 4.3.4.114)
- *mixedOperationMode-r15* (clause 4.3.4.115)
- *twoHARQ-ProcessesTDD-r15* (clause 4.3.4.116)
- *sr-WithHARQ-ACK-r15* (clause 4.3.4.117)
- *sr-WithoutHARQ-ACK-r15* (clause 4.3.4.118)
- *nprach-Format2-r15* (clause 4.3.4.119)
- *multiCarrierPagingTDD-r15* (clause 4.3.4.134)
- *additionalTransmissionSIB1-r15* (clause 4.3.4.137)
- *supportedBandList-r13* (clause 4.3.5.1A)
- *multiNS-Pmax-r13* (clause 4.3.5.16A)
- *powerClassNB-20dBm-r13* (clause 4.3.5.1A.1)
- *powerClassNB-14dBm-r14* (clause 4.3.5.1A.2)
- *accessStratumRelease-r13* (clause 4.3.8.1A)
- *multipleDRB-r13* (clause 4.3.8.5)
- *earlyData-UP-r15* (clause 4.3.8.7)
- *logicalChannelSR-ProhibitTimer* (clause 4.3.19.2)
- *dataInactMon-r14* (clause 4.3.19.9)
- *rai-Support-r14* (clause 4.3.19.10)
- *earlyContentionResolution-r14* (clause 4.3.19.14)
- *sr-SPS-BSR-r15* (clause 4.3.19.15)

The UE radio access capabilities specified in Chapter 4 are not applicable in NB-IoT, unless they are listed above.

The following optional features without UE radio access capability parameters specified in Chapter 6 are applicable in NB-IoT:

- RRC Connection Re-establishment for the Control Plane CIoT EPS Optimization (clause 6.7.5)

- System Information Block Type 16 (clause 6.8.1)
- Enhanced random access power control (clause 6.8.3)
- EDT for Control Plane CIoT EPS Optimization (clause 6.8.4)
- Enhanced PHR (clause 6.8.6)
- SC-PTM in Idle mode (clause 6.16.1)
- Relaxed monitoring (clause 6.17.1)
- DL channel quality reporting (clause 6.17.2)
- Serving cell idle mode measurements reporting (clause 6.17.3)

The optional features without UE radio access capability parameters specified in Chapter 6 are not applicable in NB-IoT, unless they are listed above.

4.1 *ue-Category*

The field *ue-Category* defines a combined uplink and downlink capability. The parameters set by the UE Category are defined in subclause 4.2. Tables 4.1-1 and 4.1-2 define the downlink and, respectively, uplink physical layer parameter values for each UE Category. A UE indicating category 6 or 7 shall also indicate category 4. A UE indicating category 8 shall also indicate category 5. A UE indicating category 9 shall also indicate category 6 and 4. A UE indicating category 10 shall also indicate category 7 and 4. A UE indicating category 11 shall also indicate category 9, 6 and 4. A UE indicating category 12 shall also indicate category 10, 7 and 4. Table 4.1-4 defines the minimum capability for the maximum number of bits of a MCH transport block received within a TTI for an MBMS capable UE capable of reception via MBSFN.

Table 4.1-1: Downlink physical layer parameter values set by the field *ue-Category*

UE Category	Maximum number of DL-SCH transport block bits received within a TTI (Note 1)	Maximum number of bits of a DL-SCH transport block received within a TTI	Total number of soft channel bits	Maximum number of supported layers for spatial multiplexing in DL
Category 1	10296	10296	250368	1
Category 2	51024	51024	1237248	2
Category 3	102048	75376	1237248	2
Category 4	150752	75376	1827072	2
Category 5	299552	149776	3667200	4
Category 6	301504	149776 (4 layers, 64QAM) 75376 (2 layers, 64QAM)	3654144	2 or 4
Category 7	301504	149776 (4 layers, 64QAM) 75376 (2 layers, 64QAM)	3654144	2 or 4
Category 8	2998560	299856	35982720	8
Category 9	452256	149776 (4 layers, 64QAM) 75376 (2 layers, 64QAM)	5481216	2 or 4
Category 10	452256	149776 (4 layers, 64QAM) 75376 (2 layers, 64QAM)	5481216	2 or 4
Category 11	603008	149776 (4 layers, 64QAM) 195816 (4 layers, 256QAM) 75376 (2 layers, 64QAM) 97896 (2 layers, 256QAM)	7308288	2 or 4
Category 12	603008	149776 (4 layers, 64QAM) 195816 (4 layers, 256QAM) 75376 (2 layers, 64QAM) 97896 (2 layers, 256QAM)	7308288	2 or 4

NOTE 1: In carrier aggregation operation, the DL-SCH processing capability can be shared by the UE with that of MCH received from a serving cell. If the total eNB scheduling for DL-SCH and an MCH in one serving cell at a given TTI is larger than the defined processing capability, the prioritization between DL-SCH and MCH is left up to UE implementation.

Table 4.1-2: Uplink physical layer parameter values set by the field *ue-Category*

UE Category	Maximum number of UL-SCH transport block bits transmitted within a TTI	Maximum number of bits of an UL-SCH transport block transmitted within a TTI	Support for 64QAM in UL
Category 1	5160	5160	No
Category 2	25456	25456	No
Category 3	51024	51024	No
Category 4	51024	51024	No
Category 5	75376	75376	Yes
Category 6	51024	51024	No
Category 7	102048	51024	No
Category 8	1497760	149776	Yes
Category 9	51024	51024	No
Category 10	102048	51024	No
Category 11	51024	51024	No
Category 12	102048	51024	No

Table 4.1-3: Total layer 2 buffer sizes set by the field *ue-Category*

UE Category	Total layer 2 buffer size [bytes]	With support for split bearers
Category 1	150 000	230 000
Category 2	700 000	1 100 000
Category 3	1 400 000	2 300 000
Category 4	1 900 000	3 100 000
Category 5	3 500 000	5 900 000
Category 6	3 300 000	5 800 000
Category 7	3 800 000	6 200 000
Category 8	42 200 000	61 600 000
Category 9	4 800 000	7 200 000
Category 10	5 200 000	7 600 000
Category 11	6 200 000	11 000 000
Category 12	6 700 000	11 500 000

Table 4.1-4: Maximum number of bits of a MCH transport block received within a TTI set by the field *ue-Category* for an MBMS capable UE capable of reception via MBSFN

UE Category	Maximum number of bits of a MCH transport block received within a TTI
Category 1	10296
Category 2	51024
Category 3	75376
Category 4	75376
Category 5	75376
Category 6	75376
Category 7	75376
Category 8	75376
Category 9	75376
Category 10	75376
Category 11	75376 (64QAM) 97896 (256QAM)
Category 12	75376 (64QAM) 97896 (256QAM)

Table 4.1-5: Half-duplex FDD operation type set by the field *ue-Category* for a half-duplex FDD capable UE

UE Category	Half-duplex FDD operation type
Category 1	Type A
Category 2	Type A
Category 3	Type A
Category 4	Type A
Category 5	Type A
Category 6	Type A
Category 7	Type A
Category 8	Type A
Category 9	Type A
Category 10	Type A
Category 11	Type A
Category 12	Type A

4.1A *ue-CategoryDL* and *ue-CategoryUL*

The fields *ue-CategoryDL* and *ue-CategoryUL* define downlink/uplink capability respectively. The parameters set by the UE DL/UL Categories are defined in subclause 4.2. Tables 4.1A-1 and 4.1A-2 define the downlink and, respectively, uplink physical layer parameter values for each UE DL/UL Category. Table 4.1A-4 defines the minimum capability for the maximum number of bits of a MCH transport block received within a TTI for an MBMS capable UE capable of reception via MBSFN. Table 4.1A-6 defines the only combinations for UE UL and DL Categories that are allowed to be signalled with *ue-CategoryDL* and *ue-CategoryUL*. Table 4.1A-6 also defines which UE Categories a UE shall indicate in addition to the combinations for UE UL and DL Categories. A UE indicating DL category 13 may indicate category 9 or 10 in *ue-Category-v1170*. A UE indicating Category M2 shall also indicate Category M1.

Table 4.1A-1: Downlink physical layer parameter values set by the field *ue-CategoryDL*

UE DL Category	Maximum number of DL-SCH transport block bits received within a TTI (Note 1)	Maximum number of bits of a DL-SCH transport block received within a TTI	Total number of soft channel bits	Maximum number of supported layers for spatial multiplexing in DL
DL Category M1	1000	1000	25344	1
DL Category M2	4008	4008	73152	1
DL Category 0 (Note 2)	1000	1000	25344	1
DL Category 1bis	10296	10296	250368	1
DL Category 4	150752	75376	1827072	2
DL Category 6	301504	149776 (4 layers, 64QAM) 75376 (2 layers, 64QAM)	3654144	2 or 4
DL Category 7	301504	149776 (4 layers, 64QAM) 75376 (2 layers, 64QAM)	3654144	2 or 4
DL Category 9	452256	149776 (4 layers, 64QAM) 75376 (2 layers, 64QAM)	5481216	2 or 4
DL Category 10	452256	149776 (4 layers, 64QAM) 75376 (2 layers, 64QAM)	5481216	2 or 4
DL Category 11	603008	149776 (4 layers, 64QAM) 195816 (4 layers, 256QAM) 75376 (2 layers, 64QAM) 97896 (2 layers, 256QAM)	7308288	2 or 4
DL Category 12	603008	149776 (4 layers, 64QAM) 195816 (4 layers, 256QAM) 75376 (2 layers, 64QAM) 97896 (2 layers, 256QAM)	7308288	2 or 4
DL Category 13	391632	195816 (4 layers, 256QAM) 97896 (2 layers, 256QAM)	3654144	2 or 4
DL Category 14	3916560	391656 (8 layers, 256QAM)	47431680	8

DL Category 15	749856-807744 (Note 3)	149776 (4 layers, 64QAM) 195816 (4 layers, 256QAM, if *alternativeTBS-Index-r14* is not supported) 201936 (4 layers, 256QAM, if *alternativeTBS-Index-r14* is supported) 75376 (2 layers, 64QAM) 97896 (2 layers, 256QAM, if *alternativeTBS-Index-r14* is not supported) 100752 (2 layers, 256QAM, if *alternativeTBS-Index-r14* is supported)	9744384	2 or 4
DL Category 16	978960 -1051360 (Note 3)	149776 (4 layers, 64QAM) 195816 (4 layers, 256QAM, if *alternativeTBS-Index-r14* is not supported) 201936 (4 layers, 256QAM, if *alternativeTBS-Index-r14* is supported) 75376 (2 layers, 64QAM) 97896 (2 layers, 256QAM, if *alternativeTBS-Index-r14* is not supported) 100752 (2 layers, 256QAM, if *alternativeTBS-Index-r14* is supported)	12789504	2 or 4
DL Category 17	25065984	391656 (8 layers, 256QAM)	303562752	8

DL Category 18	1174752-1211616 (Note 3)	[299856 (8 layers, 64QAM) 391656 (8 layers, 256QAM)] 149776 (4 layers, 64QAM) 195816 (4 layers, 256QAM, if *alternativeTBS-Index-r14* is not supported) 201936 (4 layers, 256QAM, if *alternativeTBS-Index-r14* is supported) 75376 (2 layers, 64QAM) 97896 (2 layers, 256QAM, if *alternativeTBS-Index-r14* is not supported) 100752 (2 layers, 256QAM, if *alternativeTBS-Index-r14* is supported)	14616576	2 or 4 [or 8]
DL Category 19	1566336 -1658272 (Note 3)	[299856 (8 layers, 64QAM) 391656 (8 layers, 256QAM)] 149776 (4 layers, 64QAM) 195816 (4 layers, 256QAM, if *alternativeTBS-Index-r14* is not supported) 201936 (4 layers, 256QAM, if *alternativeTBS-Index-r14* is supported) 75376 (2 layers, 64QAM) 97896 (2 layers, 256QAM, if *alternativeTBS-Index-r14* is not supported) 100752 (2 layers, 256QAM, if *alternativeTBS-Index-r14* is supported)	19488768	2 or 4 [or 8]

DL Category 20	1948064 - 2019360 (Note 3)	[299856 (8 layers, 64QAM) 391656 (8 layers, 256QAM), 502624 (8 layers, 1024QAM)] 149776 (4 layers, 64QAM) 195816 (4 layers, 256QAM, if *alternativeTBS-Index-r14* is not supported) 201936 (4 layers, 256QAM, if *alternativeTBS-Index-r14* is supported) 251640 (4 layers, 1024QAM) 75376 (2 layers, 64QAM) 97896 (2 layers, 256QAM, if *alternativeTBS-Index-r14* is not supported) 100752 (2 layers, 256QAM, if *alternativeTBS-Index-r14* is supported) 125808 (2 layers, 1024QAM)	24360960	2 or 4 [or 8]
DL Category 21	1348960 - 1413120 (Note 3)	149776 (4 layers, 64QAM) 195816 (4 layers, 256QAM, if *alternativeTBS-Index-r14* is not supported) 201936 (4 layers, 256QAM, if *alternativeTBS-Index-r14* is supported) 75376 (2 layers, 64QAM) 97896 (2 layers, 256QAM, if *alternativeTBS-Index-r14* is not supported) 100752 (2 layers, 256QAM, if *alternativeTBS-Index-r14* is supported)	17052672	2 or 4

DL Category 22	2349504 – 2562784	[299856 (8 layers, 64QAM) 391656 (8 layers, 256QAM) 502624 (8 layers, 1024QAM)] 149776 (4 layers, 64QAM) 195816 (4 layers, 256QAM, if *alternativeTBS-Index-r14* is not supported) 201936 (4 layers, 256QAM, if *alternativeTBS-Index-r14* is supported) 251640 (4 layers, 1024QAM) 75376 (2 layers, 64QAM) 97896 (2 layers, 256QAM, if *alternativeTBS-Index-r14* is not supported) 100752 (2 layers, 256QAM, if *alternativeTBS-Index-r14* is supported) 125808 (2 layers, 1024QAM)	29233152	2 or 4 [or 8]
DL Category 23	2695968 – 2869920	[299856 (8 layers, 64QAM) 391656 (8 layers, 256QAM) 502624 (8 layers, 1024QAM)] 149776 (4 layers, 64QAM) 195816 (4 layers, 256QAM, if *alternativeTBS-Index-r14* is not supported) 201936 (4 layers, 256QAM, if *alternativeTBS-Index-r14* is supported) 251640 (4 layers, 1024QAM) 75376 (2 layers, 64QAM) 97896 (2 layers, 256QAM, if *alternativeTBS-Index-r14* is not supported) 100752 (2 layers, 256QAM, if *alternativeTBS-Index-r14* is supported) 125808 (2 layers, 1024QAM)	34105344	2 or 4 [or 8]

DL Category 24	2936880 – 3028608	[299856 (8 layers, 64QAM) 391656 (8 layers, 256QAM) 502624 (8 layers, 1024QAM)] 149776 (4 layers, 64QAM) 195816 (4 layers, 256QAM, if *alternativeTBS-Index-r14* is not supported) 201936 (4 layers, 256QAM, if *alternativeTBS-Index-r14* is supported) 251640 (4 layers, 1024QAM) 75376 (2 layers, 64QAM) 97896 (2 layers, 256QAM, if *alternativeTBS-Index-r14* is not supported) 100752 (2 layers, 256QAM, if *alternativeTBS-Index-r14* is supported) 125808 (2 layers, 1024QAM)	36541440	2 or 4 [or 8]
DL Category 25	3132672 – 3316544	[299856 (8 layers, 64QAM) 391656 (8 layers, 256QAM) 502624 (8 layers, 1024QAM)] 149776 (4 layers, 64QAM) 195816 (4 layers, 256QAM, if *alternativeTBS-Index-r14* is not supported) 201936 (4 layers, 256QAM, if *alternativeTBS-Index-r14* is supported) 251640 (4 layers, 1024QAM) 75376 (2 layers, 64QAM) 97896 (2 layers, 256QAM, if *alternativeTBS-Index-r14* is not supported) 100752 (2 layers, 256QAM, if *alternativeTBS-Index-r14* is supported) 125808 (2 layers, 1024QAM)	38977536	2 or 4 [or 8]

DL Category 26	3422400– 3531888	[299856 (8 layers, 64QAM) 391656 (8 layers, 256QAM) 502624 (8 layers, 1024QAM)] 149776 (4 layers, 64QAM) 195816 (4 layers, 256QAM, if *alternativeTBS-Index-r14* is not supported) 201936 (4 layers, 256QAM, if *alternativeTBS-Index-r14* is supported) 251640 (4 layers, 1024QAM) 75376 (2 layers, 64QAM) 97896 (2 layers, 256QAM, if *alternativeTBS-Index-r14* is not supported) 100752 (2 layers, 256QAM, if *alternativeTBS-Index-r14* is supported) 125808 (2 layers, 1024QAM)	42631680	2 or 4 [or 8]

NOTE 1: In carrier aggregation operation, the DL-SCH processing capability can be shared by the UE with that of MCH received from a serving cell. If the total eNB scheduling for DL-SCH and an MCH in one serving cell at a given TTI is larger than the defined processing capability, the prioritization between DL-SCH and MCH is left up to UE implementation.

NOTE 2: Within one TTI, a UE indicating category 0 shall be able to receive up to 1000 bits for a transport block associated with C-RNTI/Semi-Persistent Scheduling C-RNTI/P-RNTI/SI-RNTI/RA-RNTI and up to 2216 bits for another transport block associated with P-RNTI/SI-RNTI/RA-RNTI.

NOTE 3: The UE indicating category x shall reach the value within the defined range indicated by "Maximum number of DL-SCH transport block bits received within a TTI" of category x. The UE shall determine the required value within the defined range indicated by "Maximum number of DL-SCH transport block bits received within a TTI" of the corresponding category, based on its capabilities (i.e. CA band combination, MIMO, Modulation scheme). If the UE capability of CA band combination, MIMO and modulation scheme supported can exceed the upper limit of the defined range, the UE shall support the maximum value of the defined range indicated by "Maximum number of DL-SCH transport block bits received within a TTI" of the corresponding category.

Table 4.1A-2: Uplink physical layer parameter values set by the field *ue-CategoryUL*

UE UL Category	Maximum number of UL-SCH transport block bits transmitted within a TTI	Maximum number of bits of an UL-SCH transport block transmitted within a TTI	Support for 64QAM in UL	Support for 256QAM in UL
UL Category M1 (Note 1)	1000 or 2984	1000 or 2984	No	No
UL Category M2	6968	6968	No	No
UL Category 0	1000	1000	No	No
UL Category 1bis	5160	5160	No	No
UL Category 3	51024	51024	No	No
UL Category 5	75376	75376	Yes	No
UL Category 7	102048	51024	No	No
UL Category 8	1497760	149776	Yes	No
UL Category 13	150752	75376	Yes	No
UL Category 14	9585664	149776	Yes	No
UL Category 15	226128	75376	Yes	No
UL Category 16	105528	105528	Yes	Yes
UL Category 17	2119360	211936	Yes	Yes
UL Category 18	211056	105528	Yes	Yes
UL Category 19	13563904	211936	Yes	Yes
UL Category 20	316584	105528	Yes	Yes
UL Category 21	301504	75376	Yes	No
UL Category 22	422112	105528	Yes	Yes
UL Category 23	527640	105528	Yes	Yes
UL Category 24	633168	105528	Yes	Yes
UL Category 25	738696	105528	Yes	Yes
UL Category 26	844224	105528	Yes	Yes
NOTE 1: The UE supports "Maximum number of UL-SCH transport block bits transmitted within a TTI" and "Maximum number of bits of an UL-SCH transport block transmitted within a TTI" of 2984 bits if the UE indicates support of *ce-PUSCH-NB-MaxTBS-r14*. Otherwise the UE supports 1000 bits.				

Table 4.1A-3: Total layer 2 buffer sizes set by the fields *ue-CategoryDL and ue-CategoryUL*

UE DL Category	UE UL Category	Total layer 2 buffer size [bytes]	With support for split bearers [bytes]
DL Category M1 (Note 1)	UL Category M1	20 000 or 40 000	N/A
DL Category M2	UL Category M2	100 000	N/A
DL Category 0	UL Category 0	20 000	N/A
DL Category 1bis	UL Category 1bis	150 000	230 000
DL Category 4	UL Category 5	2 200 000	3 300 000
DL Category 6	UL Category 5	3 500 000	6 000 000
DL Category 6	UL Category 16	3 800 000	6 300 000
DL Category 7	UL Category 13	4 200 000	6 700 000
DL Category 7	UL Category 18	4 800 000	7 300 000
DL Category 9	UL Category 5	5 000 000	7 400 000
DL Category 9	UL Category 16	5 200 000	7 700 000
DL Category 10	UL Category 13	5 700 000	8 100 000
DL Category 10	UL Category 18	6 200 000	8 700 000
DL Category 11	UL Category 5	6 400 000	11 300 000
DL Category 11	UL Category 16	6 600 000	11 500 000
DL Category 12	UL Category 13	7 100 000	12 000 000
DL Category 12	UL Category 15	7 700 000	12 600 000
DL Category 12	UL Category 18	7 600 000	12 500 000
DL Category 12	UL Category 20	8 600 000	13 500 000
DL Category 13	UL Category 3	4 200 000	7 300 000
DL Category 13	UL Category 5	4 400 000	7 600 000
DL Category 13	UL Category 7	4 700 000	7 800 000
DL Category 13	UL Category 13	5 100 000	8 300 000
DL Category 13	UL Category 16	4 700 000	7 800 000
DL Category 13	UL Category 18	5 700 000	8 800 000
DL Category 14	UL Category 8	50 800 000	76 200 000
DL Category 14	UL Category 17	56 600 000	82 000 000
DL Category 15	UL Category 3	8 000 000	13 000 000
DL Category 15	UL Category 5	8 200 000	13 400 000
DL Category 15	UL Category 7	8 500 000	13 600 000
DL Category 15	UL Category 13	8 900 000	14 100 000
DL Category 15	UL Category 16	8 500 000	13 700 000
DL Category 15	UL Category 18	9 500 000	14 700 000
DL Category 16	UL Category 3	10 000 000	17 000 000
DL Category 16	UL Category 5	10 600 000	17 400 000
DL Category 16	UL Category 7	10 800 000	17 600 000
DL Category 16	UL Category 13	11 000 000	18 100 000
DL Category 16	UL Category 15	12 000 000	18 800 000
DL Category 16	UL Category 16	8 500 000	13 700 000
DL Category 16	UL Category 18	11 800 000	18 700 000
DL Category 16	UL Category 20	12 800 000	19 700 000
DL Category 17	UL Category 14	330 000 000	530 000 000
DL Category 17	UL Category 19	360 000 000	530 000 000
DL Category 18	UL Category 3	11 800 000	21 600 000
DL Category 18	UL Category 5	12 000 000	21 800 000
DL Category 18	UL Category 7	12 300 000	22 100 000
DL Category 18	UL Category 13	12 700 000	22 500 000
DL Category 18	UL Category 15	13 400 000	23 200 000
DL Category 18	UL Category 16	12 300 000	22 100 000
DL Category 18	UL Category 18	13 300 000	23 100 000
DL Category 18	UL Category 20	14 300 000	24 100 000
DL Category 19	UL Category 3	16 000 000	28 300 000
DL Category 19	UL Category 5	16 300 000	28 500 000
DL Category 19	UL Category 7	16 500 000	28 800 000
DL Category 19	UL Category 13	17 000 000	29 200 000
DL Category 19	UL Category 15	17 700 000	29 900 000
DL Category 19	UL Category 16	16 500 000	28 800 000
DL Category 19	UL Category 18	17 500 000	29 800 000
DL Category 19	UL Category 20	18 500 000	30 800 000
DL Category 19	UL Category 21	18 400 000	30 600 000
DL Category 20	UL Category 3	19 400 000	35 800 000

DL Category 20	UL Category 5	19 600 000	36 000 000
DL Category 20	UL Category 7	19 900 000	36 300 000
DL Category 20	UL Category 13	20 300 000	36 800 000
DL Category 20	UL Category 15	21 100 000	37 500 000
DL Category 20	UL Category 16	19 900 000	36 300 000
DL Category 20	UL Category 18	20 900 000	37 300 000
DL Category 20	UL Category 20	21 900 000	38 300 000
DL Category 20	UL Category 21	21 800 000	38 200 000
DL Category 21	UL Category 3	13 700 000	23 500 000
DL Category 21	UL Category 5	13 900 000	23 700 000
DL Category 21	UL Category 7	14 200 000	24 000 000
DL Category 21	UL Category 13	14 600 000	24 400 000
DL Category 21	UL Category 15	15 300 000	25 200 000
DL Category 21	UL Category 16	14 200 000	24 000 000
DL Category 21	UL Category 18	15 200 000	25 000 000
DL Category 21	UL Category 20	16 200 000	26 000 000
DL Category 22	UL Category 20	26 600 000	47 000 000
DL Category 22	UL Category 22	27 500 000	48 000 000
DL Category 22	UL Category 23	30 500 000	51 300 000
DL Category 22	UL Category 24	32 400 000	57 000 000
DL Category 22	UL Category 25	35 000 000	59 900 000
DL Category 22	UL Category 26	38 000 000	67 600 000
DL Category 23	UL Category 20	29 500 000	50 400 000
DL Category 23	UL Category 22	28 500 000	49 000 000
DL Category 23	UL Category 23	31 500 000	52 300 000
DL Category 23	UL Category 24	33 300 000	57 900 000
DL Category 23	UL Category 25	36 000 000	60 900 000
DL Category 23	UL Category 26	39 000 000	68 600 000
DL Category 24	UL Category 20	31 400 000	56 000 000
DL Category 24	UL Category 22	29 500 000	50 000 000
DL Category 24	UL Category 23	32 400 000	53 300 000
DL Category 24	UL Category 24	34 300 000	58 900 000
DL Category 24	UL Category 25	37 000 000	61 900 000
DL Category 24	UL Category 26	40 000 000	69 500 000
DL Category 25	UL Category 20	34 100 000	58 900 000
DL Category 25	UL Category 22	30 500 000	51 000 000
DL Category 25	UL Category 23	33 400 000	54 300 000
DL Category 25	UL Category 24	35 300 000	59 900 000
DL Category 25	UL Category 25	38 000 000	62 900 000
DL Category 25	UL Category 26	41 000 000	70 500 000
DL Category 26	UL Category 20	37 000 000	66 600 000
DL Category 26	UL Category 22	31 500 000	52 000 000
DL Category 26	UL Category 23	34 400 000	55 300 000
DL Category 26	UL Category 24	36 300 000	60 900 000
DL Category 26	UL Category 25	39 000 000	63 900 000
DL Category 26	UL Category 26	42 000 000	71 500 000
NOTE 1: The UE supports "Total layer 2 buffer size" of 40 000 bytes if the UE indicates support of *ce-PUSCH-NB-MaxTBS-r14*. Otherwise the UE supports 20 000 bytes.			

Table 4.1A-4: Maximum number of bits of a MCH transport block received within a TTI set by the field *ue-CategoryDL* for an MBMS capable UE capable of reception via MBSFN

UE DL Category	Maximum number of bits of a MCH transport block received within a TTI
DL Category M1	NA
DL Category M2	NA
DL Category 0	4584
DL Category 1bis	10296
DL Category 4	75376
DL Category 6	75376
DL Category 7	75376
DL Category 9	75376
DL Category 10	75376
DL Category 11	75376 (64QAM) 97896 (256QAM)
DL Category 12	75376 (64QAM) 97896 (256QAM)
DL Category 13	75376 (64QAM) 97896 (256QAM)
DL Category 14	75376 (64QAM) 97896 (256QAM)
DL Category 15	75376 (64QAM) 97896 (256QAM)
DL Category 16	75376 (64QAM) 97896 (256QAM)
DL Category 17	75376 (64QAM) 97896 (256QAM)
DL Category 18	75376 (64QAM) 97896 (256QAM)
DL Category 19	75376 (64QAM) 97896 (256QAM)
DL Category 20	75376 (64QAM) 97896 (256QAM)
DL Category 21	75376 (64QAM) 97896 (256QAM)

Table 4.1A-5: Half-duplex FDD operation type set by the field *ue-CategoryDL* for a half-duplex FDD capable UE

UE DL Category	Half-duplex FDD operation type
DL Category M1	Type B
DL Category M2	Type B
DL Category 0	Type B
DL Category 1bis	Type A
DL Category 4	Type A
DL Category 6	Type A
DL Category 7	Type A
DL Category 9	Type A
DL Category 10	Type A
DL Category 11	Type A
DL Category 12	Type A
DL Category 13	Type A
DL Category 14	Type A
DL Category 15	Type A
DL Category 16	Type A
DL Category 17	Type A
DL Category 18	Type A
DL Category 19	Type A
DL Category 20	Type A
DL Category 21	Type A

Table 4.1A-6: supported DL/UL Categories combinations and maximum UE channel bandwidth set by the fields *ue-CategoryDL* and *ue-CategoryUL* and UE categories to be indicated

UE DL Category	UE UL Category	UE categories	Maximum UE channel bandwidth [MHz]
DL Category M1	UL Category M1	N/A	1.4
DL Category M2	UL Category M2	N/A	5 (NOTE 2)
DL Category 0	UL Category 0	N/A	According to maximum channel bandwidth specified per band in TS 36.101 [6].
DL Category 1bis	UL Category 1bis	Category 1 (NOTE 1)	
DL Category 4	UL Category 5	Category 4	
DL Category 6	UL Category 5	Category 6, 4	
DL Category 6	UL Category 16	Category 6, 4 DL Category 6 and UL Category 5	
DL Category 7	UL Category 13	Category 7, 4	
DL Category 7	UL Category 18	Category 7, 4 DL Category 7 and UL Category 13	
DL Category 9	UL Category 5	Category 9, 6, 4	
DL Category 9	UL Category 16	Category 9, 6, 4 DL Category 9 and UL Category 5	
DL Category 10	UL Category 13	Category 10, 7, 4	
DL Category 10	UL Category 18	Category 10, 7, 4 DL Category 10 and UL Category 13	
DL Category 11	UL Category 5	Category 11, 9, 6, 4	
DL Category 11	UL Category 16	Category 11, 9, 6, 4 DL Category 11 and UL Category 5	
DL Category 12	UL Category 13	Category 12, 10, 7, 4	
DL Category 12	UL Category 15	Category 12, 10, 7, 4 DL Category 12 and UL Category 13	
DL Category 12	UL Category 18	Category 12, 10, 7, 4 DL Category 12 and UL Category 13	
DL Category 12	UL Category 20	Category 12, 10, 7, 4 DL Category 12 and UL Category 13 DL Category 12 and UL Category 15	
DL Category 13	UL Category 3	Category 6, 4, 9 (if supported)	
DL Category 13	UL Category 5	Category 6, 4, 9 (if supported)	
DL Category 13	UL Category 7	Category 7, 4, 10 (if supported)	
DL Category 13	UL Category 13	Category 7, 4, 10 (if supported)	
DL Category 13	UL Category 16	Category 6, 4 DL Category 13 and UL Category 5	
DL Category 13	UL Category 18	Category 7, 4 DL Category 13 and UL Category 13	
DL Category 14	UL Category 8	Category 8, 5	
DL Category 14	UL Category 17	Category 8, 5 DL Category 14 and UL Category 8	
DL Category 15	UL Category 3	Category 11, 9, 6, 4	
DL Category 15	UL Category 5	Category 11, 9, 6, 4 DL Category 11 and UL Category 5	
DL Category 15	UL Category 7	Category 12, 10, 7, 4	
DL Category 15	UL Category 13	Category 12, 10, 7, 4 DL Category 12 and UL Category 13	

DL Category 15	UL Category 16	Category 11, 9, 6, 4 DL Category 11 and UL Category 5 DL Category 15 and UL Category 5	
DL Category 15	UL Category 18	Category 12, 10, 7, 4 DL Category 12 and UL Category 13 DL Category 15 and UL Category 13	
DL Category 16	UL Category 3	Category 11, 9, 6, 4	
DL Category 16	UL Category 5	Category 11, 9, 6, 4 DL Category 11 and UL Category 5	
DL Category 16	UL Category 7	Category 12, 10, 7, 4	
DL Category 16	UL Category 13	Category 12, 10, 7, 4 DL Category 12 and UL Category 13	
DL Category 16	UL Category 15	Category 12, 10, 7, 4 DL Category 16,12 and UL Category 13	
DL Category 16	UL Category 16	Category 11, 9, 6, 4 DL Category 11 and UL Category 5 DL Category 16 and UL Category 5	
DL Category 16	UL Category 18	Category 12, 10, 7, 4 DL Category 12 and UL Category 13 DL Category 16 and UL Category 13	
DL Category 16	UL Category 20	Category 12, 10, 7, 4 DL Category 12 and UL Category 13 DL Category 16 and UL Category 13 DL Category 16 and UL Category 15	
DL Category 17	UL Category 14	Category 8, 5 DL Category 14 and UL Category 8	
DL Category 17	UL Category 19	Category 8, 5 DL Category 14 and UL Category 8 DL Category 17 and UL Category 14	
DL Category 18	UL Category 3	Category 11, 9, 6, 4 DL Category 16 and UL Category 3	
DL Category 18	UL Category 5	Category 11, 9, 6, 4 DL Category 16, 11 and UL Category 5	
DL Category 18	UL Category 7	Category 12, 10, 7, 4 DL Category 16 and UL Category 7	
DL Category 18	UL Category 13	Category 12, 10, 7, 4 DL Category 16, 12 and UL Category 13	
DL Category 18	UL Category 15	Category 12, 10, 7, 4 DL Category 16,12 and UL Category 13	
DL Category 18	UL Category 16	Category 11, 9, 6, 4 DL Category 11 and UL Category 5 DL Category 16 and UL Category 5 DL Category 18 and UL Category 5	

DL Category 18	UL Category 18	Category 12, 10, 7, 4 DL Category 12 and UL Category 13 DL Category 16 and UL Category 13	
DL Category 18	UL Category 20	Category 12, 10, 7, 4 DL Category 12 and UL Category 13 DL Category 16 and UL Category 13 DL Category 18 and UL Category 15	
DL Category 19	UL Category 3	Category 11, 9, 6, 4 DL Category 16 and UL Category 3	
DL Category 19	UL Category 5	Category 11, 9, 6, 4 DL Category 16, 11 and UL Category 5	
DL Category 19	UL Category 7	Category 12, 10, 7, 4 DL Category 16 and UL Category 7	
DL Category 19	UL Category 13	Category 12, 10, 7, 4 DL Category 16, 12 and UL Category 13	
DL Category 19	UL Category 15	Category 12, 10, 7, 4 DL Category 16,12 and UL Category 13	
DL Category 19	UL Category 16	Category 11, 9, 6, 4 DL Category 11 and UL Category 5 DL Category 16 and UL Category 5 DL Category 19 and UL Category 5	
DL Category 19	UL Category 18	Category 12, 10, 7, 4 DL Category 12 and UL Category 13 DL Category 16 and UL Category 13 DL Category 19 and UL Category 13	
DL Category 19	UL Category 20	Category 12, 10, 7, 4 DL Category 12 and UL Category 13 DL Category 16 and UL Category 13 DL Category 19 and UL Category 15	
DL Category 19	UL Category 21	Category 12, 10, 7, 4 DL Category 12 and UL Category 13 DL Category 16 and UL Category 13 DL Category 19 and UL Category 15	
DL Category 20	UL Category 3	Category 11, 9, 6, 4 DL Category 16 and UL Category 3 DL Category 19 and UL Category 3	
DL Category 20	UL Category 5	Category 11, 9, 6, 4 DL Category 16, 11 and UL Category 5 DL Category 19 and UL Category 5	

DL Category 20	UL Category 7	Category 12, 10, 7, 4 DL Category 16 and UL Category 7 DL Category 19 and UL Category 7	
DL Category 20	UL Category 13	Category 12, 10, 7, 4 DL Category 16, 12 and UL Category 13 DL Category 19 and UL Category 13	
DL Category 20	UL Category 15	Category 12, 10, 7, 4 DL Category 16,12 and UL Category 13 DL Category 19 and UL Category 13 DL Category 19 and UL Category 15	
DL Category 20	UL Category 16	Category 11, 9, 6, 4 DL Category 11 and UL Category 5 DL Category 16 and UL Category 5 DL Category 19 and UL Category 5 DL Category 19 and UL Category 16	
DL Category 20	UL Category 18	Category 12, 10, 7, 4 DL Category 12 and UL Category 13 DL Category 16 and UL Category 13 DL Category 19 and UL Category 13 DL Category 19 and UL Category 18	
DL Category 20	UL Category 20	Category 12, 10, 7, 4 DL Category 12 and UL Category 13 DL Category 16 and UL Category 13 DL Category 19 and UL Category 15 DL Category 19 and UL Category 20	
DL Category 20	UL Category 21	Category 12, 10, 7, 4 DL Category 12 and UL Category 13 DL Category 16 and UL Category 13 DL Category 19 and UL Category 15 DL Category 19 and UL Category 21	
DL Category 21	UL Category 3	Category 11, 9, 6, 4 DL Category 16 and UL Category 3 DL Category 18 and UL Category 3	
DL Category 21	UL Category 5	Category 11, 9, 6, 4 DL Category 16, 11 and UL Category 5 DL Category 18 and UL Category 5	
DL Category 21	UL Category 7	Category 12, 10, 7, 4 DL Category 16 and UL Category 7 DL Category 18 and UL Category 7	

DL Category 21	UL Category 13	Category 12, 10, 7, 4 DL Category 16, 12 and UL Category 13 DL Category 18 and UL Category 13	
DL Category 21	UL Category 15	Category 12, 10, 7, 4 DL Category 16,12 and UL Category 13 DL Category 18 and UL Category 13 DL Category 18 and UL Category 15	
DL Category 21	UL Category 16	Category 11, 9, 6, 4 DL Category 11 and UL Category 5 DL Category 16 and UL Category 5 DL Category 18 and UL Category 5 DL Category 18 and UL Category 16	
DL Category 21	UL Category 18	Category 12, 10, 7, 4 DL Category 12 and UL Category 13 DL Category 16 and UL Category 13 DL Category 18 and UL Category 13 DL Category 18 and UL Category 18	
DL Category 21	UL Category 20	Category 12, 10, 7, 4 DL Category 12 and UL Category 13 DL Category 16 and UL Category 13 DL Category 18 and UL Category 15 DL Category 18 and UL Category 20	
DL Category 22	UL Category 20	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 22	UL Category 22	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 22	UL Category 22	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 22	UL Category 23	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 22	UL Category 24	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 22	UL Category 25	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 22	UL Category 26	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 23	UL Category 20	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 23	UL Category 22	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 23	UL Category 23	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 23	UL Category 24	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 23	UL Category 25	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 23	UL Category 26	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 24	UL Category 20	DL Category 20 and UL Category 20 (NOTE3)	

DL Category 24	UL Category 22	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 24	UL Category 23	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 24	UL Category 24	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 24	UL Category 25	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 24	UL Category 26	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 25	UL Category 20	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 25	UL Category 22	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 25	UL Category 23	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 25	UL Category 24	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 25	UL Category 25	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 25	UL Category 26	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 26	UL Category 20	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 26	UL Category 22	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 26	UL Category 23	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 26	UL Category 24	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 26	UL Category 25	DL Category 20 and UL Category 20 (NOTE3)	
DL Category 26	UL Category 26	DL Category 20 and UL Category 20 (NOTE3)	

NOTE 1: The UE indicating DL category 1bis is only required to support 1Rx antenna even though the UE indicates UE category 1 for legacy compatibility.
NOTE 2: The minimum of 5 MHz and the maximum channel bandwidth specified per band in TS 36.101 [6].
NOTE 3: The UE indicating DL Category 20 and UL Category 20 also indicates Category 12, 10, 7, 4, DL Category 12 and UL Category 13, DL Category 16 and UL Category 13, DL Category 19 and UL Category 15, DL Category 19 and UL Category 20.

4.1B *ue-CategorySL-C-RX, ue-CategorySL-C-TX* and *ue-CategorySL-D*

The ue-CategorySL-C-RX, ue-CategorySL-C-TX and ue-CategorySL-D define reception and transmission capabilities for sidelink communication, V2X sidelink communication and sidelink discovery respectively. The parameters set by the UE SL-C-RX, UE SL-C-TX (sidelink communication and V2X sidelink communication) category and UE SL-D (sidelink discovery) category are defined in subclause 4.2A. Table 4.1B-1 and Table 4.1B-2 defines the reception and transmission physical layer parameter values for each SL-C-RX and each SL-C-TX Category, respectively. Table 4.1B-3 defines physical layer parameter values for each SL-D Category. If a UE of this release supports sidelink communication, the UE shall support SL-C-RX Category 1 and SL-C-TX Category 1. If a UE of this release supports V2X sidelink communication, the UE shall support SL-C-RX Category 2 to 4 for reception, and SL-C-TX category 2 to 5 for transmission. If a UE of this release supports sidelink discovery, the UE shall support SL-D Category 1.

Table 4.1B-1: Reception physical parameter values set by ue-CategorySL-C-RX

UE SL-C-RX Category	Maximum number of SL-SCH transport block bits received within a TTI	Maximum number of bits of a SL-SCH transport block received within a TTI	Total number of soft channel bits
SL-C-RX Category 1	25456	25456	
SL-C-RX Category 2	31704	31704	737280
SL-C-RX Category 3	48936	48936	995328
SL-C-RX Category 4	73488	48936	1492992

Table 4.1B-2: Transmission physical parameter values set by ue-CategorySL-C-TX

UE SL-C-TX Category	Maximum number of SL-SCH transport block bits transmitted within a TTI	Maximum number of bits of a SL-SCH transport block transmitted within a TTI	Maximum number of supported layers for spatial multiplexing in SL-C-TX
SL-C-TX Category 1	25456	25456	1
SL-C-TX Category 2	31704	31704	1
SL-C-TX Category 3	49272	32856	1
SL-C-TX Category 4	48936	48936	1
SL-C-TX Category 5	73488	48936	1

Table 4.1B-3: Reception and transmission physical parameter values set by ue-CategorySL-D

UE SL-D Category	Maximum number of SL-DCH transport block bits received within a TTI	Maximum number of bits of a SL-DCH transport block received within a TTI	Maximum number of SL-DCH transport block bits transmitted within a TTI	Maximum number of bits of a SL-DCH transport block transmitted within a TTI	Maximum number of supported layers for spatial multiplexing in SL-D
SL-D Category 1	11600	232	232	232	1

4.1C *ue-Category-NB*

The field *ue-Category-NB* defines a combined uplink and downlink capability in NB-IoT. The parameters set by the UE Category are defined in subclause 4.2. Tables 4.1C-1 and 4.1C-2 define the downlink and, respectively, uplink physical layer parameter values for each UE Category. A UE indicating Category NB2 shall also indicate Category NB1.

Table 4.1C-1: Downlink physical layer parameter values set by the field *ue-Category-NB*

UE Category	Maximum number of DL-SCH transport block bits received within a TTI	Maximum number of bits of a DL-SCH transport block received within a TTI	Total number of soft channel bits
Category NB1	680	680	2112
Category NB2	2536	2536	6400

Table 4.1C-2: Uplink physical layer parameter values set by the field *ue-Category-NB*

UE Category	Maximum number of UL-SCH transport block bits transmitted within a TTI	Maximum number of bits of an UL-SCH transport block transmitted within a TTI
Category NB1	1000	1000
Category NB2	2536	2536

Table 4.1C-3: Total layer 2 buffer sizes set by the field *ue-Category-NB*

UE Category	Total layer 2 buffer size [bytes]
Category NB1	4000
Category NB2	8000

Table 4.1C-5: Half-duplex FDD operation type set by the field *ue-Category-NB* for a half-duplex FDD capable UE

UE Category	Half-duplex FDD operation type
Category NB1	Type B
Category NB2	Type B

4.2 Parameters set by the field *ue-Category* and *ue-CategoryDL / ue-CategoryUL*

4.2.1 Transport channel parameters in downlink

4.2.1.1 Maximum number of DL-SCH transport block bits received within a TTI

Defines the maximum number of DL-SCH transport blocks bits that the UE is capable of receiving within a DL-SCH TTI.

This number does not include the bits of a DL-SCH transport block carrying BCCH in the same subframe.

4.2.1.2 Maximum number of bits of a DL-SCH transport block received within a TTI

Defines the maximum number of DL-SCH transport block bits that the UE is capable of receiving in a single transport block within a DL-SCH TTI per cell.

4.2.1.3 Total number of DL-SCH soft channel bits

Defines the total number of soft channel bits available for HARQ processing.

This number does not include the soft channel bits required by the dedicated broadcast HARQ process for the decoding of system information.

4.2.1.4 Maximum number of bits of a MCH transport block received within a TTI

Defines the maximum number of MCH transport block bits that the UE is capable of receiving within a MCH TTI.

4.2.2 Transport channel parameters in uplink

4.2.2.1 Maximum number of bits of an UL-SCH transport block transmitted within a TTI

Defines the maximum number of UL-SCH transport block bits that the UE is capable of transmitting in a single transport block within an UL-SCH TTI.

4.2.2.2 Maximum number of UL-SCH transport block bits transmitted within a TTI

Defines the maximum number of UL-SCH transport blocks bits that the UE is capable of transmitting within an UL-SCH TTI.

4.2.3 Physical channel parameters in downlink (DL)

4.2.3.1 Maximum number of supported layers for spatial multiplexing in DL

This field defines the maximum number of supported layers for spatial multiplexing per UE. The UE shall support the number of layers according to its Rel-8/9 category (Cat. 1-5) in all non-CA band combinations. Further requirements on the number of supported layers for spatial multiplexing are provided in clause 4.3.5.2.

For each bandwidth class per band per band combination specified in *supportedBandCombination*, the UE provides the corresponding MIMO capability.

4.2.4 Physical channel parameters in uplink (UL)

4.2.4.1 Support for 64QAM in UL

Defines if 64QAM is supported in UL.

4.2.5 Total layer 2 buffer size

This parameter defines the total layer 2 buffer size. The total layer 2 buffer size is defined as the sum of the number of bytes that the UE is capable of storing in the RLC transmission windows and RLC reception and reordering windows for all radio bearers, and for UEs capable of split bearers, also in PDCP reordering windows for all split radio bearers.

4.2.6 Half-duplex FDD operation type

This parameter defines the type of half-duplex FDD operation for a half-duplex FDD capable UE. The half-duplex FDD operation type applies whenever the UE is in half-duplex FDD operation. The different types of half-duplex FDD operation are specified in TS 36.211 [17].

4.2.7 RF parameters

4.2.7.1 Maximum UE channel bandwidth

Defines the maximum channel bandwidth supported by the UE.

4.2A Parameters set by ue-CategorySL-C / ue-CategorySL-D

4.2A.1 Transport channel parameters in sidelink (SL)

4.2A.1.1 Maximum number of SL-SCH transport block bits received within a TTI

Defines the maximum number of SL-SCH transport block bits that the UE is capable of receiving within a SL-SCH TTI.

4.2A.1.2 Maximum number of bits of a SL-SCH transport block received within a TTI

Defines the maximum number of SL-SCH transport block bits that the UE is capable of receiving in a single transport block within a SL-SCH TTI.

4.2A.1.3 Maximum number of SL-DCH transport block bits received within a TTI

Defines the maximum number of SL-DCH transport block bits that the UE is capable of receiving within a SL-DCH TTI.

4.2A.1.4 Maximum number of bits of a SL-DCH transport block received within a TTI

Defines the maximum number of SL-DCH transport block bits that the UE is capable of receiving in a single transport block within a SL-DCH TTI.

4.2A.1.5 Maximum number of bits of a SL-SCH transport block transmitted within a TTI

Defines the maximum number of SL-SCH transport block bits that the UE is capable of transmitting in a single transport block within a SL-SCH TTI.

4.2A.1.6 Maximum number of SL-SCH transport block bits transmitted within a TTI

Defines the maximum number of SL-SCH transport block bits that the UE is capable of transmitting within a SL-SCH TTI.

4.2A.1.7 Maximum number of bits of a SL-DCH transport block transmitted within a TTI

Defines the maximum number of SL-DCH transport block bits that the UE is capable of transmitting in a single transport block within a SL-DCH TTI.

4.2A.1.8 Maximum number of SL-DCH transport block bits transmitted within a TTI

Defines the maximum number of SL-DCH transport block bits that the UE is capable of transmitting within a SL-DCH TTI.

4.2A.2 Physical channel parameters in sidelink (SL)

4.2A.2.1 Maximum number of supported layers for spatial multiplexing in SL-C

This field defines the maximum number of supported layers for spatial multiplexing per UE in sidelink communication or V2X sidelink communication.

4.2A.2.2 Maximum number of supported layers for spatial multiplexing in SL-D

This field defines the maximum number of supported layers for spatial multiplexing per UE in sidelink discovery.

4.3 Parameters independent of the field *ue-Category* and *ue-CategoryDL / ue-CategoryUL*

4.3.1 PDCP Parameters

4.3.1.1 *supportedROHC-Profiles*

This field defines which ROHC profiles from the list below are supported by the UE.

- 0x0000 ROHC uncompressed (RFC 5795)
- 0x0001 ROHC RTP (RFC 3095, RFC 4815)
- 0x0002 ROHC UDP (RFC 3095, RFC 4815)
- 0x0003 ROHC ESP (RFC 3095, RFC 4815)
- 0x0004 ROHC IP (RFC 3843, RFC 4815)
- 0x0006 ROHC TCP (RFC 6846)
- 0x0101 ROHCv2 RTP (RFC 5225)
- 0x0102 ROHCv2 UDP (RFC 5225)

- 0x0103 ROHCv2 ESP (RFC 5225)
- 0x0104 ROHCv2 IP (RFC 5225)

A UE that supports one or more of the listed ROHC profiles shall support ROHC profile 0x0000 ROHC uncompressed (RFC 5795).

'IMS capable UEs supporting voice' shall support ROHC profiles 0x0000, 0x0001, 0x0002 and be able to compress and decompress headers of PDCP SDUs at a PDCP SDU rate corresponding to supported IMS voice codecs.

4.3.1.1A *supportedROHC-Profiles-r13*

This field defines which ROHC profiles from the list below are supported by the UE:

- 0x0000 ROHC uncompressed (RFC 5795)
- 0x0002 ROHC UDP (RFC 3095, RFC 4815)
- 0x0003 ROHC ESP (RFC 3095, RFC 4815)
- 0x0004 ROHC IP (RFC 3843, RFC 4815)
- 0x0006 ROHC TCP (RFC 6846)
- 0x0102 ROHCv2 UDP (RFC 5225)
- 0x0103 ROHCv2 ESP (RFC 5225)
- 0x0104 ROHCv2 IP (RFC 5225)

A UE that supports one or more of the listed ROHC profiles shall support ROHC profile 0x0000 ROHC uncompressed (RFC 5795). This field is only applicable if the UE supports S1-U data transfer or User plane CIoT EPS Optimisation [5] and any *ue-Category-NB*.

4.3.1.2 *maxNumberROHC-ContextSessions*

This field defines the maximum number of header compression context sessions supported by the UE, excluding context sessions that leave all headers uncompressed.

4.3.1.2A *maxNumberROHC-ContextSessions-r13*

This field defines the maximum number of header compression context sessions supported by the UE, excluding context sessions that leave all headers uncompressed. This field is only applicable if the UE supports S1-U data transfer or User plane CIoT EPS Optimisation [5] and any *ue-Category-NB*.

4.3.1.3 *pdcp-SN-Extension*

This field defines whether the UE supports 15 bit length of PDCP sequence number as specified in TS 36.323 [2]. It is mandatory for UEs supporting split bearers and UEs supporting 18 bit length of PDCP sequence number.

4.3.1.4 *supportRohcContextContinue*

This field defines whether the UE supports ROHC context continuation operation where the UE does not reset the current ROHC context upon handover.

4.3.1.5 *pdcp-SN-Extension-18bits-r13*

This field defines whether the UE supports 18 bit length of PDCP sequence number as specified in TS 36.323 [2].

4.3.1.6 *supportedUplinkOnlyROHC-Profiles*

This field defines which ROHC profile(s) from the list below are supported in uplink-only ROHC operation by the UE.

- 0x0006 ROHC TCP (RFC 4996)

A UE that supports uplink-only ROHC profile(s) shall support ROHC profile 0x0000 ROHC uncompressed (RFC 4995).

4.3.1.7 *supportedUDC-r15*

This field defines whether the UE supports the uplink data compression operation as specified in TS 36.323 [2].

A UE that supports the uplink data compression operation shall support 8192 bytes for compression buffer per UDC DRB and support up to 2 UDC DRBs.

4.3.1.8 *supportedStandardDic-r15*

This field defines whether the UE supports UL data compression with SIP static dictionary as defined in TS 36.323 [2].

4.3.1.9 *supportedOperatorDic-r15*

This field defines whether the UE supports UL data compression with operator defined dictionary. If UE supports operator defined dictionary, the UE shall report *versionOfDictionary*, the version number of the dictionary, and *associatedPLMN-ID*, the associated PLMN ID of this operator defined dictionary as defined in TS 36.331 [5]. Note this parameter is not required to be present if the UE is in VPLMN. In this release, UE can only support one operator defined dictionary.

4.3.1.7 *pdcp-Duplication-r15*

This field defines whether the UE supports PDCP duplication.

4.3.1A NR PDCP Parameters

NR PDCP capabilities: the definition of *rohc-Profiles-r15*, *rohc-ContextMaxSessions-r15*, *rohc-ProfilesUL-Only-r15*, *rohc-ContextContinue-r15*, *outOfOrderDelivery-r15* and *sn-SizeLo-r15* are the same as *supportedROHC-Profiles*, *maxNumberROHC-ContextSessions*, *uplinkOnlyROHC-Profiles*, *continueROHC-Context*, *outOfOrderDelivery* and *shortSN* defined in TS38.306 [32].

IMS-VoiceOverNR-PDCP-MCG-Bearer-15 indicates whether the UE supports IMS voice over NR PDCP for MCG bearer.

IMS-VoiceOverNR-PDCP-SCG-Bearer-15 indicates whether the UE supports IMS voice over NR PDCP for SCG bearer.

NOTE: In this release, IMS voice over split bearer is not supported for EN-DC.

4.3.2 RLC parameters

4.3.2.1 Void

4.3.2.2 *extended-RLC-LI-Field-r12*

This field defines whether the UE supports 15 bit RLC Length Indicator (LI) as specified in TS 36.322 [3].

4.3.2.3 *extendedRLC-SN-SO-Field-r13*

This field defines whether the UE supports 16 bit length of RLC sequence number and 16 bit length of RLC Segment Offset (SO) as specified in TS 36.322 [3]. It is mandatory for UEs supporting 16 bit length of MAC L field.

4.3.2.4 *extendedPollByte-r14*

This field defines whether the UE supports extended pollByte values as defined by *pollByte-r14* in TS 36.331 [5].

4.3.2.5 *rlc-UM-r15*

This field defines whether the UE supports RLC UM as specified in TS 36.322 [3]. This field is only applicable for UEs of *any ue-Category-NB*.

4.3.2.6 *rlc-AM-Ooo-Delivery-r15*

This field defines whether the UE supports out-of-order delivery from RLC to PDCP for RLC AM.

4.3.2.7 *rlc-UM-Ooo-Delivery-r15*

This field defines whether the UE supports out-of-order delivery from RLC to PDCP for RLC UM.

4.3.2.8 *flexibleUM-AM-Combinations-r15*

This field defines whether the UE supports any combination of RLC UM and RLC AM DRBs as long as the total number of DRBs is at most 8, regardless of what FGI20 indicates.

4.3.3 Void

4.3.4 Physical layer parameters

4.3.4.1 *ue-TxAntennaSelectionSupported*

This field defines whether the UE supports transmit antenna selection.

4.3.4.2 *ue-SpecificRefSigsSupported*

This field defines whether the UE supports PDSCH transmission mode 7 for FDD.

4.3.4.3 Void

4.3.4.4 *enhancedDualLayerFDD*

This field defines whether the UE supports enhanced dual layer (PDSCH transmission mode 8) for FDD.

4.3.4.5 *enhancedDualLayerTDD*

This field defines whether the UE supports enhanced dual layer (PDSCH transmission mode 8) for TDD. Enhanced dual layer shall be supported by UEs of this version of the specification supporting TDD.

4.3.4.6 *supportedMIMO-CapabilityUL-r10*

This field defines the maximum number of spatial multiplexing layers in the uplink direction for a certain band and bandwidth class in a supportedBandCombination supported by the UE.

4.3.4.7 *supportedMIMO-CapabilityDL-r10*

This field defines the maximum number of spatial multiplexing layers in the downlink direction for a certain band and bandwidth class in a supportedBandCombination supported by the UE. For bandwidth classes that include multiple component carriers (i.e. bandwidth classes B, C, D and so on), the field defines the maximum number of spatial multiplexing layers supported by the UE on all component carriers in the corresponding bandwidth class.

The support for more layers in *supportedMIMO-CapabilityDL* than given by the "maximum number of supported layers for spatial multiplexing in DL" derived from the *ue-Category* (without suffix) in the *UE-EUTRA-Capability* IE is only applicable to transmission mode 9 and transmission mode 10.

4.3.4.8 *two-AntennaPortsForPUCCH-r10*

This field defines whether the UE supports transmit diversity for PUCCH formats 1/1a/1b/2/2a/2b, and if the UE supports PUCCH format 3, transmit diversity for PUCCH format 3.

4.3.4.9 *tm9-With-8Tx-FDD-r10*

This field defines whether the UE supports PDSCH transmission mode 9 with 8 CSI reference signal ports for FDD when not operating in CE mode.

4.3.4.10 *pmi-Disabling-r10*

This field defines whether the UE supports PMI disabling.

4.3.4.11 *crossCarrierScheduling-r10*

This field defines whether the UE supports cross carrier scheduling operation for carrier aggregation, including (if the UE supports carrier aggregation in UL) the use of PCell as the pathloss reference for an SCell when *pathlossReference-r10* within *UplinkPowerControlDedicatedSCell-r10* is configured as "pCell". The UE supports PDCCH DCI formats with CIF if the UE indicates support for cross carrier scheduling.

NOTE: Regardless of whether the UE supports cross carrier scheduling operation or not, it is mandatory for a UE supporting carrier aggregation in UL to support the configuration where *pathlossReference-r10* within *UplinkPowerControlDedicatedSCell-r10* is set to "sCell".

4.3.4.12 *simultaneousPUCCH-PUSCH-r10*

This field defines whether the UE baseband supports simultaneous transmission of PUCCH and PUSCH, and is band agnostic. If the UE indicates support of baseband capability for simultaneous transmission of PUCCH and PUSCH using this field, and if the UE indicates support of RF capability for non-contiguous UL resource allocation within a component carrier for a particular E-UTRA radio frequency band, then the UE supports simultaneous transmission of PUCCH and PUSCH within each component carrier of the band. If the UE indicates support of baseband capability for simultaneous transmission of PUCCH and PUSCH using this field, and if the UE indicates support of carrier aggregation in UL, then the UE supports simultaneous transmission of PUCCH and PUSCH across any UL component carriers which the UE can aggregate. If the UE supports uplink LAA, this field is only applicable for non-LAA cells. For LAA SCells, see subclause 7.7.4. If the UE supports DC, this field is applicable within a CG. If the UE supports PUCCH on SCell, this field is applicable within a PUCCH group as defined in TS 36.213 [22].

4.3.4.13 *multiClusterPUSCH-WithinCC-r10*

This field defines whether the UE baseband supports multi-cluster PUSCH transmission within a component carrier (i.e. PUSCH resource allocation type 1), and is band agnostic. If the UE indicates support of baseband capability for multi-cluster PUSCH transmission within a component carrier using this field, and if the UE indicates support of RF capability for non-contiguous UL resource allocation within a component carrier for a particular E-UTRA radio frequency band, then the UE supports multi-cluster PUSCH transmission within each component carrier of the band.

NOTE: If the UE indicates support of carrier aggregation in UL, then the UE supports PUSCH transmissions over non-contiguous resource blocks across any UL component carriers which the UE can aggregate, regardless of whether or not the UE indicates support of baseband capability for multi-cluster PUSCH transmission within a component carrier using this field..

4.3.4.14 *nonContiguousUL-RA-WithinCC-Info-r10*

This field defines whether the UE RF supports non-contiguous UL resource allocations within a component carrier, and is signalled per E-UTRA radio frequency band which the UE supports.

4.3.4.15 *crs-InterfHandl-r11*

This field defines whether the UE supports CRS interference handling. It is mandatory for UEs of this release of the specification, except for Category 0, M1, 1bis and M2 UEs.

4.3.4.16 Void

4.3.4.17 Void

4.3.4.18 *ePDCCH-r11*

This field defines whether the UE can receive DCI on UE specific search space on Enhanced PDCCH.

4.3.4.19 *multiACK-CSI-Reporting-r11*

This field defines whether the UE supports multi-cell HARQ ACK and periodic CSI reporting and SR on PUCCH format 3 if the UE supports FDD carrier aggregation with more than two DL component carriers or TDD carrier aggregation.

4.3.4.20 *ss-CCH-InterfHandl-r11*

This field defines whether the UE supports synchronisation signal and common channel interference handling if the UE supports *crs-InterfHandl-r11*. It is mandatory for UEs of this release of the specification to support this feature for TDD bands, except for Category 0, M1, 1bis and M2 UEs.

4.3.4.21 *tdd-SpecialSubframe-r11*

This field defines whether the UE supports TDD special subframe as specified in TS 36.211 [17]. It is mandatory for UEs of this release of the specification.

4.3.4.21A *tdd-SpecialSubframe-r14*

This field defines whether the UE supports TDD special subframe configuration 10 as specified in TS 36.211 [17].

4.3.4.22 *txDiv-PUCCH1b-ChSelect-r11*

This field defines whether the UE supports transmit diversity for PUCCH format 1b with channel selection if the UE supports carrier aggregation and *two-AntennaPortsForPUCCH-r10*.

4.3.4.23 *ul-CoMP-r11*

This field defines whether the UE supports UL Coordinated Multi-Point operation. It is mandatory for UEs of this release of the specification.

4.3.4.24 *tm5-FDD*

This field defines whether the UE supports PDSCH transmission mode 5 for FDD.

4.3.4.25 *tm5-TDD*

This field defines whether the UE supports PDSCH transmission mode 5 for TDD.

4.3.4.26 *interBandTDD-CA-WithDifferentConfig-r11*

This field defines whether the UE supports inter-band TDD carrier aggregation with different UL/DL configuration combinations. It is mandatory for UEs of this release of the specification if inter-band TDD carrier aggregation is supported.

4.3.4.27 *e-HARQ-Pattern-FDD-r12*

This field defines whether the UE supports enhanced HARQ pattern for TTI bundling operation for FDD.

4.3.4.28 *tdd-FDD-CA-PCellDuplex-r12*

The presence of this field indicates that the UE supports TDD/FDD CA in any supported band combination including at least one FDD band with *bandParametersUL* and at least one TDD band with *bandParametersUL*. The first bit is set to "1" if UE supports the TDD PCell. The second bit is set to "1" if UE supports FDD PCell. This field is included only if the UE supports band combination including at least one FDD band with *bandParametersUL* and at least one TDD band with *bandParametersUL*. If this field is included, the UE shall set at least one of the bits as "1". If this field is included with DC, then it is applicable within a CG, and the presence of this field indicates the capability of the UE to support TDD/FDD CA with at least one FDD band and at least one TDD band in the same CG, with the value indicating the support for TDD/FDD PCell (PSCell).

4.3.4.29 *csi-SubframeSet-r12*

This field defines whether the UE supports Rel-12 DL CSI subframe set configuration, Rel-12 DL CSI subframe set dependent CSI measurement/feedback, configuration of up to 2 CSI-IM resources for a CSI process with no more than 4 CSI-IM resources for all CSI processes of one frequency if the UE supports tm10, configuration of two ZP-CSI-RS for tm1-tm9, PDSCH RE mapping with two ZP-CSI-RS configurations, and EPDCCH RE mapping with two ZP-CSI-RS configurations if the UE supports EPDCCH. This field is only applicable for UEs supporting TDD.

4.3.4.30 *phy-TDD-ReConfig-FDD-PCell-r12*

This field defines whether the UE supports TDD UL/DL reconfiguration for TDD serving cell(s) via monitoring PDCCH with eIMTA-RNTI on a FDD PCell, and HARQ feedback according to UL and DL HARQ reference configurations.

4.3.4.31 *phy-TDD-ReConfig-TDD-PCell-r12*

This field defines whether the UE supports TDD UL/DL reconfiguration for TDD serving cell(s) via monitoring PDCCH with eIMTA-RNTI on a TDD PCell, and HARQ feedback according to UL and DL HARQ reference configurations.

4.3.4.32 *pusch-SRS-PowerControl-SubframeSet-r12*

This field defines whether the UE supports subframe set dependent UL power control for PUSCH and SRS. This field is only applicable for UEs supporting TDD.

4.3.4.33 *enhanced-4TxCodebook-r12*

This field defines whether the UE supports enhanced 4Tx codebook as specified in TS 36.211 [17].

4.3.4.34 *pusch-FeedbackMode-r12*

This field defines whether the UE supports PUSCH feedback mode 3-2 as specified in TS 36.213 [22].

4.3.4.35 *naics-Capability-List-r12*

This field indicates that the UE supports NAICS, i.e. receiving assistance information from serving cell and using it to cancel or suppress interference of a neighbouring cell for at least one band combination. For each entry of the list, the NAICS capability for a band combination is indicated as a combination of *numberOfNAICSCapableCC* and *numberOfAggregatedPRB*.

4.3.4.36 *noResourceRestrictionForTTIBundling-r12*

This field defines whether the UE supports TTI bundling operation without resource allocation restriction. It is mandatory for UEs of this release of the specification except for Category M1 and Category M2 UEs.

4.3.4.37 Void

4.3.4.38 *discoverySignalsInDeactSCell-r12*

This field defines whether the UE supports the behaviour on DL signals and physical channels when SCell is deactivated and discovery signals measurement is configured as specified in TS 36.211 [17]. A UE that supports this feature shall also support carrier aggregation and *crs-DiscoverySignalsMeas-r12*.

4.3.4.39 *ul-64QAM-r12*

This field defines whether the UE supports UL 64QAM. A UE that supports 64QAM in UL shall support 64QAM in UL in all supported frequency bands.

4.3.4.40 *supportedMIMO-CapabilityDL-r12*

This field defines the maximum number of spatial multiplexing layers in the downlink direction supported by the UE on a single component carrier for bandwidth classes that include multiple component carriers (i.e. bandwidth classes B, C, D and so on).

The support for more layers in *supportedMIMO-CapabilityDL-12* than given by the "maximum number of supported layers for spatial multiplexing in DL" derived from the *ue-Category* or *ue-CategoryDL* in the *UE-EUTRA-Capability* IE is only applicable to transmission mode 9 and transmission mode 10.

4.3.4.41 *alternativeTBS-Indices-r12*

This field defines whether alternative TBS indices I_{TBS} 26A and 33A as specified in TS 36.213 [22] are supported by the UE which is capable of transmission mode 9 or 10. Support of the alternative TBS index I_{TBS} 33A is applied for the UE supporting 256QAM in DL.

4.3.4.42 *codebook-HARQ-ACK-r13*

This field defines whether HARQ ACK codebook size based on the DAI-based solution and/or the number of configured CCs as specified in TS 36.213 [22] is supported by the UE. For both solutions, it is mandatory for UEs of this release of the specification if carrier aggregation with more than 5 DL component carriers is supported.

4.3.4.43 *fdd-HARQ-TimingTDD-r13*

This field defines whether FDD HARQ timing for TDD SCell when configured with TDD PCell as specified in TS 36.213 [22] is supported by the UE.

4.3.4.44 *maxNumberUpdatedCSI-Proc-r13*

This field defines the maximum number of CSI processes to be updated per UE for which aperiodic CSI is requested for CA with more than 5CCs as specified in TS 36.213 [22] which is supported by the UE.

4.3.4.45 *pucch-Format4-r13*

This field defines whether PUCCH format 4 as specified in TS 36.213 [22] is supported by the UE. It is mandatory for UEs of this release of the specification if TDD carrier aggregation with more than 5 DL component carriers is supported. It is mandatory for UEs of this release of the specification if FDD carrier aggregation with more than [FFS] DL component carriers is supported.

4.3.4.46 *pucch-Format5-r13*

This field defines whether PUCCH format 5 as specified in TS 36.213 [22] is supported by the UE.

4.3.4.47 *pucch-SCell-r13*

This field defines whether PUCCH transmission on SCell in CA is supported by the UE.

4.3.4.48 *supportedBlindDecoding-r13*

This field defines blind decoding capabilities supported by the UE as specified in TS 36.213 [22].

4.3.4.48.1 *maxNumberDecoding-r13*

This field defines the maximum number of blind decodes in the UE specific search space per UE in one subframe for CA with more than 5CCs as specified in TS 36.213 [22] which is supported by the UE. The number of blind decodes supported by the UE is the field value * 32. The UE indicating the maximum number of blind decodes in this field shall also support *pdcch-CandidateReduction-r13* and/or *skipMonitoringDCI-Format0-1A-r13*.

4.3.4.48.2 *pdcch-CandidateReductions-r13*

This field defines whether the UE supports PDCCH candidate reduction on UE specific search space as specified in TS 36.213 [22, 9.1.1].

4.3.4.48.3 *skipMonitoringDCI-Format0-1A-r13*

This field defines whether the UE supports blind decoding reduction on UE specific search space by not monitoring DCI Format 0 and 1A as specified in TS 36.213 [22, 9.1.1].

4.3.4.49 *crs-InterfMitigationTM10-r13*

The field defines whether the UE supports CRS interference mitigation in transmission mode 10. The UE supporting the *crs-InterfMitigationTM10-r13* capability shall also support the *crs-InterfHandl-r11* capability.

4.3.4.49a *crs-InterfMitigationTM1toTM9-r13*

The field defines whether the UE supports CRS interference mitigation (CRS-IM) while operating in the following transmission modes (TM): TM 1, TM 2, …, TM 8 and TM 9. The UE shall not include the field if it does not support CRS IM in TMs 1-9. If the field is present, the UE supports CRS-IM on at least one arbitrary downlink CC for up to *crs-InterfMitigationTM1toTM9-r13* downlink CC CA configuration. The UE signals *crs-InterfMitigationTM1toTM9-r13* value to indicate the maximum *crs-InterfMitigationTM1toTM9-r13* downlink CC CA configuration where UE may apply CRS IM. For example, the UE sets "*crs-InterfMitigationTM1toTM9-r13* = 3" to indicate that the UE supports CRS-IM on at least one DL CC for supported non-CA, 2DL CA and 3DL CA configurations. The UE supporting the *crs-InterfMitigationTM1toTM9-r13* capability shall also support the *crs-InterfHandl-r11* capability.

If this field is present, UE supports any of the following features:

1) CRS-IM with 2 CRS antenna ports for PDSCH for UEs with 2 receiver antenna ports (as specified in the TS 36.101 [6])
2) CRS-IM with 4 CRS antenna ports for PDSCH for UEs with 2 receiver antenna ports (as specified in the TS 36.101 [6])
3) CRS-IM with 2 CRS antenna ports for PDSCH for UEs with 4 receiver antenna ports (as specified in the TS 36.101 [6])
4) CRS-IM with 4 CRS antenna ports for PDSCH for UEs with 4 receiver antenna ports (as specified in the TS 36.101 [6])

4.3.4.50 *pdsch-CollisionHandling-r13*

This field defines whether PDSCH collision handling as specified in TS 36.213 [22] is supported by the UE.

4.3.4.51 *aperiodicCSI-Reporting-r13*

This field defines whether the UE supports aperiodic CSI reporting with 3 bits of the CSI request field size as specified in TS 36.213 [22, 7.2.1] and/or aperiodic CSI reporting mode 1-0 and mode 1-1 as specified in TS 36.213 [22, 7.2.1].

4.3.4.52 *crossCarrierScheduling-B5C-r13*

This field defines whether the UE supports cross carrier scheduling beyond 5 DL component carriers. If supported, the UE shall also support *crossCarrierScheduling-r10*, i.e., cross carrier scheduling up to 5 DL component carriers.

4.3.4.53 *spatialBundling-HARQ-ACK-r13*

This field defines whether the UE supports HARQ-ACK spatial bundling on PUCCH or PUSCH as specified in TS 36.213 [22, 7.3.1 and 7.3.2].

4.3.4.54 *uci-PUSCH-Ext-r13*

This field defines whether the UE supports an extension of UCI delivering more than 22 HARQ-ACK bits on PUSCH as specified in TS 36.212 [26, 5.2.2.6] and TS 36.213 [22, 8.6.3]. It is mandatory for UEs of this release of the specification if TDD carrier aggregation with more than 5 DL component carriers is supported. It is mandatory for UEs of this release of the specification if FDD carrier aggregation with more than [FFS] DL component carriers is supported.

4.3.4.55 *multiTone-r13*

This field defines whether the UE supports UL multi-tone transmissions on NPUSCH. This field is only applicable for UEs of any *ue-Category-NB*. It is mandatory for UEs of this release of the specification.

4.3.4.56 *multiCarrier-r13*

This field defines whether the UE supports multi-carrier operation. This field is only applicable for UEs of any *ue-Category-NB*. It is mandatory for UEs of this release of the specification.

4.3.4.57 *cch-InterfMitigation-RefRecTypeA-r13*

This field defines whether the UE supports Type A downlink control channel interference mitigation receiver "LMMSE-IRC + CRS-IC" for PDCCH/PCFICH/PHICH/EPDCCH receive processing (Enhanced downlink control channel performance requirements Type A in the TS 36.101 [6]).

If this field is present, the UE supports at least one the following features:

1) Enhanced downlink control channel interference mitigation Type A receiver for 2 CRS antenna ports for UEs with 2 receiver antenna ports (Enhanced downlink control channel performance requirements Type A in the TS 36.101 [6]).

2) Enhanced downlink control channel interference mitigation Type A receiver for 4 CRS antenna ports for UEs with 2 receiver antenna ports (Enhanced downlink control channel performance requirements Type A in the TS 36.101 [6]).

4.3.4.58 *cch-InterfMitigation-RefRecTypeB-r13*

This field defines whether the UE supports Type B downlink control channel interference mitigation receiver "E-LMMSE-IRC + CRS-IC" for PDCCH/PCFICH/PHICH receive processing in synchronous networks (Enhanced downlink control channel performance requirements Type B in the TS 36.101 [6]). The UE supporting the capability defined by *cch-InterfMitigation-RefRecTypeB-r13* shall also support the capability defined by *cch-InterfMitigation-RefRecTypeA-r13*.

4.3.4.59 *cch-InterfMitigation-MaxNumCCs-r13*

This field indicates that the UE supports downlink control channel interference mitigation on at least one arbitrary downlink CC for up to *cch-InterfMitigation-MaxNumCCs* downlink CC CA configuration.

4.3.4.60 *tdd-TTI-Bundling-r14*

This field defines whether the UE supporting TDD special subframe configuration 10 also supports TTI bundling for TDD configuration 2 and 3 when *ssp10* is configured as specified in TS 36.331 [5].

4.3.4.61 *dmrs-LessUpPTS-r14*

This field defines whether the UE supports not to transmit DMRS for PUSCH in UpPTS as specified in TS 36.211 [17].

4.3.4.62 *twoHARQ-Processes-r14*

This field defines whether the UE supports 2 HARQ processes in DL and UL for FDD. This field is only applicable for UEs that support category NB2.

4.3.4.63 *ce-PUSCH-NB-MaxTBS-r14*

This field indicates whether the UE supports the maximum UL TBS size of 2984 bits in 1.4 MHz when operating in coverage enhancement mode A, as specified in TS 36.212 [26] and TS 36.213 [22]. A UE indicating support of *ce-PUSCH-NB-MaxTBS-r14* shall also indicate support of *ce-ModeA-r13*.

4.3.4.64 *ce-PDSCH-PUSCH-MaxBandwidth-r14*

This field indicates support of a maximum PDSCH/PUSCH channel bandwidth larger than 1.4 MHz when the UE is operating in coverage enhancement mode A and B, as specified in TS 36.212 [26] and TS 36.213 [22]. The maximum supported PDSCH channel bandwidth in coverage enhancement mode A and B is indicated by *ce-PDSCH-PUSCH-MaxBandwidth-r14*. The maximum supported PUSCH channel bandwidth is 5 MHz in coverage enhancement mode A and 1.4 MHz in coverage enhancement mode B. This field is not applicable for UEs of Category M1. This field is mandatory for UEs of Category M2. A UE indicating support of *ce-PDSCH-PUSCH-MaxBandwidth-r14* shall also indicate support of *ce-ModeA-r13*.

4.3.4.65 *ce-HARQ-AckBundling-r14*

This field indicates whether the UE supports HARQ-ACK bundling in FDD when operating in coverage enhancement mode A, as specified in TS 36.212 [26] and TS 36.213 [22]. A UE indicating support of *ce-HARQ-AckBundling-r14* shall also indicate support of *ce-ModeA-r13*.

4.3.4.66 *ce-PDSCH-TenProcesses-r14*

This field indicates whether the UE supports 10 DL HARQ processes in FDD when operating in coverage enhancement mode A, as specified in TS 36.212 [26] and TS 36.213 [22]. A UE indicating support of *ce-PDSCH-TenProcesses-r14* shall also indicate support of *ce-ModeA-r13*.

4.3.4.67 *ce-RetuningSymbols-r14*

This field indicates the number of retuning symbols used by the UE when operating in coverage enhancement mode A and B, as specified in TS 36.211 [17]. A UE indicating support of *ce-RetuningSymbols-r14* shall also indicate support of *ce-ModeA-r13*.

4.3.4.68 *ce-PDSCH-PUSCH-Enhancement-r14*

This field indicates whether the UE supports new numbers of repetitions for PUSCH and modulation restriction for PDSCH and PUSCH in coverage enhancement mode A, as specified in TS 36.212 [26] and TS 36.213 [22]. A UE indicating support of *ce-PDSCH-PUSCH-Enhancement-r14* shall also indicate support of *ce-ModeA-r13*.

4.3.4.69 *ce-SchedulingEnhancement-r14*

This field indicates whether the UE supports dynamic HARQ-ACK delay for HD-FDD in coverage enhancement mode A, as specified in TS 36.212 [26] and TS 36.213 [22]. A UE indicating support of *ce-SchedulingEnhancement-r14* shall also indicate support of *ce-ModeA-r13*.

4.3.4.70 *ce-SRS-Enhancement-r14*

This field indicates whether the UE supports SRS coverage enhancement with support of SRS combs 2 and 4, as specified in TS 36.213 [22]. A UE indicating support of *ce-SRS-Enhancement-r14* shall also indicate support of *ce-ModeA-r13* and shall not indicate support of *ce-SRS-EnhancementWithoutComb4-r14*.

4.3.4.70A *ce-SRS-EnhancementWithoutComb4-r14*

This field indicates whether the UE supports SRS coverage enhancement with support of SRS comb 2 but without support of SRS comb 4, as specified in TS 36.213 [22]. A UE indicating support of *ce-SRS-EnhancementWithoutComb4-r14* shall also indicate support of *ce-ModeA-r13* and shall not indicate support of *ce-SRS-Enhancement-r14*.

4.3.4.71 *ce-PUCCH-Enhancement-r14*

This field indicates whether the UE supports repetition levels 64 and 128 for PUCCH in CE Mode B, as specified in TS 36.211 [17] and in TS 36.213 [22]. A UE indicating support of *ce-PUCCH-Enhancement-r14* shall also indicate support of *ce-ModeB-r13*.

4.3.4.72 *ce-ClosedLoopTxAntennaSelection-r14*

This field indicates whether the UE supports UL closed-loop Tx antenna selection in coverage enhancement mode A, as specified in TS 36.212 [26]. A UE indicating support of *ce-ClosedLoopTxAntennaSelection-r14* shall also indicate support of *ce-ModeA-r13* and *ue-TxAntennaSelectionSupported*.

4.3.4.73 *ul-256QAM-r14*

This field indicates UL 256QAM support by the UE on a single component carrier within a band combination (i.e. bandwith class A).

4.3.4.74 *alternativeTBS-Index-r14*

This field defines whether alternative TBS index I_{TBS} 33B as specified in TS 36.213 [22] is supported by the UE. Support of the alternative TBS index I_{TBS} 33B is applied for the UE supporting 256QAM in DL.

4.3.4.75 *multiCarrier-NPRACH-r14*

This field defines whether the UE supports NPRACH on non-anchor carrier, as specified in TS 36.321 [4] and TS 36.331 [5]. This field is only applicable for UEs of any *ue-Category-NB*. It is mandatory for UEs of this release of the specification.

4.3.4.76 *multiCarrierPaging-r14*

This field defines whether the UE supports paging on non-anchor carriers for FDD, as specified in TS 36.331 [5] and TS 36.304 [14]. This field is only applicable for UEs of any *ue-Category-NB*. It is mandatory for UEs of this release of the specification.

4.3.4.77 *ul-256QAM-perCC-InfoListr14*

This field indicates UL 256QAM support by the UE on a single component carrier within a band combination, which the corresponding bandwidth class includes multiple serving carriers (i.e. bandwidth class B, C, D and so on).

4.3.4.78 *unicast-fembmsMixedSCell-r14*

This field defines whether unicast reception from FeMBMS/Unicast mixed cell is supported by the UE. This field is included only if UE supports carrier aggregation.

4.3.4.79 *emptyUnicastRegion-r14*

This field defines the UE supports unicast reception in subframes with empty unicast control region as described in TS36.213 Clause 12. This field is included only if UE supports unicast reception from FeMBMS/Unicast mixed cell.

4.3.4.80 *interferenceRandomisation-r14*

This field indicates whether the UE supports interference randomisation in connected mode for FDD as specified in TS 36.211 [17]. This field is only applicable for UEs of any *ue-Category-NB*. It is mandatory for UEs of this release of the specification.

4.3.4.81 *must-CapabilityPerBand-r14*

This field indicates that the UE supports multi-user superposition transmission operation for the corresponding frequency band as specified in 36.212 [26 5.3.3.1]. UE indicates the support of the different MUST features per band.

4.3.4.81.1 *must-TM234-UpTo2Tx-r14*

This field indicates that the UE supports MUST operation for TM2/3/4 using up to 2Tx.

4.3.4.81.2 *must-TM89-UpToOneInterferingLayer-r14*

This field indicates that the UE supports MUST operation for TM8/9 with assistance information for up to 1 interfering layer.

4.3.4.81.3 *must-TM10-UpToOneInterferingLayer-r14*

This field indicates that the UE supports MUST operation for TM10 with assistance information for up to 1 interfering layer.

4.3.4.81.4 *must-TM89-UpToThreeInterferingLayers-r14*

This field indicates that the UE supports MUST operation for TM8/9 with assistance information for up to 3 interfering layers.

4.3.4.81.5 *must-TM10-UpToThreeInterferingLayers-r14*

This field indicates that the UE supports MUST operation for TM10 with assistance information for up to 3 interfering layers.

4.3.4.82 *crs-LessDwPTS-r14*

This field defines whether the UE supports TDD special subframe configuration 10 without CRS transmission on the 5th symbol of DwPTS (i.e. *ssp10-CRS-LessDwPTS*) as specified in TS 36.211 [17] and TS 36.331 [5].

4.3.4.83 *dl-1024QAM-Slot-r15*

This field indicates whether the UE supports 1024QAM in DL on the band for slot TTI operation.

4.3.4.84 *dl-1024QAM-SubslotTA-1-r15*

This field indicates whether the UE supports 1024QAM in DL on the band for subslot TTI operation with TA set 1.

4.3.4.85 *dl-1024QAM-SubslotTA-2-r15*

This field indicates whether the UE supports 1024QAM in DL on the band for subslot TTI operation with TA set 2.

4.3.4.86 *dmrs-PositionPattern -r15*

This field indicates whether the UE supports uplink DMRS position pattern 'D D D' in subslot #5 with application of the 1/6 as the TBS scaling factor.

4.3.4.87 *dmrs-RepetitionSubslotPDSCH -r15*

This field indicates whether the UE supports back-to-back 3/4-layer DMRS reception in two consecutive subslots across subframe boundary for subslot-PDSCH.

4.3.4.88 *dmrs-SharingSubslotPDSCH-r15*

This field indicates whether the UE supports DMRS sharing in two consecutive subslots across subframe boundary for subslot-PDSCH.

4.3.4.89 *epdcch-SPT-differentCells -r15*

This field indicates whether the UE supports EPDCCH and short processing time on different serving cells.

4.3.4.90 *epdcch-STTI-differentCells -r15*

This field Indicates whether the UE supports EPDCCH and sTTI on different serving cells.

4.3.4.91 *maxLayersSlotOrSubslotPUSCH-r15*

This field indicates the maxiumum number of layers for slot-PUSCH or subslot-PUSCH transmission. If the UE reports maximum number of layers for UL in sTTI for a band combination using the IE *CA-MIMO-ParametersUL-r15*, the reported maximum number of layers shall not exceed the value indicated by this field.

4.3.4.92 *maxNumberUpdatedCSI-Proc-SPT-r15*

This field defines, if short processing time is supported, the maximum number of CSI processes to be updated per UE which aperiodic CSI is requested for CA with more than 5CCs as specified in TS 36.213 [22] which is supported by the UE.

4.3.4.93 Void

4.3.4.94 *numberOfBlindDecodesUSS-r15*

This field defines the maximum number of blind decodes in UE specific search space in one subframe for CCs configured with sTTI operation, supported by the UE. The number of blind decodes supported by the UE is the field value X*68.

4.3.4.95 *pdsch-SlotSubslotPDSCH-decoding-r15*

This field defines whether the UE supports decoding of PDSCH and slot-PDSCH/subslot-PDSCH assigned with C-RNTI/SPS C-RNTI in the same subframe for a given carrier.

4.3.4.96 *simultaneousTx-differentTx-duration-r15*

This field defines whether the UE supports simultaneous transmission of different transmission durations over different carriers. The different transmission duration can be of subframe, slot or subslot duration. A common capability is used regardless of combination of different UL transmission duration over different carriers. The capability is reported per band/band combination.

4.3.4.97 *slotPDSCH-TxDiv-TM8-r15*

This field indicates whether the UE supports TX diversity transmission using ports 7 and 8 for TM8 for slot PDSCH.

4.3.4.98 *slotPDSCH-TxDiv-TM9and10-r15*

This field indicates whether the UE supports TX diversity transmission using ports 7 and 8 for TM9/10 for slot PDSCH.

4.3.4.99 *spdcch-differentRS-types-r15*

This field indicates Indicates whether the UE supports monitoring of sPDCCH on RB sets with different RS types within a TTI.

4.3.4.100 *spt-Parameters-r15*

This field indicates the maximum number of supported CCs and the corresponding supported frame structure for short processing time. The UE capability is reported per band combination. The reported number of carriers *maxNumberCCs-SPT-r15* applies to all the FS-type(s) *frameStructureType-SPT-r15* supported in a given band combination.

4.3.4.101 *sps-CyclicShift-r15*

This field indicates whether the UE supports different cyclic shift for DMRS for UL SPS using 1ms TTI.

4.3.4.102 *subslotPDSCH-TxDiv-TM9and10-r15*

This field indicates whether the UE supports TX diversity transmission using ports 7 and 8 for TM9/10 for subslot PDSCH.

4.3.4.103 *sTTI-SupportedCombinations-r15*

This field indicates the different combinations of sTTI lengths (slot or subslot) that the UE supports in a single PUCCH group or in two PUCCH groups. A TTI length combination is reported for DL first followed by UL. In case of two PUCCH groups the support for the primary PUCCH group is indicated first. The capability is reported per band per band combination. This field is also used to report the sTTI capabilities for non-CA bands.

4.3.4.104 *sTTI- SPT-BandCombinationParameters-r15*

This field indicates the capabilities of sTTI and/or sPT for the bands and bands combinations reported using *supportedBandCombinations.* The UE reports these capabilities in the same order in which the band combinations are reported. The UE is allowed to report the same band combination more than once, if the corresponding sTTI/sPT capabilities are different.

4.3.4.105 *sTTI-SPT-BandParameters-r15*

This field indicates the different sTTI/sPT capabilities for each band of the reported band combinations. If any of the IEs: *sTTI-CA-MIMO-ParametersDL-r15, sTTI-CA-MIMO-ParametersUL-r15, sTTI-SupportedCSI-Proc-r15* are not provided by the UE, the corresponding parameters of these IEs reported from the band of the band combination for which the sTTI parameters are applied, are assumed to be supported for sTTI/sPT features as well. If any of the IEs *sTTI-MIMO-CA-ParametersPerBoBC-r15, sTTI-MIMO-CA-ParametersPerBoBC-v15xy* are not provided by the UE, the corresponding parameters from *mimo-UE-ParametersSTTI-r15, mimo-UE-ParametersSTTI-v15xy* are applied, and if any of the IEs *mimo-UE-ParametersSTTI-r15, mimo-UE-ParametersSTTI-v15xy* are not provided by the UE, then the corresponding parameters of these IEs reported from the band of the band combination for which the sTTI parameters are applied, are assumed to be supported for sTTI/sPT features.

4.3.4.106 *sTTI-SupportedCSI-Proc-r15*

This field indicates, for short TTI. the maximum number of CSI processes supported on a component carrier within a band. Value n1 corresponds to 1 CSI process, value n3 corresponds to 3 CSI processes, and value n4 corresponds to 4 CSI processes. If this field is included, the UE shall include the same number of entries listed in the same order as in *bandParameterList-r11, bandParameterList-r13* if they are reported. If the UE supports at least 1 CSI process on any component carrier, then the UE shall include this field in all bands in all band combinations.

4.3.4.107 *txDiv-SPUCCH-r15*

This field defines whether the UE supports Tx diversity on SPUCCH format 1, 1a, 1b and 3.

4.3.4.108 *ul-256QAM-Slot-r15*

This field defines whether the UE supports 256QAM in UL for slot TTI operation on the band.

4.3.4.109 *ul-256QAM-Subslot-r15*

This field defines whether the UE supports 256QAM in UL for subslot TTI operation on the band.

4.3.4.110 *ue-TxAntennaSelection-SRS-1T4R-r15*

This field indicates whether the UE supports to select one antenna among four antennas to transmit SRS for the corresponding band of the band combination as described in TS 36.213 [22].

4.3.4.111 *ue-TxAntennaSelection-SRS-2T4R-2Pairs-r15*

This field indicates whether the UE supports to select one antenna pair between two antenna pairs to transmit SRS simultaneously for the corresponding band of the band combination as described in TS 36.213 [22].

4.3.4.112 *ue-TxAntennaSelection-SRS-2T4R-3Pairs-r15*

This field indicates whether the UE supports to select one antenna pair among three antenna pairs to transmit SRS simultaneously for the corresponding band of the band combination as described in TS 36.213 [22].

4.3.4.113 *wakeUpSignal-r15*

This field indicates whether the UE supports WUS for FDD as specified in TS 36.211 [17], TS 36.213 [22] and TS 36.304 [14]. This feature is only applicable if the UE supports any *ue-Category-NB*.

4.3.4.114 *wakeUpSignalMinGap-eDRX-r15*

This field indicates the minimum gap required between end of WUS and start of PO by a UE indicating support of extended idle mode DRX for FDD, as specified in TS 24.301 [28]. A UE indicating support of *wakeUpSignalMinGap-eDRX-r15* shall also indicate support of w*akeUpSignal-r15*. This feature is only applicable if the UE supports any *ue-Category-NB*.

4.3.4.115 *mixedOperationMode-r15*

This field defines whether the UE supports multi-carrier operation where the anchor carrier is in standalone mode while the non-anchor carrier is in inband or guardand mode, and vice versa, for unicast, paging, and random access for FDD as specified in TS 36.300 [30]. This field is only applicable for UEs of any *ue-Category-NB*.

4.3.4.116 *twoHARQ-ProcessesTDD-r15*

This field defines whether the UE supports two HARQ processes in DL and UL for TDD as specified in TS 36.212 [26] and TS 36.213 [22]. This field is only applicable for UEs that support category NB2.

4.3.4.117 *sr-WithHARQ-ACK-r15*

This field defines whether the UE supports physical layer SR with HARQ ACK for FDD as specified in TS 36.213 [22]. This field is only applicable for UEs of any *ue-Category-NB*.

4.3.4.118 *sr-WithoutHARQ-ACK-r15*

This field defines whether the UE supports physical layer SR without HARQ ACK for FDD as specified in TS 36.211 [17] and TS 36.213 [22]. This field is only applicable for UEs of any *ue-Category-NB*.

4.3.4.119 *nprach-Format2-r15*

This field defines whether the UE supports NPRACH resources using preamble format 2 for FDD. This field is only applicable for UEs of any *ue-Category-NB*.

4.3.4.120 *ce-UL-HARQ-ACK-Feedback-r15*

This field indicates whether UE supports uplink HARQ ACK Feedback in RRC_CONNECTED when operating in coverage enhancement, as specified in TS36.213 [22]. A UE indicating support of *ce-UL-HARQ-ACK-Feedback-r15* shall also indicate support of *ce-ModeA-r13*.

4.3.4.121 *ce-PDSCH-FlexibleStartPRB-CE-ModeA-r15*

This field indicates whether UE supports flexible starting PRB for PDSCH in RRC_CONNECTED when operating in coverage enhancement mode A, as specified in TS36.211 [17] and TS36.213 [22]. A UE indicating support of *ce-PDSCH-FlexibleStartPRB-CE-ModeA-r15* shall also indicate support of *ce-ModeA-r13*.

4.3.4.122 *ce-PDSCH-FlexibleStartPRB-CE-ModeB-r15*

This field indicates whether UE supports flexible starting PRB for PDSCH in RRC_CONNECTED when operating in coverage enhancement mode B, as specified in TS36.211 [17] and TS36.213 [22]. A UE indicating support of *ce-PDSCH-FlexibleStartPRB-CE-ModeB-r15* shall also indicate support of *ce-ModeB-r13*.

4.3.4.123 *ce-PUSCH-FlexibleStartPRB-CE-ModeA-r15*

This field indicates whether UE supports flexible starting PRB for PUSCH in RRC_CONNECTED when operating in coverage enhancement mode A, as specified in TS36.211 [17] and TS36.213 [22]. A UE indicating support of *ce-PUSCH-FlexibleStartPRB-CE-ModeA-r15* shall also indicate support of *ce-ModeA-r13*.

4.3.4.124 *ce-PUSCH-FlexibleStartPRB-CE-ModeB-r15*

This field indicates whether UE supports flexible starting PRB for PUSCH in RRC_CONNECTED when operating in coverage enhancement mode B, as specified in TS36.211 [17] and TS36.213 [22]. A UE indicating support of *ce-PUSCH-FlexibleStartPRB-CE-ModeB-r15* shall also indicate support of *ce-ModeB-r13*.

4.3.4.125 *ce-CRS-Muting-r15*

This field indicates whether UE supports CRS muting outside certain PRBs and subframes as defined in TS 36.133 [16] and TS 36.213 [23] when operating in coverage enhancement. A UE indicating support of *ce-CRS-Muting-r15* shall also indicate support of *ce-ModeA-r13*.

4.3.4.126 *ce-PDSCH-64QAM-r15*

This field indicates whether UE supports 64QAM for non-repeated unicast PDSCH in RRC_CONNECTED when operating in coverage enhancement mode A. A UE indicating support of *ce-PDSCH-64QAM-r15* shall also indicate support of *ce-ModeA-r13*.

4.3.4.127 *ce-CQI-AlternativeTable-r15*

This field indicates whether UE supports alternative CQI table in RRC_CONNECTED when operating in coverage enhancement mode A, as specified in TS36.213 [22]. A UE indicating support of *ce-CQI-AlternativeTable-r15* shall also indicate support of *ce-ModeA-r13*.

4.3.4.128 *ce-PUSCH-SubPRB-Allocation-r15*

This field indicates whether the UE supports sub-PRB resource allocation for PUSCH when operating in coverage enhancement mode A or B, as specified in TS36.211 [17] and TS36.213 [22]. A UE indicating support of *ce-PUSCH-SubPRB-Allocation-r15* shall also indicate support of *ce-ModeA-r13*.

4.3.4.129 *wakeUpSignal-r15*

This field indicates whether the UE supports WUS as specified in TS 36.211 [17] and TS 36.304 [14]. A UE indicating support of w*akeUpSignal-r15* shall also indicate support of *ce-ModeA-r13*.

4.3.4.130 *wakeUpSignalMinGap-eDRX-r15*

This field indicates the minimum gap required between end of WUS and start of PO by a UE indicating support of eDRX, as specified in TS 24.301 [28], and indicates support of *wakeUpSignal-r15*.

4.3.4.131 *shortCqi-ForSCellActivation-r15*

This field defines whether the UE supports temporary CQI reporting periodicity after SCell activation as defined in TS 36.321 [4] and TS 36.331 [5].

4.3.4.132 *nw-BasedCRS-InterferenceMitigation-r15*

This field defines whether the UE supports network-based CRS interference mitigation as specified in TS 36.133 [16].

4.3.4.133 *srs-UpPTS-6sym-r14*

This field indicates whether the UE supports up to 6-symbol SRS in UpPTS.

4.3.4.134 *multiCarrierPagingTDD-r15*

This field defines whether the UE supports paging on non-anchor carriers for TDD, as specified in TS 36.331 [5] and TS 36.304 [14]. This field is only applicable for UEs of any *ue-Category-NB*. It is mandatory for UEs of this release of the specification.

4.3.4.135 *altMCS-Table-r15*

This field defines whether the UE supports 6-bit MCS table, see TS 36.212 [26] and TS 36.213 [22].

4.3.4.136 *ul-PowerControlEnhancements-r15*

This field defines whether the UE supports UE specific UL power control.

4.3.4.137 *additionalTransmissionSIB1-r15*

This field defines whether the UE supports additional SIB1 transmission in subframe #3 for FDD, as defined in TS 36.213 [22]. This field is only applicable for UEs of any *ue-Category-NB*.

4.3.4.138 *aperiodicCsi-ReportingSTTI-r15*

This field defines whether the UE supports aperiodic CSI reporting for STTI, with 3 bits of the CSI request field size as specified in TS 36.213 [22, 7.2.1] and/or aperiodic CSI reporting mode 1-0 and mode 1-1 as specified in TS 36.213 [22, 7.2.1].

4.3.4.139 *dmrs-BasedSPDCCH-MBSFN-r15*

This field defines whether the UE supports sDCI monitoring in DMRS based SPDCCH for MBSFN subframe. If UE supports this, it also provides the corresponding DMRS based SPDCCH capability in *min-Proc-TimelineSubslot*.

4.3.4.140 *dmrs-BasedSPDCCH-nonMBSFN -r15*

This field defines whether the UE supports sDCI monitoring in DMRS based SPDCCH for non-MBSFN subframe. If UE supports this, it also provides the corresponding DMRS based SPDCCH capability in *min-Proc-TimelineSubslot*4.3.4.141 *maxNumberUpdatedCSI-Proc-STTI-Comb77-r15*

This field defines, for {slot, slot}, if short TTI specific A-CSI reporting is supported, the maximum number of CSI processes to be updated per UE which aperiodic CSI is requested for CA with more than 2CCs as specified in TS 36.213 [22] which is supported by the UE.

4.3.4.142 *maxNumberUpdatedCSI-Proc-STTI-Comb27-r15*

This field defines, for {subslot, slot}, if short TTI specific A-CSI reporting is supported, the maximum number of CSI processes to be updated per UE which aperiodic CSI is requested for CA with more than 2CCs as specified in TS 36.213 [22] which is supported by the UE.

4.3.4.143 *maxNumberUpdatedCSI-Proc-STTI-Comb22-Set1-r15*

This field defines, for {subslot, subslot} set 1, if short TTI specific A-CSI reporting is supported, the maximum number of CSI processes to be updated per UE which aperiodic CSI is requested for CA with more than 2CCs as specified in TS 36.213 [22] which is supported by the UE.

4.3.4.144 *maxNumberUpdatedCSI-Proc-STTI-Comb22-Set2-r15*

This field defines, for {subslot, subslot} set 2, if short TTI specific A-CSI reporting is supported, the maximum number of CSI processes to be updated per UE which aperiodic CSI is requested for CA with more than 2CCs as specified in TS 36.213 [22] which is supported by the UE.

4.3.4.145 *powerUCI-SlotPUSCH-r15*

This field Indicates whether the UE supports BPRE derivation based on the actual derived O_CQI. The parameter uplinkPower-CSIPayload configures the UE to derive BPRE based on either the actual value of O_CQI or the largest value of O_CQI across all RI values. If the UE does not support the capability, the UE will derive BPRE based on the largest value of O_CQI across all RI values.

4.3.4.146 *powerUCI-SubslotPUSCH-r15*

This field indicates whether the UE supports BPRE derivation based on the actual derived O_CQI. The parameter uplinkPower-CSIPayload configures the UE to derive BPRE based on either the actual value of O_CQI or the largest value of O_CQI across all RI values. If the UE does not support the capability, the UE will derive BPRE based on the largest value of O_CQI across all RI values.

4.3.4.147 *spdcch-Reuse-r15*

This field indicates whether the UE supports L1 based SPDCCH reuse.

4.3.4.148 *sps-STTI-r15*

This field indicates whether the UE supports SPS in DL and/or UL for slot or subslot based PDSCH and PUSCH, respectively.

4.3.4.149 *sTTI-FD-MIMO-Coexistence-r15*

This field indicates whether the UE supports CSI feedback for more than 8 NZP CSI-RS ports on subframe based PUSCH in any serving cell and supporting sTTI in any serving cell.

4.3.4.150 *sTTI-SPT-Supported-r15*

This field indicates whether the UE supports short TTI and/or short processing time features.

4.3.4.151 *tm8-slotPDSCH-r15*

This field indicates whether the UE supports configuration and decoding of TM8 for slot PDSCH in TDD.

4.3.4.152 *tm9-slotSubslot-r15*

This field indicates whether the UE supports configuration and decoding of TM9 for slot and/or subslot PDSCH for non-MBSFN.

4.3.4.153 *tm9-slotSubslotMBSFN-r15*

This field indicates whether the UE supports configuration and decoding of TM9 for slot and/or subslot PDSCH for MBSFN.

4.3.4.154 *tm10-slotSubslot-r15*

This field indicates whether the UE supports configuration and decoding of TM10 for slot and/or subslot PDSCH for non-MBSFN.

4.3.4.155 *tm10-slotSubslotMBSFN-r15*

This field indicates whether the UE supports configuration and decoding of TM10 for slot and/or subslot PDSCH for MBSFN.

4.3.4.156 *ul-AsyncHarqSharingDiff-TTI-Lengths-r15*

This field indicates whether the UE supports UL asynchronous HARQ sharing between different TTI lengths for an UL serving cell.

4.3.4.157 *semiStaticCFI-r15*

This field indicates whether the UE supports the semi-static configuration of CFI for subframe/slot/sub-slot operation.

4.3.4.158 *semiStaticCFI-Pattern-r15*

This field indicates whether the UE supports the semi-static configuration of CFI pattern for subframe/slot/sub-slot operation. This field is only applicable for UEs supporting TDD.

4.3.4.159 *pdsch-RepSubframe-r15*

This field indicates whether the UE supports subframe PDSCH repetition. A UE indicating support of *pdsch-RepSubframe-r15* shall also indicate support of *semiStaticCFI-r15* or *semiStaticCFI-Pattern-r15*.

4.3.4.160 *pdsch-RepSlot-r15*

This field indicates whether the UE supports slot PDSCH repetition. A UE indicating support of *pdsch-RepSlot-r15* shall also indicate support of *semiStaticCFI-r15* or *semiStaticCFI-Pattern-r15.* A UE indicating support of *pdsch-RepSlot-r15* shall also indicate support of rel-15 slot PDSCH.

4.3.4.161 *pdsch-RepSubslot-r15*

This field indicates whether the UE supports subslot PDSCH repetition. This field is only applicable for UEs supporting FDD. A UE indicating support of *pdsch-RepSubslot-r15* shall also indicate support of *semiStaticCFI-r15*. A UE indicating support of *pdsch-RepSlot-r15* shall also indicate support of rel-15 subslot PDSCH.

4.3.4.162 *pusch-SPS-SubframeRepPCell-r15*

This field indicates whether the UE supports SPS repetition for subframe PUSCH for PCell. A UE indicating support of *pusch-SPS-SubFrameRepPCell-r15* shall also indicate support of *semiStaticCFI-r15* or *semiStaticCFI-Pattern-r15*.

4.3.4.163 *pusch-SPS-SubframeRepPSCell-r15*

This field indicates whether the UE supports SPS repetition for subframe PUSCH for PSCell. A UE indicating support of *pusch-SPS-SubframeRepPSCell-r15* shall also indicate support of *semiStaticCFI-r15* or *semiStaticCFI-Pattern-r15*.

4.3.4.164 *pusch-SPS-SubframeRepSCell-r15*

This field indicates whether the UE supports SPS repetition for subframe PUSCH for SCell other than PSCell. A UE indicating support of *pusch-SPS-SubframeRepSCell-r15* shall also indicate support of *semiStaticCFI-r15* or *semiStaticCFI-Pattern-r15*.

4.3.4.165 *pusch-SPS-SlotRepPCell-r15*

This field indicates whether the UE supports SPS repetition for slot PUSCH for PCell. A UE indicating support of *pusch-SPS-SlotRepPCell-r15* shall also indicate support of *semiStaticCFI-r15* or *semiStaticCFI-Pattern-r15*. A UE indicating support of *pusch-SPS-SlotRepPCell-r15* shall also indicate support of slot PUSCH and SPS for slot PUSCH.

4.3.4.166 *pusch-SPS-SlotRepPSCell-r15*

This field indicates whether the UE supports SPS repetition for slot PUSCH for PSCell. A UE indicating support of *pusch-SPS-SlotRepPSCell-r15* shall also indicate support of *semiStaticCFI-r15* or *semiStaticCFI-Pattern-r15*. A UE indicating support of *pusch-SPS-SlotRepPSCell-r15* shall also indicate support of slot PUSCH and SPS for slot PUSCH.

4.3.4.167 *pusch-SPS-SlotRepSCell-r15*

This field indicates whether the UE supports SPS repetition for slot PUSCH for SCell other than PSCell. A UE indicating support of *pusch-SPS-SlotRepSCell-r15* shall also indicate support of *semiStaticCFI-r15* or *semiStaticCFI-Pattern-r15*. A UE indicating support of *pusch-SPS-SlotRepSCell-r15* shall also indicate support of slot PUSCH and SPS for slot PUSCH.

4.3.4.168 *pusch-SPS-SubslotRepPCell-r15*

This field indicates whether the UE supports SPS repetition for subslot PUSCH for PCell. This field is only applicable for UEs supporting FDD. A UE indicating support of *pusch-SPS-SubslotRepPCell-r15* shall also indicate support of *semiStaticCFI-r15*. A UE indicating support of *pusch-SPS-SubslotRepPCell-r15* shall also indicate support of subslot PUSCH and SPS for subslot PUSCH.

4.3.4.169 *pusch-SPS-SubslotRepPSCell-r15*

This field indicates whether the UE supports SPS repetition for subslot PUSCH for PSCell. This field is only applicable for UEs supporting FDD. A UE indicating support of *pusch-SPS-SubslotRepPSCell-r15* shall also indicate support of *semiStaticCFI-r15*. A UE indicating support of *pusch-SPS-SubslotRepPSCell-r15* shall also indicate support of subslot PUSCH and SPS for subslot PUSCH.

4.3.4.170 *pusch-SPS-SubslotRepSCell-r15*

This field indicates whether the UE supports SPS repetition for subslot PUSCH for SCell other than PSCell. This field is only applicable for UEs supporting FDD. A UE indicating support of *pusch-SPS-SubSlotRepSCell-r15* shall also indicate support of *semiStaticCFI-r15*. A UE indicating support of *pusch-SPS-SubslotRepSCell-r15* shall also indicate support of subslot PUSCH and SPS for subslot PUSCH.

4.3.4.171 *pusch-SPS-MaxConfigSubframe-r15*

This field indicates the maximum number of multiple SPS configurations of subframe PUSCH across all cells.

4.3.4.172 *pusch-SPS-MultiConfigSubframe-r15*

This field indicates the number of multiple SPS configurations of slot PUSCH for each serving cell. A UE indicating support of *pusch-SPS-MultiConfigSubframe-r15* shall also indicate support of *pusch-SPS-SubframeRepPCell-r15, pusch-SPS-SubframeRepPSCell-r15* or *pusch-SPS-SubframeRepSCell-r15*.

4.3.4.173 *pusch-SPS-MaxConfigSlot-r15*

This field indicates the maximum number of multiple SPS configurations of slot PUSCH across all cells.

4.3.4.174 *pusch-SPS-MultiConfigSlot-r15*

This field indicates the number of multiple SPS configurations of subframe PUSCH for each serving cell. A UE indicating support of *pusch-SPS-MultiConfigSlot-r15* shall also indicate support of *pusch-SPS-SlotRepPCell-r15, pusch-SPS-SlotRepPSCell-r15* or *pusch-SPS-SlotRepSCell-r15*.

4.3.4.175 *pusch-SPS-MaxConfigSubslot-r15*

This field indicates the maximum number of multiple SPS configurations of subslot PUSCH across all cells.

4.3.4.176 *pusch-SPS-MultiConfigSubslot-r15*

This field indicates the number of multiple SPS configurations of subslot PUSCH for each serving cell. This field is only applicable for UEs supporting FDD. A UE indicating support of *pusch-SPS-MultiConfigSubslot-r15* shall also indicate support of *pusch-SPS-SubslotRepPCell-r15, pusch-SPS-SubslotRepPSCell-r15* or *pusch-SPS-SubslotRepSCell-r15*.

4.3.5 RF parameters

4.3.5.1 *supportedBandListEUTRA*

This field defines which E-UTRA radio frequency bands [6] are supported by the UE. For each band, support for either only half duplex operation, or full duplex operation is indicated. For TDD, the half duplex indication is not applicable.

4.3.5.1.1 *ue-PowerClass-N-r13*, *ue-PowerClass-5-r13*

These fields define for each supported E-UTRA band whether the UE supports power UE Power Class 1, 2, 4 or 5 for the band, as specified in TS 36.101 [6] and TS 36.307 [27]. Absence of these fields means that the UE supports the default UE Power Class for the band, as specified in TS 36.101 [6].

4.3.5.1.2 *intraFreq-CE-NeedForGaps-r13*

This field defines for each supported E-UTRA band whether measurement gaps are required to perform intra-frequency measurements on the E-UTRA band for UE in CE Mode A or CE Mode B.

4.3.5.1.3 *ue-CA-PowerClass-N*

This field defines the power class the UE supports for a E-UTRA band combination, as specified in TS 36.101 [6] and TS 36.307 [27]. Absence of these fields means that the UE supports the default UE Power Class for the band combination, as specified in TS 36.101 [6].

4.3.5.1A *supportedBandList-r13*

This field defines which NB-IoT radio frequency bands [6] are supported by the UE. This field is only applicable for UEs of any *ue-Category-NB*.

4.3.5.1A.1 *powerClassNB-20dBm-r13*

This field defines whether the UE supports power class 20dBm in NB-IoT for the band, as specified in TS 36.101 [6].

4.3.5.1A.2 *powerClassNB-14dBm-r14*

This field defines whether the UE supports power class 14 dBm in NB-IoT for all the bands that are supported by the UE, as specified in TS 36.101 [6]. The UE shall not include the field if it includes *powerClassNB-20dBm-r13*.

4.3.5.2 *supportedBandCombination*

This field defines the carrier aggregation, MIMO and MBMS reception capabilities (via MBSFN or SC-PTM) supported by the UE for configurations with inter-band, intra-band non-contiguous, intra-band contiguous carrier aggregation and without carrier aggregation. For each band in a band combination the UE provides the supported CA bandwidth classes and the corresponding MIMO capabilities for downlink. The UE also has to provide the supported uplink CA bandwidth class and the corresponding MIMO capability for at least one band in the band combination. Applicability of provisioning uplink CA bandwidth class for each band in the band combinations is defined in TS 36.101 [6]. A MIMO capability applies to all carriers of a bandwidth class of a band in a band combination. For bandwidth classes that include multiple component carriers (i.e. bandwidth classes B, C, D and so on), the UE may also indicate a separate MIMO capability that applies to each individual carrier of a bandwidth class of a band in a band combination.

In all non-CA band combinations the UE shall indicate a bandwidth class supporting the maximum channel bandwidth defined for the band.

In all non-CA band combinations the UE shall indicate at least the number of layers for spatial multiplexing according to the UE's Rel-8/9 category (Cat. 1-5). If the UE provides a Rel-10 category (Cat. 6-8) it shall indicate at least the number of layers according to that category for at least one band combination. In all other band combinations a UE indicating a category 2 and higher shall indicate support for at least 2 layers for downlink spatial multiplexing for all bands. The indicated number of layers for spatial multiplexing may exceed the number of layers required according to the category indicated by the UE. The carrier aggregation and MIMO capabilities indicated for at least one band combination together with modulation scheme shall meet the processing requirements defined by the physical layer parameter values in the UE category (i.e., maximum number of DL-SCH/UL-SCH transport block bits received/transmitted within a TTI, maximum number of bits of a DL-SCH/UL-SCH transport block received/transmitted within a TTI, and total number of soft channel bits for downlink).

NOTE: If the UE reports a subset of supported band combinations based on *requestedFrequencyBands* and/or *skipFallbackCombinations* and/or *maximumCCsRetrieval*, reported band combination(s) may or may not meet the processing requirements defined by the physical layer parameter values in the UE category.

The UE that supports MBMS reception via MBSFN shall support MBMS reception via MBSFN on the PCell of MCG, and it may indicate support for MBMS reception via MBSFN on configured SCells (*mbms-SCell*) and for any cell that may be additionally configured as an SCell (*mbms-NonServingCell*) according to this field. The UE may indicate support for MBMS reception from FeMBMS/Unicast mixed cells (*fembmsMixedCell*) or MBMS-dedicated cells (*fembmsDedicatedCell*). The UE that supports MBMS reception via SC-PTM shall support MBMS reception via SC-PTM on the PCell of MCG, and it may indicate support for MBMS reception via SC-PTM on configured SCells (*scptm-SCell*) and for any cell that may be additionally configured as an SCell (*scptm-NonServingCell*) according to this field. The UE shall apply the system information acquisition and change monitoring procedure relevant for MBMS operation for these cells.

The UE indicating more than one frequency in the *MBMSInterestIndication* message as specified in TS 36.331 [5] shall support simultaneous reception of MBMS (via MBSFN or SC-PTM) on the indicated frequencies when the frequencies of the configured serving cells and the indicated frequencies belong to at least one band combination.

NOTE: For the purposes of determining whether the carrier aggregation and MIMO capabilities indicated for a band combination meets the processing requirements defined by the physical layer parameter values in the UE category as described above, the carrier aggregation and MIMO capabilities indicated for a band combination is considered to meet the processing requirements if the UE supports the maximum processing requirements defined by the UE category assuming 20MHz channel bandwidth is supported on all bands.

While PCell is not changed, the UE shall support release of any SCell(s) or any uplink configuration of SCell(s) without requiring reconfiguration of parameters related to UE radio access capabilities for the remaining serving cell(s) in the fallback band combination, except for release of an SCell from a contiguous CA band configuration that results in a non-contiguous CA band configuration.

While reporting the sTTI/sPT capabilities, the UE is allowed to report the same band combination more than once with this IE, if the UE supports different combinations of the corresponding sTTI/sPT capabilities.

4.3.5.2.1 *supportedBandCombinationReduced-r13*

This field is used to indicate the carrier aggregation, MIMO and MBMS reception capabilities supported by the UE as defined in 4.3.5.2 if requested by E-UTRAN as specified in TS 36.331 [5]. All descriptions in 4.3.5.2 are applied for this field unless explicitly stated otherwise. It is mandatory for UEs supporting carrier aggregation beyond 5 component carriers.

If a CA band combination beyond 5 component carriers is included in this field, the UE supports Activation/Deactivation MAC Control Element of four octets as specified in TS 36.321 [4]. If a CA band combination beyond 5 component carriers with uplink is included in this field, the UE supports Extended PHR MAC Control Element supporting 32 serving cells with configured uplink as specified in TS 36.321 [4].

If the fallback band combinations for a given band combination are omitted in this field (see TS 36.331 [5]), the UE shall for all the omitted fallback band combinations support the same UE radio access capabilities as for the superset band combination.

While reporting the sTTI/sPT capabilities, the UE is allowed to report the same band combination more than once with this IE, if the UE supports different combinations of the corresponding sTTI/sPT capabilities.

4.3.5.3 *multipleTimingAdvance*

This field defines whether multiple timing advances are supported for each band combination supported by the UE. It is mandatory for UEs of this release of the specification to support this capability for band combinations having an UL on multiple FDD bands as specified in TS 36.101 [6]. If the band combination comprised of more than one band entry (i.e., inter-band or intra-band non-contiguous band combination), the field indicates that different timing advances on different band entries are supported. If the band combination comprised of one band entry (i.e., intra-band contiguous band combination), the field indicates that different timing advances across component carriers of the band entry are supported.

4.3.5.4 *simultaneousRx-Tx*

This field defines whether the UE supports simultaneous reception and transmission for inter-band TDD band combination.

4.3.5.5 *supportedCSI-Proc-r11*

This field defines the maximum number of CSI processes supported on a component carrier within a band with PDSCH transmission mode 10. For bandwidth classes that include multiple component carriers (i.e. bandwidth classes B, C, D and so on), the field defines the maximum number of CSI processes supported by the UE on all component carriers in the corresponding band.

4.3.5.6 *freqBandRetrieval-r11*

This parameter defines whether the UE supports reception of *requestedFrequencyBands* as specified in TS 36.331 [5].

4.3.5.7 *dl-256QAM-r12*

This field defines whether the UE supports 256QAM in DL. This field is only applicable for UEs of category 11-12 and UEs of DL category 11 and onwards. It is mandatory for UEs of DL category 13-14 and 17 to support this feature. A UE that supports 256QAM in DL shall support 256QAM in DL in all supported frequency bands.

4.3.5.8 *supportedNAICS-2CRS-AP-r12*

This field defines a bitmap points to the entries of *naics-Capability-List-r12* to indicate NAICS 2 CRS AP capability for the band combination.

4.3.5.9 *dc-Support-r12*

This field defines whether synchronous DC and power control mode 1 is supported by the UE which is capable of *extendedMaxMeasId*, *multipleTimingAdvance* for a given band combination. If the band combination entry is comprised of a single band, DC is supported for the intra-band contiguous band combination. If the band combination entry is comprised of multiple bands, DC is supported for the inter-band or intra-band non-contiguous band combination.

4.3.5.9.1 *asynchronous-r12*

In addition to the UE capability indicated by *dc-Support*, this field defines whether asynchronous DC and power control mode 2 is supported by the UE which is capable of *simultaneousRx-Tx*. If the band combination is comprised of a single band entry for more than two carriers, the UE shall support any permutations of carriers to CGs. If the concerning band combination is comprised of more than two band entries, the carriers corresponding to a band entry shall belong to one cell group. For this band combination, the UE may indicate the supported carrier permutations to CGs.

4.3.5.9.2 *supportedCellGrouping-r12*

In addition to the UE capability indicated by *asynchronous*, this field defines for which mapping of serving cells to cell groups (i.e. MCG or SCG) the UE supports asynchronous DC.

4.3.5.10 *modifiedMPR-Behavior-r10*

This field defines whether the UE supports modified MPR/A-MPR behaviours as specified in TS 36.101 [6].

4.3.5.11 *freqBandPriorityAdjustment-r12*

This field defines whether the UE supports the prioritization of the frequency bands in multiBandInfoList over the band in freqBandIndicator as defined by freqBandIndicatorPriority-r12 in TS 36.331 [5].

4.3.5.12 *commSupportedBandsPerBC-r12*

This field indicates, for a particular band combination, the bands on which the UE supports simultaneous reception of EUTRA and sidelink communication. If the UE indicates support simultaneous transmission (using *commSimultaneousTx-r12*), this field also indicates, for a particular band combination, the bands on which the UE supports simultaneous transmission of EUTRA and sidelink communication. The first bit refers to the first band indicated by *commSupportedBands-r12*, with value 1 indicating sidelink is supported simultaneously.

4.3.5.13 *supportedCSI-Proc-r12*

This field defines the maximum number of CSI processes with PDSCH transmission mode 10 supported by the UE on a single component carrier for bandwidth classes that include multiple component carriers (i.e. bandwidth classes B, C, D and so on).

4.3.5.14 *fourLayerTM3-TM4-r10*

This field defines whether the UE supports 4-layer spatial multiplexing with transmission mode 3 and transmission mode 4.

4.3.5.15 *fourLayerTM3-TM4-perCC-r12*

This field defines whether the UE supports 4-layer spatial multiplexing with transmission mode 3 and transmission mode 4 on a single component carrier for bandwidth classes that include multiple component carriers (i.e. bandwidth classes B, C, D and so on).

4.3.5.16 *multiNS-Pmax-r10*

This field defines whether the UE supports the mechanisms defined for cells broadcasting *NS-PmaxList* as specified in TS 36.331 [5].

4.3.5.16A *multiNS-Pmax-r13*

This field defines whether the UE supports the mechanisms defined for NB-IoT cells broadcasting *NS-PmaxList* as specified in TS 36.331 [5].

4.3.5.17 *differentFallbackSupported-r13*

This field defines whether the UE supports the different capabilities for at least one fallback case of the concerning band combination. The sTTI/sPT capabilities are also considered by the UE when using this field.

4.3.5.18 *maximumCCsRetrieval-r13*

This field defines whether the UE supports reception of *requestedMaxCCsDL* and *requestedMaxCCsUL*.

4.3.5.19 *skipFallbackCombinations-r13*

This field defines whether the UE supports receiving reception of *skipFallbackCombinations* that requests UE to exclude fallback band combinations from capability signalling.

4.3.5.20 Void

4.3.5.21 *reducedIntNonContComb-r13*

This field defines whether the UE supports receiving *requestReducedIntNonContComb*. If the UE supports *reducedIntNonContComb-r13*, the UE only includes one intra-band non-contiguous CA band combination, and exclude the other intra-band non-contiguous CA band combinations for which the presence of uplink CA bandwidth class in the band combination entry is different. One band combination entry can also indicate support of any other possible permutations in the presence of uplink CA bandwidth class where a paired downlink CA bandwidth class is the same or where the number of UL CCs is smaller than the one of paired DL CCs expressed by the CA bandwidth class.

For example, if the UE supports *reducedIntNonContComb-r13*, the UE only needs to report "DL: CA_42C-42A, UL: 42A paired with DL 42C", in order to indicate also support of "DL: CA_42C-42A, UL: 42A paired with DL 42A", "DL: CA_42A-42C, UL: 42A paired with DL 42A" and "DL: CA_42A-42C, UL: 42A paired with DL 42C".

For these band combinations not included in the capability, RF parameters specified within *BandCombinationParameters* (e.g., *supportedMIMO-CapabilityUL*, *multipleTimingAdvance* if supported) and measurement parameters specified within *BandCombinationListEUTRA* are the same as the ones for the band combination included in the UE capability.

4.3.5.22 *additionalRx-Tx-PerformanceReq-r13*

This field indicates whether the UE supports the additional Rx and Tx performance requirement for a given band combination as specified in TS 36.101 [6].

4.3.5.23 *maxLayersMIMO-Indication-r12*

This field defines whether the UE supports the network configuration of *maxLayersMIMO* as specified in TS 36.331 [5].

If the UE supports *fourLayerTM3-TM4* or *intraBandContiguousCC-InfoList*, UE supports the configuration of *maxLayersMIMO* for these two cases regardless of indicating *maxLayersMIMO-Indication*.

4.3.5.24 *rf-RetuningTimeDL-r14*

This field indicates the interruption time on DL reception within a band pair during the RF retuning for switching between the band pair to transmit SRS on a PUSCH-less SCell as specified in TS36.331 [5]. This field is mandatory present if switching between the band pair is supported.

4.3.5.25 *rf-RetuningTimeUL-r14*

This field indicates the interruption time on UL transmission within a band pair during the RF retuning for switching between the band pair to transmit SRS on a PUSCH-less SCell as specified in TS36.331 [5]. This field is mandatory present if switching between the band pair is supported.

4.3.5.26 *diffFallbackCombReport-r14*

This field indicates whether the UE supports reporting of UE radio access capabilities for the CA band combinations asked by the eNB as well as, if any, reporting of different UE radio access capabilities for their fallback band combination as specified in TS 36.331 [5]. The UE does not report fallback combinations if their UE radio access capabilities are the same as the ones for the CA band combination asked by the eNB.

4.3.5.27 *v2x-SupportedTxBandCombListPerBC-r14, v2x-SupportedRxBandCombListPerBC-r14*

This field indicates, for a particular band combination of EUTRA, the supported band combination list among *v2x-SupportedTxBandCombinationList* or *v2x-SupportedRxBandCombinationList* on which the UE supports simultaneous transmission and reception of EUTRA and V2X sidelink communication respectively.

4.3.5.28 *txAntennaSwitchDL-r13*

The field indicates the entry number of the first-listed band with UL in the band combination that causes this DL to be affected when transmit antenna switching occurs. If this field is not included, this DL is not affected by transmit antenna switching. All DL and UL that switch together indicate the same entry number.

4.3.5.29 *txAntennaSwitchUL-r13*

The presence of this field indicates the UE supports transmit antenna selection for this UL band in the band combination as described in TS 36.213 [22, 8.2 and 8.7].

The field indicates the entry number of the first-listed band with UL in the band combination that switches together with this UL when transmit antenna switching occurs. All DL and UL that switch together indicate the same entry number.

4.3.5.30 *supportedMIMO-CapabilityDL-r15*

If present, this field defines the number of downlink MIMO layers the UE supports when the UE is configured with sTTI. Only two layers or four layers for MIMO support using this field are applicable with sTTI.

4.3.5.31 *dl-1024QAM-r15*

This field defines whether the UE supports 1024QAM in DL on this band or on this band within the band combination as described in TS 36.331 [5]. This field is only applicable for UEs of DL category 20, 22 and onwards.

4.3.5.32 *srs-MaxSimultaneousCCs-r14*

This field indicates, for a particular band combination, the maximum number of simultaneously configurable target CCs supported by the UE for SRS switching.

4.3.6 Measurement parameters

4.3.6.1 *interFreqNeedForGaps* and *interRAT-NeedForGaps*

These fields define for each supported E-UTRA band whether measurement gaps are required to perform inter-frequency measurements on each supported E-UTRA radio frequency band and inter-RAT measurements on each supported RAT/band combination. A UE also indicates for each band combination as in the supportedBandCombination whether measurement gaps are required to perform inter-frequency measurements on each supported E-UTRA radio frequency band and inter-RAT measurements on each supported RAT/band combination.

4.3.6.2 *rsrqMeasWideband*

This field defines whether the UE can perform RSRQ measurements in RRC_IDLE and RRC_CONNECTED with wider bandwidth as specified in TS 36.133 [16].

4.3.6.3 *timerT312-r12*

This field defines whether the UE supports T312 as specified in TS 36.331 [5].

4.3.6.4 *alternativeTimeToTrigger-r12*

This field defines whether the UE supports alternativeTimeToTrigger as specified in TS 36.331 [5].

4.3.6.5 *benefitsFromInterruption-r11*

This field indicates whether the UE power consumption could benefit from being allowed to cause interruptions to serving cells when performing measurements of deactivated SCell carriers for *measCycleSCell* of less than 640ms, as specified in TS 36.133 [16].

4.3.6.6 *incMonEUTRA-r12*

This field defines whether the UE supports increased number of E-UTRA carrier monitoring in RRC_IDLE and RRC_CONNECTED as specified in TS 36.133 [16], and whether the UE supports extended number of cell re-selection priorities for EUTRA frequencies in *RRCConnectionRelease*, as specified in TS 36.331 [5]. It is mandatory for UEs of this release of the specification, except for Category 0 and 1bis UEs.

A UE that supports increased number of E-UTRA carrier monitoring shall also support extended number of measurement identities.

4.3.6.7 *incMonUTRA-r12*

This field defines whether the UE supports increased number of UTRA carrier monitoring in RRC_IDLE and RRC_CONNECTED as specified in TS 36.133 [16].

A UE that supports increased number of UTRA carrier monitoring shall also support extended number of measurement identities.

4.3.6.8 *extendedMaxMeasId-r12*

This field defines whether the UE supports extended number of measurement identities as defined by *maxMeasId-r12* in TS 36.331 [5].

It is mandatory for UEs of this release of the specification if *incMonEUTRA-r12* or *incMonUTRA-r12* or *dc-Support-r12* or *extendedMaxObjectId-r13* is supported.

4.3.6.9 *crs-DiscoverySignalsMeas-r12*

This field defines whether the UE supports CRS based discovery signals measurement as specified in TS 36.331 [5], and PDSCH/EPDCCH RE mapping with zero power CSI-RS configured for discovery signals.

4.3.6.10 *csi-RS-DiscoverySignalsMeas-r12*

This field defines whether the UE supports CSI-RS based discovery signals measurement as specified in TS 36.331 [5]. A UE that supports this feature shall also support *crs-DiscoverySignalsMeas-r12*.

4.3.6.11 *extendedRSRQ-LowerRange-r12*

This field defines whether the UE supports the extended RSRQ lower value range from -34dB to -19.5dB in measurement configuration and reporting as specified in TS 36.133 [16].

4.3.6.12 *rsrq-OnAllSymbols-r12*

This field defines whether the UE supports the RSRQ measurement on all OFDM symbols as specified in TS 36.214 [23] and also the extended RSRQ upper value range from -3dB to 2.5dB in measurement configuration and reporting as specified in TS 36.133 [16]. If the UE supports *rsrq-OnAllSymbols-r12* and *rsrqMeasWideband* it shall also support the RSRQ measurement on all OFDM symbols with wider bandwidth.

4.3.6.13 *rs-SINR-Meas-r13*

This field defines whether the UE can perform RS-SINR measurements in RRC_CONNECTED as specified in TS 36.214 [23].

4.3.6.14 *whiteCellList-r13*

This field defines whether the UE supports configuration and use of white-listed cells as specified in TS 36.331 [5].

4.3.6.15 *extendedFreqPriorities-r13*

This field defines whether the UE supports extended E-UTRA frequency priorities as specified in TS 36.331 [5] and indicated by *cellReselectionSubPriority* field.

A UE supporting NR SA operation shall support extended E-UTRA frequency priorities and NR frequency priorities as specified in TS 36.331 [9] and indicated by *CellReselectionSubPriority* field.

4.3.6.16 *extendedMaxObjectId-r13*

This field defines whether the UE supports extended number of measurement object identities as defined by *maxObjectId-r13* in TS 36.331 [5]. The field is mandatory present for the UE supporting the configuration of *sCellToAddModListExt*. A UE indicating support of *extendedMaxObjectId-r13* shall also indicate the support of *extendedMaxMeasId-r12*.

4.3.6.17 *ul-PDCP-Delay-r13*

This parameter defines whether the UE supports UL PDCP Packet Delay per QCI measurement as specified in TS 36.314 [25]. A UE that supports the UL PDCP Delay measurement shall also support the measurement configuration and reporting as specified in TS 36.331 [5].

4.3.6.18 Void

4.3.6.19 *rssi-AndChannelOccupancyReporting-r13*

This field defines whether the UE supports measurement and reporting for RSSI and channel occupancy. This field is only applicable if the UE supports downlink LAA operation.

4.3.6.20 *multiBandInfoReport-r13*

This field defines whether the UE supports the acquisition and reporting of multi band information for *reportCGI* as specified in TS 36.331 [5].

4.3.6.21 Void

4.3.6.22 Void

4.3.6.23 *ceMeasurements-r14*

This field defines whether the UE supports intra-frequency RSRQ measurements and inter-frequency RSRP and RSRQ measurements in RRC_CONNECTED, as specified in TS 36.133 [16], TS 36.304 [14] and TS 36.331 [5]. In this release of specification, it is mandatory for UEs of Category M1 and M2 and UEs that support coverage enhancements to support *ceMeasurements-r14*. A UE indicating support of *ceMeasurements-r14* shall also indicate support of *ce-ModeA-r13*.

4.3.6.24 *ncsg-r14*

This field defines whether the UE supports NCSG gap as specified in TS 36.133 [16]. If the UE supports *ncsg-r14* and asynchronous DC, the UE shall support NCSG Pattern Id 0, 1, 2 and 3. If the UE supports ncsg-r14 but the UE does not support asynchronous DC, only NCSG Pattern Id 0 and 1 shall be supported.

4.3.6.25 *perServingCellMeasurementGap-r14*

This field defines whether the UE supports per CC measurement gap as specified in TS 36.331 [5].

4.3.6.26 *shortMeasurementGap-r14*

This field defines whether the UE supports shorter measurement gap length (i.e. *gp2* and *gp3*) as specified in TS 36.133 [16].

4.3.6.27 *nonUniformGap-r14*

This field defines whether the UE supports measurement non uniform Pattern Id 1, 2, 3 and 4 as specified in TS 36.133 [16].

4.3.6.28 *rlm-ReportSupport-r14*

This field defines whether the UE supports RLM event and information reporting as specified in TS 36.133 [16].

4.3.6.29 *nonCSG-SI-Reporting*

This field defines that UE supports reporting of PLMN list from cells not broadcasting the field *csg-Identity*.

4.3.6.30 *qoe-MeasReport-r15*

This field defines whether the UE supports QoE Measurement Collection for streaming services.

4.3.6.31 *ca-IdleModeMeasurements-r15*

This field defines whether the UE supports performing eNB-configured CRS-based RRM measurements for configured carrier(s) in RRC_IDLE mode, including reporting them when requested by eNB while in RRC_CONNECTED, as specified in TS 36.331 [5].

4.3.6.32 *ca-IdleModeValidityArea-r15*

This field defines whether the UE supports configuration of validity area for performing eNB-configured CRS-based RRM measurements for configured carrier(s) in RRC_IDLE mode, as specified in TS 36.331 [5]. A UE that supports this feature shall also support *ca-IdleModeMeasurements-r15*.

4.3.6.33 *qoe-MTSI-MeasReport-r15*

This field defines whether the UE supports QoE Measurement Collection for MTSI services.

4.3.6.34 *multipleCellsMeasExtension-r15*

This field defines whether the UE supports measurement reporting triggered based on a number of cells.

4.3.6.35 *heightMeas-r15*

This field defines whether the UE supports height-based measurement reporting as specified in TS 36.331[5]. It is mandatory to support this feature for UEs which have Aerial UE subscription as defined in TS 23.401 [18].

4.3.7 Inter-RAT parameters

4.3.7.1 *utraFDD*

This parameter defines whether the UE supports UTRA FDD.

A UE that supports UTRAN FDD shall support inter-RAT PS handover to UTRAN.

4.3.7.2 *supportedBandListUTRA-FDD*

Only applicable if the UE supports UTRA FDD. This field defines which UTRA FDD radio frequency bands are supported by the UE.

4.3.7.3 *utraTDD128*

This parameter defines whether the UE supports UTRA TDD 1.28 Mcps.

A UE that supports UTRAN TDD 1.28 Mcps shall support inter-RAT PS handover to UTRAN.

4.3.7.4 *supportedBandListUTRA-TDD128*

Only applicable if the UE supports UTRA TDD 1.28 Mcps. This field defines which UTRA TDD 1.28 Mcps radio frequency bands are supported by the UE.

4.3.7.5 *utraTDD384*

This parameter defines whether the UE supports UTRA TDD 3.84 Mcps.

A UE that supports UTRAN TDD 3.84 Mcps shall support inter-RAT PS handover to UTRAN.

4.3.7.6 *supportedBandListUTRA-TDD384*

Only applicable if the UE supports UTRA TDD 3.84 Mcps. This field defines which UTRA TDD 3.84 Mcps radio frequency bands are supported by the UE.

4.3.7.7 *utraTDD768*

This parameter defines whether the UE supports UTRA TDD 7.68 Mcps.

A UE that supports UTRAN TDD 7.68 Mcps shall support inter-RAT PS handover to UTRAN.

4.3.7.8 *supportedBandListUTRA-TDD768*

Only applicable if the UE supports UTRA TDD 7.68 Mcps. This field defines which UTRA TDD 7.68 Mcps radio frequency bands are supported by the UE.

4.3.7.9 *geran*

This parameter defines whether the UE supports GERAN.

4.3.7.10 *supportedBandListGERAN*

Only applicable if the UE supports GERAN. This field defines which GERAN radio frequency bands are supported by the UE.

4.3.7.11 *interRAT-PS-HO-ToGERAN*

Only applicable if the UE supports GERAN. This field defines whether the UE supports inter-RAT PS handover to GERAN.

4.3.7.12 *cdma2000-HRPD*

This parameter defines whether the UE supports HRPD.

4.3.7.13 *supportedBandListHRPD*

Only applicable if the UE supports HRPD. This field defines which HRPD radio frequency bands are supported by the UE.

4.3.7.14 *tx-ConfigHRPD*

Only applicable if the UE supports HRPD. This field defines whether the UE supports single or dual transmitter. With dual transmitter, UE can transmit simultaneously on both E-UTRAN and HRPD.

4.3.7.15 *rx-ConfigHRPD*

Only applicable if the UE supports HRPD. This field defines whether the UE supports single or dual receiver. With dual receiver, UE can receive simultaneously on both E-UTRAN and HRPD.

4.3.7.16 *cdma2000-1xRTT*

This parameter defines whether the UE supports 1xRTT.

4.3.7.17 *supportedBandList1XRTT*

Only applicable if the UE supports 1xRTT. This field defines which 1xRTT radio frequency bands are supported by the UE.

4.3.7.18 *tx-Config1XRTT*

Only applicable if the UE supports 1xRTT. This field defines whether the UE supports single or dual transmitter. With dual transmitter, UE can transmit simultaneously on both E-UTRAN and 1xRTT.

4.3.7.19 *rx-Config1XRTT*

Only applicable if the UE supports 1xRTT. This field defines whether the UE supports single or dual receiver. With dual receiver, UE can receive simultaneously on both E-UTRAN and 1xRTT.

4.3.7.20 *e-CSFB-1XRTT*

Only applicable if the UE supports CDMA2000 1xRTT. This field defines whether the UE supports enhanced 1xRTT CS fallback.

4.3.7.21 *e-CSFB-ConcPS-Mob1XRTT*

Only applicable if the UE supports CDMA2000 1xRTT and CDMA2000 HRPD simultaneously. This field defines whether the UE supports concurrent enhanced CS fallback to CDMA2000 1xRTT and handover/redirection to CDMA2000 HRPD.

4.3.7.22 *e-RedirectionUTRA*

This parameter defines whether the UE supports use of UTRA system information provided by *RRCConnectionRelease* upon redirection.

4.3.7.23 e-RedirectionGERAN

This parameter defines whether the UE supports use of GERAN system information provided by *RRCConnectionRelease* upon redirection.

A UE that supports CS fallback to GERAN shall support e-Redirection to GERAN.

4.3.7.24 *dtm*

This parameter defines whether the UE supports Dual Transfer Mode (DTM) in GERAN.

4.3.7.25 *e-CSFB-dual-1XRTT*

Only applicable if the UE supports CDMA2000 1xRTT, dual transmitter (i.e. UE can transmit simultaneously on both E-UTRAN and 1xRTT) and dual receiver (i.e. UE can receive simultaneously on both E-UTRAN and 1xRTT). This field defines whether the UE supports dual receiver/transmitter enhanced 1xRTT CS fallback (dual Rx/Tx e1xCSFB).

4.3.7.26 *e-RedirectionUTRA-TDD*

This parameter defines whether the UE supports redirection to multiple carrier frequencies both with and without using UTRA TDD system information for cells on multiple carrier frequencies provided by *RRCConnectionRelease*.

4.3.7.27 *cdma2000-NW-Sharing-r11*

Only applicable if the UE supports CDMA2000 1xRTT or CDMA2000 HRPD. This parameter defines whether the UE supports per PLMN CDMA2000 interworking in E-UTRAN shared networks as specified in TS 36.331 [5].

4.3.7.28 *mfbi-UTRA*

This field is only applicable for a UE supporting UTRA FDD. It indicates if the UE supports the signalling requirements of multiple radio frequency bands in a UTRA FDD cell, as defined in TS 25.307 [20].

4.3.7.29 *supportedBandListWLAN*

This field defines which WLAN radio frequency bands are supported by the UE.

4.3.8 General parameters

4.3.8.1 *accessStratumRelease*

This field defines the release of the E-UTRA layer 1, 2, and 3 specifications supported by the UE e.g. Rel-8, Rel-9, etc.

4.3.8.1A *accessStratumRelease-r13*

This field defines the release of the E-UTRA layer 1, 2, and 3 specifications supported by the UE e.g. Rel-13, Rel-14, etc. This field is only applicable for UEs of any *ue-Category-NB*.

4.3.8.2 *deviceType*

This field defines whether the device does not benefit from NW-based battery consumption optimisation.

4.3.8.3 Void

4.3.8.4 Void

4.3.8.5 *multipleDRB-r13*

This field defines whether the UE supports multiple DRBs. This field is only applicable if the UE supports S1-U data transfer or User plane CIoT EPS Optimisation [28] and any *ue-Category-NB*. If a UE of this release supports multiple DRBs, the UE shall support two simultaneous DRBs.

4.3.8.6 Void

4.3.8.7 *earlyData-UP-r15*

This parameter defines whether the UE supports EDT for User Plane CIoT EPS optimizations for FDD, as defined in TS 24.301 [28]. This feature is only applicable if the UE supports any *ue-Category-NB*.

4.3.8.8 *earlyData-UP-r15*

This field indicates whether the UE supports EDT for User Plane CIoT EPS optimizations, as defined in TS 24.301 [28]. A UE indicating support of *earlyData-UP-r15* shall also indicate support of *ce-ModeA-r13*.

4.3.8.9 *extendedNumberOfDRBs-r15*

This field defines whether the UE supports up to 15 DRBs. The UE shall support any combination of RLC AM and RLC UM entities for the configured DRBs.

4.3.8.10 *reducedCP-Latency-r15*

This field defines whether the UE supports reduced control plane latency as defined in TS 36.213 [22] and TS 36.331 [5].

4.3.9 Void

4.3.10 CSG Proximity Indication parameters

4.3.10.1 *intraFreqProximityIndication*

This parameter defines whether the UE supports proximity indication for intra-frequency E-UTRAN cells whose CSG Identities are in the UE's CSG Whitelist.

4.3.10.2 *interFreqProximityIndication*

This parameter defines whether the UE supports proximity indication for inter-frequency E-UTRAN cells whose CSG Identities are in the UE's CSG Whitelist.

4.3.10.3 *utran-ProximityIndication*

This parameter defines whether the UE supports proximity indication for UTRAN cells whose CSG IDs are in the UE's CSG Whitelist.

4.3.11 Neighbour cell SI acquisition parameters

4.3.11.1 *intraFreqSI-AcquisitionForHO*

This parameter defines whether the UE supports, upon configuration of *si-RequestForHO* by the network, acquisition of relevant information from a neighbouring intra-frequency cell by reading the SI of the neighbouring cell using autonomous gaps and reporting the acquired information to the network as specified in TS 36.331 [5].

4.3.11.2 *interFreqSI-AcquisitionForHO*

This parameter defines whether the UE supports, upon configuration of *si-RequestForHO* by the network, acquisition of relevant information from a neighbouring inter-frequency cell by reading the SI of the neighbouring cell using autonomous gaps and reporting the acquired information to the network as specified in TS 36.331 [5].

4.3.11.3 *utran-SI-AcquisitionForHO*

This parameter defines whether the UE supports, upon configuration of *si-RequestForHO* by the network, acquisition of relevant information from a neighbouring UMTS cell by reading the SI of the neighbouring cell using autonomous gaps and reporting the acquired information to the network as specified in TS 36.331 [5].

4.3.11.4 *nr-CGI-ReportingwithEN-DC*

This parameter defines whether the UE supports acquisition of relevant information from a neighbouring NR cell by reading the SI of the neighbouring cell and reporting the acquired information to the network as specified in TS 36.331 [5] when the EN-DC is configured.

4.3.11.5 *nr-CGI-ReportingwithoutEN-DC*

This parameter defines whether the UE supports acquisition of relevant information from a neighbouring NR cell by reading the SI of the neighbouring cell and reporting the acquired information to the network as specified in TS 36.331 [5] when the EN-DC is not configured.

4.3.12 SON parameters

4.3.12.1 *rach-Report*

This parameter defines whether the UE supports delivery of *rachReport* upon request from the network.

4.3.13 UE-based network performance measurement parameters

4.3.13.1 *loggedMeasurementsIdle*

This parameter defines whether the UE supports logged measurements in RRC_IDLE upon request from the network. A UE that supports logged measurements in RRC_IDLE shall also support a minimum of 64kB memory for log storage.

4.3.13.2 *standaloneGNSS-Location*

This parameter defines whether the UE is equipped with a standalone GNSS receiver that may be used to provide detailed location information in RRC measurement report and logged measurements in RRC_IDLE.

4.3.13.3 Void

4.3.13.4 *loggedMBSFNMeasurements-r12*

This parameter defines whether the UE supports logged MBSFN measurement in RRC_IDLE and RRC_CONNECTED upon request from the network. A UE that supports logged MBSFN measurements shall also support a minimum of 64kB memory for log storage. A UE that supports logged MBSFN measurements shall also support logged measurements in RRC_IDLE upon request from the network.

4.3.13.5 *locationReport-r14*

This parameter defines whether the UE supports reporting of its geographical location information to eNB.

4.3.13.6 *loggedMeasBT-r15*

This parameter indicates whether the UE supports Bluetooth measurements in RRC idle mode.

4.3.13.7 *loggedMeasWLAN-r15*

This parameter indicates whether the UE supports WLAN measurements in RRC idle mode.

4.3.13.8 *immMeasBT-r15*

This parameter indicates whether the UE supports Bluetooth measurements in RRC connected mode.

4.3.13.9 *immMeasWLAN-r15*

This parameter indicates whether the UE supports WLAN measurements in RRC connected mode.

4.3.14 IMS Voice parameters

4.3.14.1 *voiceOver-PS-HS-UTRA-FDD*

Only applicable if the UE supports UTRA FDD. This parameter defines whether the UE supports IMS Voice in UTRA FDD according to GSMA IR.58 profile.

4.3.14.2 *voiceOver-PS-HS-UTRA-TDD128*

Only applicable if the UE supports UTRA TDD 1.28Mcps. This parameter defines whether the UE supports IMS Voice in UTRA TDD 1.28Mcps.

4.3.14.3 *srvcc-FromUTRA-FDD-ToGERAN*

Only applicable if the UE supports UTRA FDD and GERAN. This parameter defines whether the UE supports SRVCC handover from UTRA FDD PS HS to GERAN CS.

4.3.14.4 *srvcc-FromUTRA-FDD-ToUTRA-FDD*

Only applicable if the UE supports UTRA FDD. This parameter defines whether the UE supports SRVCC handover from UTRA FDD PS HS to UTRA FDD CS.

4.3.14.5 *srvcc-FromUTRA-TDD128-ToGERAN*

Only applicable if the UE supports UTRA TDD 1.28Mcps and GERAN. This parameter defines whether the UE supports SRVCC handover from UTRA TDD 1.28Mcps PS HS to GERAN CS.

4.3.14.6 *srvcc-FromUTRA-TDD128-ToUTRA-TDD128*

Only applicable if the UE supports UTRA TDD 1.28Mcps. This parameter defines whether the UE supports SRVCC handover from UTRA TDD 1.28Mcps PS HS to UTRA TDD 1.28Mcps CS.

4.3.15 Other parameters

4.3.15.1 Void

4.3.15.2 *inDeviceCoexInd-r11*

This parameter defines whether the UE supports in-device coexistence indication as well as autonomous denial functionality as specified in TS 36.331 [5].

4.3.15.3 *powerPrefInd-r11*

This parameter defines whether the UE supports power preference indication as specified in TS 36.331 [5].

4.3.15.4 *ue-Rx-TxTimeDiffMeasurements-r11*

This parameter defines whether the UE supports Rx - Tx time difference measurements as specified in TS 36.331 [5] and TS 36.355 [13]. A TDD UE of this release of the specification that supports UE Rx-Tx time difference measurements, shall support to report UE Rx-Tx time difference measurement result including $N_{TAoffset}$ according to EUTRAN TDD Rx-Tx time difference measurement report mapping as specified in TS 36.133 [16].

4.3.15.5 Void

4.3.15.6 Void

4.3.15.7 Void

4.3.15.8 *inDeviceCoexInd-UL-CA-r11*

This parameter defines whether the UE supports UL CA related in-device coexistence indication as specified in TS 36.331 [5]. A UE that supports UL CA related in-device coexistence indication shall also support in-device coexistence indication.

4.3.15.9 *bwPrefInd-r14*

This parameter defines whether the UE supports maximum PDSCH/PUSCH bandwidth preference indication as specified in TS 36.331 [5]. A UE indicating support of *bwPrefInd-r14* shall also indicate support of *ce-ModeA-r13*.

4.3.15.10 *inDeviceCoexInd-HardwareSharingInd-r13*

This parameter defines whether the UE supports hardware sharing indication as specified in TS 36.331 [5]. A UE that supports hardware sharing indication shall also indicate support of LAA operation.

4.3.15.11 *overheatingInd-r14*

This parameter defines whether the UE supports overheating assistance information as specified in TS 36.331 [5].

4.3.15.12 *assistInfoBitForLC-r15*

This parameter defines whether the UE supports assistance information bit for local cache as specified in TS 36.323 [2].

4.3.15.13 *timeReferenceProvision-r15*

This parameter defines whether the UE supports provision of time reference message *TimeReferenceInformation* as specified in TS 36.331 [5].

4.3.15.14 *flightPathPlan-r15*

This field defines whether the UE supports reporting of the flight path plan through the procedure defined in TS 36.331 [5].

4.3.16 Positioning parameters

4.3.16.1 *otdoa-UE-assisted*

This parameter defines whether the UE supports UE-assisted OTDOA positioning as specified in TS 36.355 [13].

4.3.16.2 *interFreqRSTDmeasurement*

This parameter defines whether the UE supports inter-frequency RSTD measurements for OTDOA positioning as specified in TS 36.355 [13].

4.3.17 MBMS parameters

4.3.17.1 *mbms-SCell-r11*

This parameter defines whether the UE in RRC_CONNECTED supports MBMS reception via MBSFN on a frequency indicated in an *MBMSInterestIndication* message, when an SCell is configured on that frequency (regardless of whether the SCell is activated or deactivated), as specified in TS 36.331 [5].

4.3.17.2 *mbms-NonServingCell-r11*

This parameter defines whether the UE in RRC_CONNECTED supports MBMS reception via MBSFN on a frequency indicated in an *MBMSInterestIndication* message, where (according to *supportedBandCombination* and to network synchronization properties) a serving cell may be additionally configured, as specified in TS 36.331 [5]. If this is supported, the UE shall also support MBMS reception via MBSFN on a frequency when an SCell is configured on that frequency (regardless of whether the SCell is activated or deactivated), as specified in TS 36.331 [5].

4.3.17.3 *mbms-AsyncDC-r12*

This parameter defines whether the UE in RRC_CONNECTED supports MBMS reception via MBSFN on a frequency indicated in an *MBMSInterestIndication* message, where according to *supportedBandCombination*, the carriers are configured or can be configured as serving cells in the MCG and the SCG which are not synchronized, specified in TS 36.331 [5]. In this release of specification, it is mandatory to support this according to *MBMSInterestIndication* and indicated *supportedBandCombination*.

4.3.17.4 *fembmsMixedCell-r14*

This parameter defines whether the UE in RRC_CONNECTED supports MBMS reception with 15kHz subcarrier spacings via MBSFN from FeMBMS/Unicast mixed cells on a frequency indicated in an *MBMSInterestIndication* message.

4.3.17.5 *fembmsDedicatedCell-r14*

This parameter defines whether the UE in RRC_CONNECTED supports MBMS reception with 15kHz subcarrier spacings via MBSFN from MBMS-dedicated cells on a frequency indicated in an *MBMSInterestIndication* message.

4.3.17.6 *subcarrierSpacingMBMS-r14-khz1dot25, subcarrierSpacingMBMS-khz7dot5-r14*

This parameter defines the supported subcarrier spacing for MBSFN subframes on FeMBMS/Unicast mixed cells or MBMS-Dedicated cells in addition to 15kHz subcarrier spacing. The *subcarrierSpacingMBMS-khz7dot5-r14* refers to 7.5kHz subcarrier spacing and *subcarrierSpacingMBMS-khz1dot25-r14* refers to 1.25 kHz subcarrier spacing as defined

in TS36.211 [21, 6.12]. This field is included only if UE supports MBMS reception from FeMBMS/Unicast mixed cell or MBMS-dedicated cell.

4.3.17.7 *mbms-MaxBW-r14*

This parameter defines the maximum supported bandwidth (T) for MBMS reception, see TS 36.213 [22, 11.1]. If the value is set to *implicitValue*, the corresponding value of T is calculated as specified in TS 36.213 [22, 11.1]. If the value is set to *explicitValue*, the actual value of T = *explicitValue* * 40 MHz.

4.3.17.8 *mbms-ScalingFactor1dot25-r14*, *mbms-ScalingFactor7dot5-r14*

These parameters correspond to $A^{(1.25}$ and $A^{(7.5}$, respectively, i.e., scaling factor for processing one unit of bandwidth corresponding to subcarrier spacing of 1.25 kHz and 7.5 kHz, with respect to one unit of bandwidth corresponding to subcarrier spacing of 15 kHz. See TS 36.213 [22, 11.1]. The field is included only if UE supports corresponding subcarrier spacing for MBSFN subframes on FeMBMS/Unicast mixed cells or MBMS-Dedicated cells in addition to 15kHz subcarrier spacing. The field shall be included if the UE supports corresponding subcarrier spacing for MBSFN subframes on FeMBMS/Unicast mixed cells or MBMS-Dedicated cells in addition to 15kHz subcarrier spacing and *mbms-MaxBW-r14* is included.

4.3.18 RAN-assisted WLAN interworking parameters

4.3.18.1 *wlan-IW-RAN-Rules-r12*

This parameter defines whether the UE supports RAN-assisted WLAN interworking based on access network selection and traffic steering rules specified in TS 36.304 [14]. A UE that supports RAN-assisted WLAN interworking based on access network selection and traffic steering rules specified in TS 36.304 [14] shall support to receive, via system information and dedicated signalling, the RAN assistance parameters relevant for those rules.

4.3.18.2 *wlan-IW-ANDSF-Policies-r12*

This parameter defines whether the UE supports RAN-assisted WLAN interworking based on ANDSF policies specified in TS 24.312 [21]. A UE that supports RAN-assisted WLAN interworking based on ANDSF policies specified in TS 24.312 [21] shall support to receive, via system information and dedicated signalling, the RAN assistance parameters relevant for those policies.

4.3.18.3 *rclwi-r13*

This parameter defines whether the UE supports RCLWI as specified in TS 36.331 [5]. A UE that supports RCLWI shall also support WLAN measurements.

4.3.19 MAC parameters

4.3.19.1 *longDRX-Command-r12*

This field defines whether the UE supports Long DRX Command MAC Control Element as specified in TS 36.321 [4]. It is mandatory for UEs of this release of the specification.

4.3.19.2 *logicalChannelSR-ProhibitTimer-r12*

This field defines whether the UE supports the *logicalChannelSR-ProhibitTimer* as specified in TS 36.321 [4]. It is mandatory for UEs of any *ue-Category-NB* to support this feature.

4.3.19.3 *extendedMAC-LengthField-r13*

This field defines whether the UE supports 16 bit length of MAC L field as specified in TS 36.321 [4].

4.3.19.4 *extendedLongDRX-r13*

This field defines whether the UE supports the *longDRX-Cycle* values of 5120 and 10240 subframes as specified in TS 36.321 [4].

4.3.19.5 *shortSPS-IntervalFDD-r14*

This field indicates whether the UE supports uplink SPS intervals shorter than 10 subframes in FDD mode. A UE that supports *shortSPS-IntervalFDD-r14* shall also support *skipUplinkSPS-r14*.

4.3.19.6 *shortSPS-IntervalTDD-r14*

This field indicates whether the UE supports uplink SPS intervals shorter than 10 subframes in TDD mode. A UE that supports *shortSPS-IntervalTDD-r14* shall also support *skipUplinkSPS-r14*.

4.3.19.7 *skipUplinkDynamic-r14*

This field indicates whether the UE supports skipping of UL transmission for an uplink grant indicated on PDCCH if no data is available for transmission as specified in TS 36.321 [4].

4.3.19.8 *skipUplinkSPS-r14*

This field indicates whether the UE supports skipping of UL transmission for a configured uplink grant if no data is available for transmission as specified in TS 36.321 [4].

4.3.19.9 *dataInactMon-r14*

This field defines whether the UE supports data inactivity monitoring as specified in TS 36.321 [4].

4.3.19.10 *rai-Support-r14*

This field defines whether the UE supports Release Assistance Indication (RAI) as specified in TS 36.321 [4]. This field is only applicable if the UE supports UE category M1 or UE category M2 or any *ue-Category-NB*.

4.3.19.11 *multipleUplinkSPS-r14*

This field defines whether the UE supports multiple uplink SPS and reporting SPS assistance information. A UE indicating *multipleUplinkSPS* shall also support V2X communication via Uu, as defined in TS 36.300 [30].

4.3.19.12 *min-Proc-TimelineSubslot-r15*

This field defines the UE minimum processing timeline supported for subslot operation for the different SPDCCH configurations. The minimum processing timeline is indicated by one of two sets in *ProcessingTimelineSet-r15*. Each set consists of two different processing timeline options and associated maximum TA. The minimum processing timeline to use out of the two options for a given set is configured by *min-proc-TimeTA-SubslotSet1-r15* and *min-procTimeTA-SubslotSet2-r15*, see TS 36.331 [5]. Support of Set 1 implicitly means support of Set 2.

The sets supported can be different for 1os CRS-based SPDCCH, 2os CRS-based SPDCCH and DMRS-based SPDCCH. The field consists of a sequence of *ProcessingTimelineSet-r15*. The sequence applies to (in order):

1. 1os CRS based SPDCCH
2. 2os CRS based SPDCCH
3. DMRS based SPDCCH

4.3.19.13 *skipSubframeProcessing-r15*

This fields defines whether the UE supports, within a serving cell, aborting reception of PDSCH if the UE receives slot-PDSCH/subslot-PDSCH during an ongoing PDSCH reception and instead starts receiving the slot-PDSCH/subslot-PDSCH, as well as whether the UE supports aborting a PUSCH transmission if the UE gets a grant for a slot-PUSCH/ subslot-PUSCH transmission that overlaps with a grant received for a PUSCH transmission. The capability indicates the number of subframes that the UE may drop prior to the subframe in which it prioritizes the processing of slot/subslot PDSCH/PUSCH. Separate capability for UL and DL and per sTTI length in each direction.

4.3.19.14 *earlyContentionResolution-r14*

This field defines whether the UE supports MAC PDU that contains only the UE Contention Resolution Identity MAC control element but no RRC response message, as specified in TS 36.331 [5]. It is mandatory for UEs that support any *ue-Category-NB* of this release of the specification.

4.3.19.15 *sr-SPS-BSR-r15*

This field defines whether the UE supports SR with SPS BSR, as defined in TS 36.321 [4]. This feature is only applicable if the UE supports any *ue-Category-NB.*

4.3.19.16 *dormantSCellState-r15*

This field defines whether the UE supports the dormant SCell state, as specified in TS 36.321 [4] and TS 36.331 [5].

4.3.19.17 *directSCellActivation-r15*

This field defines whether the UE supports having an SCell configured in activated SCell state, as defined in TS 36.321 [4] and TS 36.331 [5].

4.3.19.18 *directSCellHibernation-r15*

This field defines whether the UE supports having an SCell configured in dormant SCell state, as defined in TS 36.321 [4] and TS 36.331 [5]. A UE that indicates support for this shall also indicate support for *dormantSCellState-r15*.

4.3.19.19 *sps-ServingCell-r15*

This field indicates whether the UE supports multiple UL/DL SPS configurations simultaneously active on different serving cells as specified in TS 36.321 [4].

4.3.19.20 *extendedLCID-Duplication-r15*

This field indicates whether the UE supports use of extended LCIDs 11-17 for PDCP duplication.

4.3.20 Dual Connectivity parameters

4.3.20.1 *drb-TypeSplit-r12*

This field defines whether the DRB type of Split bearer is supported by the UE which is capable of DC.

4.3.20.2 *drb-TypeSCG-r12*

This field defines whether the DRB type of SCG bearer is supported by the UE which is capable of DC.

4.3.20.3 *pdcp-TransferSplitUL-r13*

This field defines whether the PDCP data transfer toward both CGs for split bearer in UL as specified in TS 36.323 [2] is supported by the UE which is capable of DC. This field is only applicable for UEs supporting the DRB type of Split bearer.

4.3.20.4 *ue-SSTD-Meas-r13*

This field defines whether the SSTD measurement between the PCell and the PSCell is supported by the UE which is capable of DC.

4.3.21 Sidelink parameters

4.3.21.1 *commSupportedBands-r12*

This field indicates the bands on which the UE supports sidelink communication, as defined in TS 23.303 [24] and specified in TS 36.331 [5]. If a UE supports sidelink communication on at least one band, the UE shall support sidelink communication transmission based on UE autonomous resource selection, eNB scheduled resource allocation, ProSe Per Packet Priority (PPPP) handling and out of coverage sidelink discovery. If a UE supports sidelink communication, the UE shall support 16 sidelink processes for reception of SL-SCH.

4.3.21.2 *commSimultaneousTx-r12*

This parameter indicates whether the UE supports simultaneous transmission of EUTRA and sidelink communication (on different carriers) in all bands for which the UE indicated simultaneous sidelink and EUTRA support in a band combination (using *commSupportedBandsPerBC*).

4.3.21.3 *discSupportedBands-r12*

This field indicates the bands on which the UE supports sidelink discovery, as defined in TS 23.303 [24] and specified in TS 36.331 [5].

4.3.21.4 *discScheduledResourceAlloc-r12*

This parameter indicates whether UE supports transmission of discovery announcements based on network scheduled resource allocation. It is mandatory for UEs of this release of the specification to support this feature if sidelink discovery is supported on at least one band (indicated by *discSupportedBands-r12*).

4.3.21.5 *disc-UE-SelectedResourceAlloc-r12*

This parameter indicates whether UE supports transmission of discovery announcements based on UE autonomous resource selection. It is mandatory for UEs of this release of the specification to support this feature if sidelink discovery is supported on at least one band (indicated by *discSupportedBands-r12*).

4.3.21.6 *disc-SLSS-r12*

This parameter indicates whether the UE supports SideLink Synchronization Signal (SLSS) transmission and reception for sidelink discovery.

4.3.21.7 *discSupportedProc-r12*

This parameter indicates the number of processes supported by the UE for reception of sidelink discovery. This field shall be present if sidelink discovery is supported on at least one band (indicated by *discSupportedBands-r12*).

4.3.21.8 *commMultipleTx-r13*

This parameter indicates whether the UE supports multiple transmissions of sidelink communication to different destinations in one SC period. If *commMultipleTx-r13* is set to supported then the UE supports 8 transmitting sidelink processes.

4.3.21.9 *discInterFreqTx-r13*

This parameter indicates whether the UE supports sidelink discovery announcements either a) on the primary frequency only or b) on other frequencies also, regardless of the UE configuration (e.g. CA, DC). The UE may set *discInterFreqTx-r13* to supported when having a separate transmitter or if it can request sidelink discovery transmission gaps.

4.3.21.10 *discPeriodicSLSS-r13*

This parameter indicates whether the UE supports periodic Sidelink Synchronization Signal (SLSS) transmission and reception for sidelink discovery. It is mandatory for UEs to support this feature if sidelink PS discovery is supported and it is optional otherwise.

4.3.21.11 *discSysInfoReporting-r13*

This parameter indicates whether the UE supports reporting of System Information for inter-frequency/PLMN sidelink discovery.

4.3.21.12 *zoneBasedPoolSelection-r14*

This parameter indicates whether the UE supports zone based transmission resource pool selection for V2X sidelink communication.

4.3.21.13 *v2x-HighReception-r14*

This parameter indicates whether the UE supports reception of 20 PSCCH in a subframe and decoding of 136 RBs per subframe counting both PSCCH and PSSCH in a band for V2X sidelink communication.

4.3.21.14 *v2x-eNB-Scheduled-r14*

This parameter indicates whether the UE supports transmitting PSCCH/PSSCH using dynamic scheduling, SPS in eNB scheduled mode for V2X sidelink communication, reporting SPS assistance information and the UE supports maximum transmit power associated with Power class 3 V2X UE, see TS 36.101 [6] in a band.

4.3.21.15 *ue-AutonomousWithFullSensing-r14*

This parameter indicates whether the UE supports transmitting PSCCH/PSSCH using UE autonomous resource selection mode with full sensing (i.e., continuous channel monitoring) for V2X sidelink communication and the UE supports maximum transmit power associated with Power class 3 V2X UE, see TS 36.101 [6].

4.3.21.16 *ue-AutonomousWithPartialSensing-r14*

This parameters indicates whether the UE supports transmitting PSCCH/PSSCH using UE autonomous resource selection mode with partial sensing (i.e., channel monitoring in a limited set of subframes) for V2X sidelink communication and the UE supports maximum transmit power associated with Power class 3 V2X UE, see TS 36.101 [6].

4.3.21.17 *slss-TxRx-r14*

This parameter indicates whether the UE supports SLSS/PSBCH transmission and reception in UE autonomous resource selection mode and eNB scheduled mode for V2X sidelink communication.

4.3.21.18 *sl-CongestionControl-r14*

This parameter indicates whether the UE supports Channel Busy Ratio measurement and reporting of Channel Busy Ratio measurement to eNB for V2X sidelink communication.

4.3.21.19 *v2x-TxWithShortResvInterval-r14*

This parameter indicates whether the UE supports 20 ms and 50 ms resource reservation periods for UE autonomous resource selection and eNB scheduled resource allocation for V2X sidelink communication.

4.3.21.20 *v2x-numberTxRxTiming-r14*

This parameter indicates the number of multiple reference TX/RX timings counted over all the configured sidelink carriers for V2X sidelink communication.

4.3.21.21 *v2x-nonAdjacentPSCCH-PSSCH-r14*

This parameter indicates whether the UE supports transmission and reception in the configuration of non-adjacent PSCCH and PSSCH for V2X sidelink communication.

4.3.21.22 *v2x-HighPower-r14*

This parameter indicates whether the UE supports maximum transmit power associated with Power class 2 V2X UE for V2X sidelink transmission in a band, see TS 36.101 [6].

4.3.21.23 *v2x-SupportedBandCombinationList-r14*

This field indicates the bands on which the UE supports V2X sidelink communication, as defined in TS 23.285 [29] and specified in TS 36.331 [5]. If a UE supports V2X sidelink communication, the UE shall support a maximum number of 8 sidelink processes associated with the Sidelink HARQ Entity for the transmission of V2X sidelink communication on SL-SCH.

4.3.21.24 *slss-SupportedTxFreq-r15*

This parameter indicates whether the UE supports the SLSS transmission on single carrier or on multiple carriers in the case of sidelink carrier aggregation.

4.3.21.25 *sl-64QAM-Tx-r15*

This parameter indicates whether the UE supports 64QAM for the transmission of V2X sidelink communication.

4.3.21.26 *sl-TxDiversity-r15*

This parameter indicates whether the UE supports transmit diversity for V2X sidelink communication. See TS 36.101 [6].

4.3.21.27 *v2x-EnhancedHighReception-r15*

This parameter indicates whether the UE supports reception of 30 PSCCH in a subframe and decoding of 204 RBs per subframe counting both PSCCH and PSSCH in a band for V2X sidelink communication.

4.3.22 SC-PTM parameters

4.3.22.1 *scptm-ParallelReception-r13*

This parameter defines whether UEs supporting SC-PTM support the parallel reception of DL-SCH transport block(s) associated with G-RNTI/SC-RNTI and DL-SCH transport block(s) associated with C-RNTI/Semi-Persistent Scheduling C-RNTI as well as the parallel reception of multiple DL-SCH transport blocks associated with G-RNTI/SC-RNTI in the same subframe. In SC-PTM operation, the DL-SCH processing capability is shared between the DL-SCH transport block(s) associated with G-RNTI/SC-RNTI and the DL-SCH transport block(s) associated with C-RNTI/Semi-Persistent Scheduling C-RNTI. A UE that supports *scptm-ParallelReception-r13* shall also support SC-PTM reception in RRC_CONNECTED and in RRC_IDLE according to SC-PTM procedures as specified in TS 36.331 [5], TS 36.321 [4] and TS 36.304 [14].

4.3.22.2 Void

4.3.22.3 *scptm-SCell-r13*

This parameter defines whether UEs supporting SC-PTM support in RRC_CONNECTED, MBMS reception via SC-PTM on a frequency indicated in an *MBMSInterestIndication* message, when an SCell is configured on that frequency (regardless of whether the SCell is activated or deactivated), as specified in TS 36.331 [5].

4.3.22.4 *scptm-NonServingCell-r13*

This parameter defines whether UEs supporting SC-PTM support in RRC_CONNECTED, MBMS reception via SC-PTM on a frequency indicated in an *MBMSInterestIndication* message, where (according to *supportedBandCombination* and to network synchronization properties) a serving cell may be additionally configured, as specified in TS 36.331 [5]. If this is supported, the UE shall also support MBMS reception via SC-PTM on a frequency when an SCell is configured on that frequency (regardless of whether the SCell is activated or deactivated), as specified in TS 36.331 [5].

4.3.22.5 scptm-AsyncDC-r13

This parameter defines whether the UE in RRC_CONNECTED supports MBMS reception via SC-PTM on a frequency indicated in an *MBMSInterestIndication* message, where according to *supportedBandCombination*, the carriers are configured or can be configured as serving cells in the MCG and the SCG which are not synchronized, specified in TS 36.331 [5]. In this release of specification, it is mandatory to support this according to *MBMSInterestIndication* and indicated *supportedBandCombination*.

4.3.23 LAA parameters

4.3.23.1 *downlinkLAA-r13*

This field defines whether the UE supports downlink LAA operation including identification of downlink transmissions on LAA cell(s) for full downlink subframes, decoding of common downlink control signalling on LAA cell(s), CSI feedback for LAA cell(s), RRM measurements on LAA cell(s) based on CRS-based DRS.

4.3.23.2 *crossCarrierSchedulingLAA-DL-r13*

This field defines whether the UE supports cross-carrier scheduling from a licensed carrier for LAA cell(s). This field is only applicable if the UE supports downlink LAA operation.

4.3.23.3 *csi-RS-DRS-RRM-MeasurementsLAA-r13*

This field defines whether the UE supports performing RRM measurements on LAA cell(s) based on CSI-RS-based DRS. This field is only applicable if the UE supports downlink LAA operation.

4.3.23.4 *endingDwPTS-r13*

This field defines whether the UE supports reception ending with a subframe occupied for a DwPTS-duration on LAA cell(s) as described in TS 36.211 [17] and TS 36.213 [22]. This field is only applicable if the UE supports downlink LAA operation.

4.3.23.5 *secondSlotStartingPosition-r13*

This field defines whether the UE supports reception of subframes with second slot starting position on LAA cell(s) as described in TS 36.211 [17] and TS 36.213 [22]. This field is only applicable if the UE supports downlink LAA operation.

4.3.23.6 *tm9-LAA-r13*

This field defines whether the UE supports tm9 operation on LAA cell(s). This field is only applicable if the UE supports downlink LAA operation.

4.3.23.7 *tm10-LAA-r13*

This field defines whether the UE supports tm10 operation on LAA cell(s). This field is only applicable if the UE supports downlink LAA operation.

4.3.23.8 *uplinkLAA-r14*

This field defines whether the UE supports uplink LAA operation.

4.3.23.9 *crossCarrierSchedulingLAA-UL-r14*

This field defines whether the UE supports cross-carrier scheduling from a licensed carrier for LAA cell(s) for uplink. This field is only applicable if the UE supports uplink LAA operation.

4.3.23.10 *twoStepSchedulingTimingInfo-r14*

This field defines whether the UE supports two step uplink scheduling using PUSCH trigger A and PUSCH trigger B as defined in TS 36.213 [22]. This field also defines the timing between reception of a PUSCH trigger B and the earliest time the UE supports performing the associated UL transmission. This field is only applicable if the UE supports uplink LAA operation.

4.3.23.11 *uss-BlindDecodingAdjustment-r14*

This field defines whether the UE supports blind decoding adjustment on UE specific search space as defined in TS 36.213 [22]. This field is only applicable if the UE supports uplink LAA operation.

4.3.23.12 *uss-BlindDecodingReduction-r14*

This field defines whether the UE supports blind decoding reduction on UE specific search space by not monitoring DCI format 0A/0B/4A/4B as defined in TS 36.213 [22]. This field is only applicable if the UE supports uplink LAA operation.

4.3.23.13 *outOfSequenceGrantHandling-r14*

This field defines whether the UE supports PUSCH transmissions with out of sequence UL grants as defined in TS 36.213 [22]. This field is only applicable if the UE supports uplink LAA operation.

4.3.23.14 *aul-r15*

This field defines whether the UE supports Autonomous Uplink as defined in TS 36.321 [4]. This field is only applicable if the UE supports uplink LAA operation.

4.3.23.15 *laa-PUSCH-Mode1-r15*

This field defines whether the UE supports LAA PUSCH Mode 1 as defined in TS 36.213 [22]. This field is only applicable if the UE supports uplink LAA operation.

4.3.23.16 *laa-PUSCH-Mode2-r15*

This field defines whether the UE supports LAA PUSCH Mode 2 as defined in TS 36.213 [22]. This field is only applicable if the UE supports uplink LAA operation.

4.3.23.17 *laa-PUSCH-Mode3-r15*

This field defines whether the UE supports LAA PUSCH Mode 3 as defined in TS 36.213 [22]. This field is only applicable if the UE supports uplink LAA operation.

4.3.24 LWIP parameters

4.3.24.1 *lwip-r13*

This field defines whether the UE supports LWIP operation. A UE which supports LWIP operation shall also support WLAN measurements.

4.3.24.2 *lwip-Aggregation-UL-r14*

This field defines whether the UE supports aggregation over LWIP in uplink. A UE which supports aggregation over LWIP uplink shall also support LWIP operation.

4.3.24.3 *lwip-Aggregation-DL-r14*

This field defines whether the UE supports aggregation over LWIP in downlink. A UE which supports aggregation over LWIP downlink shall also support LWIP operation.

4.3.25 LWA parameters

4.3.25.1 *lwa-r13*

This parameter defines whether the UE supports LWA as specified in TS 36.331 [5]. A UE that supports LWA shall also support WLAN measurements. A UE that supports LWA shall also support switched bearer operation.

4.3.25.2 *lwa-SplitBearer-r13*

Only applicable if the UE supports LWA. This parameter defines whether the UE supports split bearer operation in LWA, i.e. the capability to receive data transmission for the same DRB on both LTE and WLAN simultaneously.

4.3.25.3 *lwa-BufferSize-r13*

Only applicable if the UE supports LWA. This field indicates whether the UE supports the layer 2 buffer sizes corresponding to "with support for split bearers" columns defined in Tables 4.1-3 and 4.1A-3.

4.3.25.4 *wlan-MAC-Address-r13*

Only applicable if the UE supports LWA. This parameter defines the WLAN MAC address of the UE.

4.3.25.5 *lwa-HO-WithoutWT-Change-r14*

Only applicable if the UE supports LWA. This parameter indicates whether the UE supports enhancements to HO operation without WT change for LWA operation as specified in TS36.331 [5].

4.3.25.6 *lwa-UL-r14*

Only applicable if the UE supports LWA. This parameter indicates whether the UE supports LWA bearer in the UL.

4.3.25.7 *Void*

4.3.25.8 *wlan-SupportedDataRate-r14*

Only applicable if the UE supports LWA. This parameter indicates the maximum WLAN data rate supported by the UE for LWA operation.

4.3.25.9 *lwa-RLC-UM-r14*

Only applicable if the UE supports LWA. This parameter indicates whether the UE supports RLC UM for LWA bearer.

4.3.26 Void

4.3.26.1 Void

4.3.27 Inter-RAT parameters WLAN

4.3.27.1 *supportedBandListWLAN-r13*

Only applicable if the UE supports WLAN. This field defines which WLAN frequency bands are supported by the UE.

4.3.28 EBF FD-MIMO parameters

4.3.28.1 *beamformed-r13*

Indicates the UE capabilities concerning beamformed EBF/ FD-MIMO operation (class B), see TS 36.213 [22, 7.2.5]. The capabilities comprise of a list of pairs of {k-Max, n-MaxList} values with the n^{th} entry indicating the values that the UE supports for each CSI process in case n CSI processes would be configured, with:

- k-Max: Indicating the maximum number of NZP CSI RS resource configurations supported
- n-Max: Indicating the maximum number of NZP CSI RS ports supported within a CSI process.

The capability parameters are provided separately per transmission mode (TM9, TM10). The capability parameters may also be provided per band combination. Furthermore, capability parameters may be provided per UE, which are applicable for band combinations for which the concerned capabilities are not signalled.

4.3.28.2 *channelMeasRestriction-r13*

Indicates whether the UE supports channel measurement restriction, see TS 36.213 [22, 7.2.3]. The capability parameter is provided separately per transmission mode (TM9, TM10).

4.3.28.3 *csi-RS-EnhancementsTDD-r13*

Indicates whether the UE supports CSI-RS enhancements applicable for TDD, see TS 36.211 [17, 6.10.5]. The capability parameter is provided separately per transmission mode (TM9, TM10).

4.3.28.4 *dmrs-Enhancements-r13*

Indicates whether the UE supports DMRS enhancements for the indicated transmission mode, see TS 36.213 [22, 7.1.5B] and TS 36.212 [26, 5.3.3.1.5C/ D].

The capability parameter is provided separately per transmission mode (TM9, TM10). The capability parameter may also be provided per band combination. Furthermore, a capability parameter may be provided per UE, which is applicable for band combinations for which the concerned capabilities are not signalled.

This field is absent when the FD-MIMO capability is provided as part of sTTI/sPT band combinations.

4.3.28.5 *interferenceMeasRestriction-r13*

Indicates whether the UE supports interference measurement restriction, see TS 36.213 [22, 7.2].

4.3.28.6 *nonPrecoded-r13*

Indicates the UE capabilities concerning non-precoded EBF/ FD-MIMO operation (class A) for band combinations for which the concerned capabilities are not signalled, see TS 36.213 [22, 7.2].

- config1: Indicates support of configuration 1.
- config2: Indicates support of configuration 2.
- config3: Indicates support of configuration 3.
- config4: Indicates support of configuration 4.

The capability parameters are provided separately per transmission mode (TM9, TM10). The capability parameters may also be provided per band combination. Furthermore, capability parameters may be provided per UE, which are applicable for band combinations for which the concerned capabilities are not signalled.

4.3.28.7 *srs-Enhancements-r13*

Indicates for a particular transmission mode whether the UE supports SRS enhancements, see TS 36.211 [17, 5.5.3].

4.3.28.8 *srs-EnhancementsTDD-r13*

Indicates for a particular transmission mode whether the UE supports TDD specific SRS enhancements, see TS 36.211 [17, 4.2 and 5.5.3].

4.3.28.9 *csi-ReportingAdvanced-r14*, *csi-ReportingAdvancedMaxPorts-r14*

Indicates the maximum number of CSI-RS ports supported by the UE for advanced CSI reporting. The capability parameter is provided per band of a band combination. The capability parameter is provided separately per transmission mode (TM9, TM10).

UE shall not include both *csi-ReportingAdvanced-r14* and *csi-ReportingAdvancedMaxPorts-r14* for a band of a band combination. The field *csi-ReportingAdvanced-r14* is included to indicate the UE supports advanced CSI reporting with 32 ports in the band of the band combination.

4.3.28.10 *mimo-CBSR-AdvancedCSI -r15*

Indicates whether UE supports CBSR for advanced CSI reporting with and without amplitude restriction as defined in TS 36.213 [22], clause 7.2.

4.3.29 CE parameters

4.3.29.1 *ce-ModeA-r13*

This field defines whether the UE supports operation in coverage enhancement mode A, as specified in TS 36.211 [17], TS 36.213 [22] and TS 36.331 [5], and PRACH CE levels 0 and 1 at Random Access, as specified in TS 36.321 [4]. It is mandatory for UEs of DL category M1, UL category M1, DL category M2 and UL category M2

4.3.29.2 *ce-ModeB-r13*

This field defines whether the UE supports operation in coverage enhancement mode B, as specified in TS 36.211 [17], TS 36.213 [22] and TS 36.331 [5], and PRACH CE levels 2 and 3 at Random Access, as specified in TS 36.321 [4]. A UE indicating support of *ce-ModeB-r13* shall also indicate support of *ce-ModeA-r13*.

4.3.29.3 *intraFreqA3-CE-ModeA-r13*

This field defines whether the UE when operating in CE Mode A supports *eventA3* for intra-frequency neighbouring cells in normal coverage and CE Mode A, as specified in TS 36.331 [5] and TS 36.133 [16]. It is mandatory for UEs of this release if *ce-ModeA-r13* is supported.

4.3.29.4 *intraFreqA3-CE-ModeB-r13*

This field defines whether the UE when operating in CE Mode B supports *eventA3* for intra-frequency neighbouring cells in normal coverage, CE Mode A and CE Mode B, as specified in TS 36.331 [5] and TS 36.133 [16]. It is mandatory for UEs of this release if *ce-ModeB-r13* is supported.

4.3.29.5 *intraFreqHO-CE-ModeA-r13*

This field defines whether the UE when operating in CE Mode A supports intra-frequency handover to target cell in normal coverage and CE Mode A, as specified in TS 36.331 [5] and TS 36.133 [16]. It is mandatory for UEs of this release if *ce-ModeA-r13* is supported.

4.3.29.6 *intraFreqHO-CE-ModeB-r13*

This field defines whether the UE when operating in CE Mode B supports intra-frequency handover to target cell in normal coverage, CE Mode A or CE Mode B, as specified in TS 36.331 [5] and TS 36.133 [16]. It is mandatory for UEs of this release if *ce-ModeB-r13* is supported.

4.3.29.7 *ue-CE-NeedULGaps-r13*

This field defines whether the UE needs UL gaps during continuous uplink transmission in half-duplex FDD as specified in TS 36.331 [5] and TS 36.211 [17].

4.3.29.8 *unicastFrequencyHopping-r13*

This field, and a specific MAC header field LCID value specified in TS 36.321 [4], define whether the UE supports frequency hopping for unicast MPDCCH/PDSCH (configured by *mpdcch-pdsch-HoppingConfig*) and unicast PUSCH (configured by *pusch-HoppingConfig*). It is mandatory for UEs of this release of the specification if *ce-ModeA-r13* and/or *ce-ModeB-r13* is supported.

4.3.29.9 *ce-SwitchWithoutHO-r14*

This field defines whether the UE supports switching between normal and CE mode without a handover as specified in TS 36.331 [5]. A UE indicating support of *ce-SwitchWithoutHO-r14* shall also indicate support of *ce-ModeA-r13* except for UEs of DL category M1, UL category M1, DL category M2 or UL category M2.

4.3.29.10 *tm9-CE-ModeA-r13*

This field indicates whether the UE supports tm9 operation in CE mode A as specified in TS 36.213 [22], TS 36.321 [4] and TS 36.331 [5]. A UE indicating support of *tm9-CE-ModeA-r13* shall also indicate support of *ce-ModeA-r13*.

4.3.29.11 *tm9-CE-ModeB-r13*

This field indicates whether the UE supports tm9 operation in CE mode B as specified in TS 36.213 [22], TS 36.321 [4] and TS 36.331 [5]. A UE indicating support of *tm9-CE-ModeB-r13* shall also indicate support of *ce-ModeB-r13* and *tm9-CE-ModeA-r13*.

4.3.29.12 *tm6-CE-ModeA-r13*

This field indicates whether the UE supports tm6 operation in CE mode A as specified in TS 36.213 [22] and TS 36.331 [5]. A UE indicating support of *tm6-CE-ModeA-r13* shall also indicate support of *ce-ModeA-r13*.

4.3.30 Mobility enhancement parameters

4.3.30.1 *makeBeforeBreak-r14*

This field defines whether the UE supports Make-Before-Break handover and, if the UE supports DC, Make-Before-Break SeNB change, as specified in TS 36.331 [5].

4.3.30.2 *rach-Less-r14*

This field defines whether the UE supports RACH-less handover and, if the UE supports DC, RACH-less SeNB change, as specified in TS 36.213 [22] and TS 36.331 [5].

4.3.31 Void

4.3.31.1 Void

4.3.31.2 Void

4.3.32 MMTEL parameters

4.3.32.1 *delayBudgetReporting-r14*

This field defines whether the UE supports delay budget reporting as specified in TS 36.331 [5].

4.3.32.2 *pusch-Enhancements-r14*

This field defines whether the UE supports the PUSCH enhancement mode as specified in TS 36.211 [17] and TS 36.213 [22].

4.3.32.3 *recommendedBitRate-r14*

This field defines whether the UE supports the bit rate recommendation message from the eNB to the UE as specified in TS 36.321 [4, 6.1.3.13].

4.3.32.4 *recommendedBitRateQuery-r14*

This field defines whether the UE supports the bit rate recommendation query message from the UE to the eNB as specified in TS 36.321 [4, 6.1.3.13]. This field is only applicable if the UE supports *recommendedBitRate-r14*.

4.3.33 High speed enhancement parameters

4.3.33.1 *measurementEnhancements-r14*

This field defines whether UE supports measurement enhancements in high speed scenario as specified in TS 36.133 [16].

4.3.33.2 *demodulationEnhancements-r14*

This field defines whether the UE supports advanced receiver in SFN scenario as specified in TS 36.101 [6].

4.3.33.3 *prach-Enhancements-r14*

This field defines whether the UE supports random access preambles generated from restricted set type B in high speed scenoario as specified in TS 36.211 [17].

4.3.34 Inter-RAT Parameters NR

4.3.34.1 *en-DC-r15*

This field indicates whether UE supports E-UTRA NR Dual Connectivity as specified in TS 36.331 [5] and TS 38.331 [32].

4.3.34.2 *supportedBandListNR-r15*

Only applicable if the UE supports NR. This field includes the supported NR bands as defined in TS 38.101-1 [33] and TS 38.101-2 [34].

4.3.35 FeCoMP Parameters

4.3.35.1 *qcl-CRI-BasedCSI-Reporting-r15*

This field indicates whether the UE supports CRI based CSI feedback for the FeCoMP feature as specified in TS 36.213 [23], clause 7.1.10.

4.3.35.2 *qcl-TypeC-Operation-r15*

This field indicates the support of the following three UE features: QCL Type-C operation for FeCoMP, the capability to support separate PDSCH RE mapping for different PDSCH CWs in non-coherent joint transmission and the capability to support handling new DMRS port to MIMO layer mapping for the CWs, as specified in TS 36.213 [23], clause 7.1.10. The UE includes this field only when all three features are supported by the UE.

5 Void

6 Optional features without UE radio access capability parameters

The following subclauses list the optional UE features not having UE radio access capability.

NOTE: This chapter does not yet contain complete analysis of all features of this release of specification.

6.1 CSG features

It is optional for UE to support some parts of CSG cell and hybrid cell reselection features as specified in TS 36.331 [5, B.2].

6.2 PWS features

6.2.1 ETWS

It is optional for UE to support ETWS reception as specified in TS 36.331 [5].

6.2.2 CMAS

It is optional for UE to support CMAS reception as specified in TS 36.331 [5]. It is optional for a CMAS-capable UE to support Geofencing information (*warningAreaCoordinates-r15*) as specified in TS 36.331 [5].

6.2.3 KPAS

It is optional for UE to support KPAS reception as specified in TS 36.331 [5]. The Korean Public Alert System (KPAS) uses the same AS mechanisms as defined for CMAS. Therefore a KPAS-capable UE shall support all behaviour that is included in TS 36.331 [5] and TS 36.304 [14] for a CMAS-capable UE.

6.2.4 EU-Alert

It is optional for UE to support EU-Alert reception as specified in TS 36.331 [5]. The Europearn Union Warning System EU-Alert uses the same AS mechanisms as defined for CMAS. Therefore a EU-Alert-capable UE shall support all behaviour that is included in TS 36.331 [5] and TS 36.304 [14] for a CMAS-capable UE.

6.3 MBMS features

It is optional for UE to support MBMS procedures as specified in TS 36.331 [5].

6.3.1 MBMS Service Continuity

It is optional for UE to support MBMS Service Continuity for UEs supporting MBMS as specified in TS 36.331 [5].

6.3.2 MBMS reception with 256QAM

It is optional to support MBMS reception with 256QAM for UEs supporting MBMS. A UE which supports MBMS reception with 256QAM shall also support *dl-256QAM-r12* as specified in TS 36.331 [5], except UEs configured to operate in Receive Only Mode as defined in TS 23.246 [31].

6.4 Void

6.5 Positioning features

6.5.0 Void

6.5.1 Void

6.6 UE receiver features

6.6.1 MMSE with IRC receiver

It is optional for UE to support MMSE with IRC receiver for all PDSCH transmission modes except for transmission mode 9.

6.6.2 MMSE with IRC receiver for PDSCH transmission mode 9

It is optional for UE to support MMSE with IRC receiver for PDSCH transmission mode 9, if the UE supports MMSE with IRC receiver as described in subclause 6.6.1.

6.6.3 Single-user MIMO interference mitigation advanced receiver for UEs with 2 receiver antenna ports

It is optional for UE with 2 receiver antenna ports to support receivers with enhanced inter-stream interference suppression for SU-MIMO PDSCH with rank 2 (Enhanced performance requirements Type C for 2 receiver antenna ports capable UEs in the TS 36.101 [6]).

6.6.4 Single-user MIMO interference mitigation advanced receiver for UEs with 4 receiver antenna ports

It is optional for UE with 4 receiver antenna ports to support R-ML receivers with enhanced inter-stream interference suppression for SU-MIMO PDSCH with rank 2, 3, and 4 (Enhanced performance requirements Type C for 4 receiver antenna ports capable UEs in the TS 36.101 [6]).

6.6.5 MMSE-IRC DL Control Channel interference mitigation receiver for UEs with 4 receiver antenna ports

It is optional for UE with 4 receiver antenna ports to support MMSE-IRC DL Control Channel interference mitigation receivers for UEs with 4 receiver ports (Enhanced downlink control channel performance requirements Type A for 4 receiver antenna ports capable UEs in the TS 36.101 [6]).

6.7 RRC Connection

6.7.1 RRC Connection Reject with deprioritisation

It is optional for UE to support *RRCConnectionReject with deprioritisationReq* as specified in TS 36.331 [5].

6.7.2 RRC Connection Establishment Failure Temporary Qoffset

It is optional for UE to support RRC Connection Establishment failure temporary Qoffset as specified in TS 36.331 [5].

6.7.3 *mo-VoiceCall* establishment cause for mobile originating MMTEL video

It is optional for UE to support *mo-VoiceCall* establishment cause for mobile originating MMTEL video as specified in TS 36.331 [5].

6.7.4 *mo-VoiceCall* establishment cause for mobile originating MMTEL voice

It is optional for UE to support mo-VoiceCall establishment cause for mobile originating MMTEL voice as specified in TS 36.331 [5].

6.7.5 RRC Connection Re-establishment for the Control Plane CIoT EPS Optimization

It is optional for UE to support *RRCConnectionReestablishment* for the Control Plane CIoT EPS Optimization as specified in TS 36.331 [5]. This feature is only applicable if the UE supports any *ue-Category-NB*.

6.8 Other features

6.8.1 System Information Block Type 16

It is optional for UE, including UEs of any *ue- Category-NB*, to support the reception of *SystemInformationBlockType16* as specified in TS 36.331 [5].

6.8.2 QCI1 indication in Radio Link Failure Report

It is optional for the UE to include *drb-EstablishedWithQCI-1* in *RLF-Report* as specified in TS 36.331 [5].

6.8.3 Enhanced random access power control

It is optional for UE to support enhanced random access power control for FDD as specified in TS 36.321 [4] and TS 36.213 [22, 16.2.1.1.1 & 16.3.1]. This feature is only applicable if the UE supports any *ue-Category-NB*.

6.8.4 EDT for Control Plane CIoT EPS Optimization

It is optional for UE to support EDT for Control Plane CIoT EPS optimizations for FDD, as defined in TS 24.301 [28]. This feature is only applicable if the UE supports any *ue-Category-NB*.

6.8.5 Void

6.8.6 Enhanced PHR

It is optional for UE to support enhanced PHR in MSG3 for FDD, as defined in TS 36.321 [4]. This feature is only applicable if the UE supports any *ue-Category-NB*.

6.8.7 EDT for Control Plane CIoT EPS Optimization

It is optional for UE to support EDT for Control Plane CIoT EPS optimizations, as defined in TS 24.301 [28]. This feature is only applicable if the UE supports *ce-ModeA-r13*.

6.9 Void

6.10 SON features

6.10.1 Radio Link Failure Report for inter-RAT MRO

It is optional for UE to include *previousUTRA-CellId* and *selectedUTRA-CellId* in *RLF-Report* upon request from the network as specified in TS 36.331 [5].

6.11 Mobility state features

6.11.1 Mobility history information storage

It is optional for UE to support the storage of mobility history information and the reporting in *UEInformationResponse* message as specified in TS 36.331 [5].

6.12 Void

6.13 Sidelink features

6.13.1 Sidelink Relay UE operation

It is optional for UE to support sidelink relay UE operation as specified in TS 36.331 [5].

6.13.2 Sidelink Remote UE operation

It is optional for UE to support sidelink remote UE operation as specified in TS 36.331 [5].

6.13.3 Sidelink discovery gap

It is optional for UE to support sidelink discovery gaps as specified in TS 36.331 [5].

6.14 DRX features

6.14.1 Extended DRX in RRC_IDLE

It is optional for UE to support extended DRX cycle values up to and beyond 10.24 seconds and paging in extended DRX in RRC_IDLE as specified in TS 36.331 [5] and TS 36.304 [14].

6.15 Load balancing features

6.15.1 Redistribution in RRC_IDLE

It is optional for UE to support redistribution in RRC_IDLE as specified in TS 36.331 [5] and TS 36.304 [14].

6.16 SC-PTM features

6.16.1 SC-PTM in Idle mode

It is optional for UE to support the SC-PTM reception in RRC_IDLE as specified in TS 36.331 [5]. This feature is only applicable if the UE supports UE category M1 or UE category M2 or if the UE supports coverage enhancements (*ce-ModeB-r13* and/or *ce-ModeA-r13*) or for FDD, if the UE supports any *ue-Category-NB*.

6.17 Idle mode measurements

6.17.1 Relaxed monitoring

It is optional for UE to support relaxed monitoring in RRC_IDLE as specified in TS 36.304 [14]. This feature is only applicable if the UE supports any *ue-Category-NB* or if the UE supports UE category M1 or UE category M2 or if the UE supports coverage enhancements (*ce-ModeB-r13* and/or *ce-ModeA-r13*).

6.17.2 DL channel quality reporting

It is optional for UE to support DL channel quality reporting of the serving cell for FDD, as specified in TS 36.331 [5]. This feature is only applicable if the UE supports any *ue-Category-NB*.

6.17.3 Serving cell idle mode measurements reporting

It is optional for UE to include *measResultServCell-r14* in *RRCConnectionRestablishmentComplete-NB, RRCConnectionResumeComplete-NB* and *RRCConnectionSetupComplete-NB messages* as specified in TS 36.331 [5]. This feature is only applicable if the UE supports any *ue-Category-NB*.

7 Conditionally Mandatory features

7.1 Access control features

7.1.1 SSAC

It is mandatory to support Service Specific Access Control subject to common and per PLMN access barring parameters as specified in TS 36.331 [5, 5.3.3.10] for UEs which are IMS voice capable in LTE.

7.1.2 CSFB Access Barring Control

It is mandatory to support CSFB Access Barring Control subject to common and per PLMN access barring parameters as specified in TS 36.331 [5, 5.3.3.2] for UEs which are supporting CSFB to UTRA or GERAN.

7.1.3 Extended Access Barring

It is mandatory to support Extended Access Barring check as specified in TS 36.331 [5, 5.3.3.12] for UEs which are supporting an access subject to Extended Access Barring.

7.1.4 ACDC

It is mandatory to support barring check for ACDC subject to common and per PLMN barring parameters for ACDC as specified in TS 36.331 [5, 5.3.3.13] for UEs which are supporting an access subject to ACDC.

7.2 Emergency call features

7.2.1 IMS emergency call

It is mandatory to support IMS emergency call for UEs which are IMS voice capable in LTE.

7.3 MAC features

7.3.1 SR mask

It is mandatory to support configuration indicated by *logicalChannelSR-Mask* for UE which have set bit number 29 of *featureGroupIndicators* to "1" as specified in TS 36.331 [5].

7.3.2 Power Management Indicator in PHR

Power management indicator in PHR is mandatory to support for UE applying additional power backoff due to power management (as allowed by $P\text{-}MPR_c$ [6]).

7.4 Inter-RAT Mobility features

7.4.1 High Priority CSFB redirection

It is mandatory to support the *RRCConnectionRelease* indicating *'cs-FallbackHighPriority'* for UEs which are supporting CSFB to UTRA as specified in TS 36.331 [5].

7.4.2 GERAN A/Gb mode to E-UTRAN Inter RAT handover (PS Handover)

It is mandatory to support at least parameter values corresponding to ue-Category 1 for UEs which are supporting GERAN A/Gb mode to E-UTRAN Inter RAT handover (PS Handover) as specified in TS 23.401 [18].

7.4.3 SRVCC to E-UTRAN from GERAN

It is mandatory to support at least parameter values corresponding to ue-Category 1, and ROHC profiles for an 'IMS capable UE supporting voice' as specified in subclause 4.3.1.1, for UEs which are supporting SRVCC to E-UTRAN from GERAN as specified in TS 23.216 [19].

NOTE: Requirements on functionality covered by Feature Group Indicators are specified in TS 36.331 [5, B.1].

7.5 Delay Tolerant Access Features

7.5.1 extendedWaitTime

It is mandatory to support the *RRCConnectionRelease* with *extendedWaitTime* and *RRCConnectionReject* with *extendedWaitTime* for UEs which support Delay Tolerant Access as specified in TS 36.331 [5].

7.6 RRC Connection

7.6.1 Void

7.7 Physical layer features

7.7.1 Different UL/ DL configuration for TDD inter-band carrier aggregation

It is mandatory to support different UL/ DL configuration for UEs supporting inter-band TDD carrier aggregation band combinations and for UEs supporting inter-band TDD dual connectivity band combinations within cell group(s) including at least two TDD bands.

7.7.2 Full duplex for TDD and FDD carrier aggregation

UE of this version of the specification shall be able to support simultaneous reception and transmission on different bands for each band combination including at least one FDD band and at least one TDD band.

7.7.3 Simultaneous transmission of PUCCH and PUSCH across PUCCH groups

It is mandatory to support simultaneous transmission of PUCCH and PUSCH across PUCCH groups if the UE indicates support for *pucch-SCell*.

7.7.4 Simultaneous transmission of PUCCH in licensed spectrum and PUSCH in LAA SCells

It is mandatory to support simultaneous transmission of PUCCH in licensed spectrum and PUSCH in LAA SCells if the UE supports uplink LAA operation. If the UE supports dual connectivity, this is applicable within each cell group.

7.8 Positioning features

7.8.1 OTDOA Inter-frequency RSTD measurement indication

It is mandatory to support delivery of *InterFreqRSTDMeasurementIndication* as specified in TS 36.331 [5, 5.5.7] for UEs indicating support for inter-frequency RSTD measurements for OTDOA as specified in TS 36.355 [13] and requiring measurement gaps for performing these measurements.

7.9 Void

7.9.1 Void

7.10 Other features

7.10.1 Logged MDT measurement suspension due to IDC interference

It is mandatory to support Logged MDT measurement suspension due to IDC interference for UEs which are supporting logged measurements in RRC_IDLE upon request from the network and in-device coexistence indication as well as autonomous denial functionality as specified in TS 36.331 [5].

7.10.2 Support of extended reporting of WLAN measurements

It is mandatory to support reporting of extended number of measurements of WLAN IDs for UEs which are supporting WLAN measurements as specified in TS 36.331 [5].

7.10.3 wlan-ReportAnyWLAN-r14

Indicates whether UE supports reporting of measurements of unknown WLAN as specified in TS 36.331 [5]. It is mandatory to support reporting of measurements of unknown WLAN ID for UEs which are supporting WLAN measurements as specified in TS 36.331 [5].

7.10.4 *wlan-PeriodicMeas-r14*

This parameter indicates whether the UE supports periodic reporting of WLAN measurements. It is mandatory to support periodic reporting of WLAN measurements for UEs which are supporting WLAN measurements as specified in TS 36.331 [5].

Annex A (informative): Guideline on maximum number of DL PDCP SDUs per TTI

In order to help the dimensioning of the UE design, values for the maximum number of DL PDCP SDUs per TTI from Table A-1 may be used. The values are applicable for a TTI length of 1 ms. For other TTI lengths, the table refers to maximum number of DL PDCP SDUs within a 1ms period.

NOTE: Due to the need for the network buffer data for efficient scheduling, values for Category 1, 1bis and 2 are same. It is not expected that category 1 or category 1bis UE has to sustain the same rate of PDCP SDUs per TTI as category 2 for prolonged period of time.

Table A-1: Maximum values for DL PDCP SDUs per TTI

UE Category / ue-CategoryDL	Maximum number of PDCP SDUs per TTI
Category 1	10
Category 1bis	10
Category 2	10
Category 3	20
Category 4 / DL Category 4	30
Category 5	50
Category 6 / DL Category 6	50
Category 7 / DL Category 7	50
Category 9 / DL Category 9	80
Category 10 / DL Category 10	80
Category 11 / DL Category 11	100
Category 12 / DL Category 12	100
DL Category 13	65
DL Category 15	130
DL Category 16	180
DL Category 18	200
DL Category 19	280
DL Category 20	360
DL Category 21	240

Annex B (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Cat**	**Subject/Comment**	**New version**
11/2007	RP-38	RP-070916				Presented for approval at TSG RAN-38	1.0.0
12/2007		-				Approved at TSG RAN-38 and placed under change control	8.0.0
03/2008	RP-39	RP-080194	0001	1		CR to 36.306 with Update to E-UTRA UE capabilities	8.1.0
05/2008	RP-40	RP-080409	0002	1		Update to E-UTRA UE capabilities: CR 0002r1 to 36.306 with status after RAN2 #62	8.2.0
03/2009	RP-43	RP-090126	0007	-		CR to remove the sections on MBMS	8.3.0
	RP-43	RP-090126	0008	-		Final values for L2 buffer sizes	8.3.0
	RP-43	RP-090126	0009	-		Various Corrections	8.3.0
	RP-43	RP-090126	0010	-		CR to update uplink transmit diversity (UE transmit antenna selection)	8.3.0
	RP-43	RP-090126	0011	-		Downlink PDCP SDU limitation	8.3.0
	RP-43	RP-090126	0014	-		Thoughts on UE capability for RoHC	8.3.0
	RP-43	RP-090126	0015	1		Capturing USIMless UE to stage 3	8.3.0
06/2009	RP-44	RP-090511	0016	2		Support of inter-RAT PS handover to GERAN Editor Note Removal	8.4.0
	RP-44	RP-090511	0017	1		Clarification of Half Duplex in TDD	8.4.0
	RP-44	RP-090511	0018	-		Correcting the maximum number of bits received during one TTI	8.4.0
	RP-44	RP-090511	0019	-		Clarification of field names used in TS 36.331	8.4.0
	RP-44	RP-090511	0021	-		Clarification on disabling E-UTRA capabilities with a USIM	8.4.0
09/2009	RP-45	RP-090906	0023	-		Unit for "Total layer 2 buffer size"	8.5.0
12/2009	RP-46	-	-			Upgrade to the Release 9 - no technical change	9.0.0
03/2010	RP-47	RP-100308	0024	1		CR to 36.306 on Optionality of Rel-9 UE features	9.1.0
	RP-47	RP-100308	0025	-		Introduction of power-limited device indication in UE capability.	9.1.0
	RP-47	RP-100308	0026	-		UE capability for enhanced 1xRTT CS fallback	9.1.0
	RP-47	RP-100285	0028	1		Bounds to RoHC requirements for IMS capable UEs supporting voice	9.1.0
	RP-47	RP-100309	0029	1		CR to 36.306 on Redirection enhancements to UTRAN	9.1.0
	RP-47	RP-100188	0030	1		Redirection enhancements to GERAN	9.1.0
06/2010	RP-48	RP-100556	0031	1		Clarification regarding / alignment of REL-9 UE capabilities	9.2.0
	RP-48	RP-100531	0033	-		Correction on the definition of ue-SpecificRefSigsSupported	9.2.0
09/2010	RP-49	RP-100853	0035	-		Clarification of MBMS UE capability	9.3.0
12/2010	RP-50	RP-101268	0037	-		Inclusion of new UE categories in Rel-10	10.0.0
03/2011	RP-51	RP-110290	0038	-		Description of carrier aggregation and MIMO capabilities	10.1.0
	RP-51	RP-110290	0039	-		L2 buffer sizes for Rel-10 categories	10.1.0
	RP-51	RP-110280	0041	-		CR to 36.306 adding UE capability indicator for dual Rx/Tx e1xCSFB	10.1.0
	RP-51	RP-110288	0042	1		UE UL&DL MIMO Capabilities	10.1.0
	RP-51	RP-110282	0043	-		Counter proposal to R2-110795 on UE capabilities for MDT	10.1.0
06/2011	RP-52	RP-110828	0048	-		Clarification of optionality of UE features without capability	10.2.0
	RP-52	RP-110830	0051	-		Options for CSFB to GSM	10.2.0
	RP-52	RP-110840	0056	1		CR to 36.306 on UE capabilities for Rel-10 LTE features	10.2.0
	RP-52	RP-110701	0058	2		CA and MIMO Capabilities in LTE Rel-10	10.2.0
	RP-52	RP-110839	0062	-		Introduction of UE capability for enhanced redirection to UTRA TDD	10.2.0
	RP-52	RP-110834	0063	2		Clarification of "supportedMIMO-CapabilityDL"	10.2.0
	RP-52	RP-110627	0064	-		Correction of "total number of soft channel bits" for category 6 and 7	10.2.0
09/2011	RP-53	RP-111291	0065	-		The SON feature in optional features without UE radio access capability parameters	10.3.0
	RP-53	RP-111283	0067	-		AdditionalSpectrumEmissions in CA	10.3.0
	RP-53	RP-111278	0069	-		Correction to UE capability parameters for handover to CSG cell	10.3.0
12/2011	RP-54	RP-111716	0070	1		Corrections to enhancedDualLayerTDD	10.4.0
	RP-54	RP-111710	0072	-		Optionality of SR Masking	10.4.0
	RP-54	RP-111709	0074	1		Optionality of UE Rx-Tx time difference report	10.4.0
	RP-54	RP-111714	0077	-		Correction to the number of soft channel bits	10.4.0
03/2012	RP-55	RP-120321	0078	-		Clarification on physical layer parameter values requirement	10.5.0
	RP-55	RP-120326	0080	1		Clarification on number of PDCP SDUs for categories 6-7 UEs	10.5.0
	RP-55	RP-120326	0082	-		UE processing requirement in the presence of MCH transmission	10.5.0
06/2012	RP-56	RP-120813	0090	-		Korean Public Alert System (KPAS) in relation to CMAS	10.6.0
	RP-56	RP-120813	0093	1		EU-Alert in relation to CMAS	11.0.0
09/2012	RP-57	RP-121359	0100	-		Voice support Capabilities	11.1.0
	RP-57	RP-121375	0103	-		Introducing MBMS enhancements	11.1.0
	RP-57	RP-121395	0105	-		Clarification on spatial multiplexing requirement in supportedBandCombination	11.1.0
12/2012	RP-58	RP-121936	0120	-		Power Management Indicator in PHR	11.2.0
	RP-58	RP-121936	0124	1		Clarification on UL CA in supportedBandCombination	11.2.0
	RP-58	RP-122002	0125	2		Introduction of Rel-11 UE features	11.2.0

	RP-58	RP-121960	0132	-		Broadcast of Time Info by Using a New SIB	11.2.0
03/2013	RP-59	RP-130243	0133	2		DL COMP capability related correction	11.3.0
	RP-59	RP-130233	0135	-		MIMO capability related correction	11.3.0
	RP-59	RP-130241	0137	-		Correction to supported DL MIMO capability for TM10	11.3.0
	RP-59	RP-130240	0138	-		Optional support of RLF report for inter-RAT MRO	11.3.0
	RP-59	RP-130248	0140	1		Corrections to UE capabiliy naming and definition	11.3.0
	RP-59	RP-130233	0142	-		Clarification on cross carrier scheduling capability	11.3.0
	RP-59	RP-130226	0146	-		Introduction of PDSCH TM5 capabilities for FDD and TDD	11.3.0
09/2013	RP-61	RP-131315	0151	-		Remove TBD in max MCH TB size table	11.4.0
	RP-61	RP-131314	0157	-		Clarification of InterFreqRSTDMeasurementIndication procedure support	11.4.0
12/2013	RP-62	RP-131986	0160	-		Introduction of capability bit for UTRA MFBI	11.5.0
	RP-62	RP-132003	0161	1		Capturing mandatory/optional agreements on Rel-11 UE features	11.5.0
	RP-62	RP-131991	0163	-		Clarification on eRedirection to UMTS TDD with multiple UMTS TDD frequencies	11.5.0
	RP-62	RP-131984	0165	-		Addition of inter-frequency RSTD measurement capability indicator for OTDOA	11.5.0
	RP-62	RP-131789	0166	1		MBMS reception on any configured or configurable SCell	11.5.0
	RP-62	RP-131993	0167	-		Enabling SRVCC from GERAN without forwarding UE-EUTRA-Capability	11.5.0
03/2014	RP-63	RP-140364	0168	1		New UE categories for DL 450Mbps class	11.6.0
	RP-63	RP-140349	0170	-		SS and common channel interference handling	11.6.0
	RP-63	RP-140354	0176	1		IoT indication for inter-band TDD CA with different UL/DL configuration	11.6.0
	RP-63	RP-140353	0173	1		Corrections to UE capability and feature descriptions	12.0.0
06/2014	RP-64	RP-140887	0181	-		Support of the enhancement for TTI bundling for FDD	12.1.0
	RP-64	RP-140888	0185	3		Alternative 1: Introduction of FDD/TDD CA full duplex support to 36.306	12.1.0
	RP-64	RP-140892	0190	1		Extended RLC LI field	12.1.0
	RP-64	RP-140873	0194	1		Network-requested CA Band Combination Capability Signalling	12.1.0
	RP-64	RP-140892	0196	1		Introduction of RRC Connection Establishment failure temporary Qoffset handling	12.1.0
	RP-64	RP-141028	0198	3		eMBMS reception on SCell and Non-Serving Cell	12.1.0
09/2014	RP-65	RP-141498	0218	1		The PDCP SDU number limitation for Category 9-10 UE	12.2.0
	RP-65	RP-141505	0215	-		UE capabilities for Hetnet mobility in TS 36.306	12.2.0
	RP-65	RP-141499	0212	-		Introduction of UE eIMTA capabilities	12.2.0
	RP-65	RP-141493	0205	-		Corrections to UE capabilities and features	12.2.0
	RP-65	RP-141507	0209	-		Introduction of MBSFN MDT capability	12.2.0
	RP-65	RP-141506	0207	2		Introduction of Category 0 for low complexity UEs	12.2.0
12.2014	RP-66	RP-142129	0225	-		Clarification on DL parallel reception of category 0 UEs	12.3.0
	RP-66	RP-142125	0228	-		Optional features for Hetnet mobility in TS 36.306	12.3.0
	RP-66	RP-142123	0230	-		Corrections to eIMTA capabilities	12.3.0
	RP-66	RP-142140	0243	-		Introduction of extended RSRQ value range and new RSRQ definition	12.3.0
	RP-66	RP-142132	0232	-		Support of Discovery Signals in TS 36.306	12.3.0
	RP-66	RP-142140	0247	-		Prohibit timer for SR	12.3.0
	RP-66	RP-142128	0241	1		UE capability for IncMon	12.3.0
	RP-66	RP-142115	0227	1		Introduction of capability for serving cell interruptions	12.3.0
	RP-66	RP-142134	0239	-		Introduction of missing Rel-12 UE capabilities	12.3.0
	RP-66	RP-142130	0245	1		Optionality support of UE mandatory features for Category 0 UEs	12.3.0
	RP-66	RP-142135	0238	1		Introduction of Dual Connectivity	12.3.0
	RP-66	RP-142139	0237	2		NAICS Capability	12.3.0
	RP-66	RP-142124	0229	2		Mandatory support of TTI bundling without resource allocation restriction for LTE coverage enhancements for Rel-12	12.3.0
	RP-66	RP-141981	0248	-		UE capability signaling for WLAN/3GPP radio interworking	12.3.0
	RP-66	RP-142232	0233	2		Support of 256QAM in TS 36.306	12.3.0
03/2015	RP-67	RP-150378	0265	-		UE capability for modified MPR behavior	12.4.0
	RP-67	RP-150373	0257	-		Correction to UE capabilities for Low Complexity UEs	12.4.0
	RP-67	RP-150373	0259	-		Clarification of TDD DC capability	12.4.0
	RP-67	RP-150373	0258	-		Extended number of measurement identities capability	12.4.0
	RP-67	RP-150373	0253	-		Introduction of total L2 buffer sizes for UEs supporting split bearers *NOTE: Modifications on L2 buffer sizes with support for split bearers for Cat 13-15 in Table 4.1-3 were moved to Table 4.1A-3 due to the clash with CR0261R1.*	12.4.0
	RP-67	RP-150374	0267	-		Introduction of ProSe	12.4.0
	RP-67	RP-150376	0266	1		Change related to configuration of the priority for frequency bands in mFBI	12.4.0
	RP-67	RP-150379	0261	1		Introduction of UL64QAM based on split of DL and UL categories	12.4.0
06/2015	RP-68	RP-150921	0269	-		Dual Connectivity L2 buffer size for category combinations with UL64QAM	12.5.0
	RP-68	RP-150917	0272	1		Corrections on MIMO capabilities	12.5.0
	RP-68	RP-150923	0277	-		Clarification on UL 64QAM capability	12.5.0
	RP-68	RP-150917	0276	-		UE support of CA fallback configurations	12.5.0
	RP-68	RP-150921	0283	1		Corrections on requirements of sidelink reception in TS 36.306	12.5.0
	RP-68	RP-150951	0280	1		Introduction of new DL UE categories 15&16	12.5.0
09/2015	RP-69	RP-151438	0287	-		Remove support of additionalSpectrumEmissionPCell	12.6.0
	RP-69	RP-151442	0288	-		Capturing PCell support for FDD-TDD CA	12.6.0
	RP-69	RP-151442	0292	-		Clarification of the maximum number of bits of a single DL-SCH transport block for DL Category 16	12.6.0

	RP-69	RP-151442	0293	-		Capturing mandatory/optional features of Rel-12 UEs	12.6.0
	RP-69	RP-151439	0298	-		CR for IDC signalling enhancement for UL CA	12.6.0
	RP-69	RP-151441	0289	1		Corrections on UE sidelink capabilities in TS 36.306	12.6.0
	RP-69	RP-151467	0290	2		Additional MIMO/CSI capability for intra-band contiguous CA	12.6.0
	RP-69	RP-151597	0296	3		Capability for 4-layer MIMO with TM3 and TM4	12.6.0
12/2015	RP-70	RP-152053	0309	-		Definitions of sidelink terminologies in TS 36.306	12.7.0
	RP-70	RP-152055	0310	-		Correction on categories in supportedBandCombination	12.7.0
	RP-70	RP-152048	0303	1		Clarification on support of extended wait time	12.7.0
	RP-70	RP-152053	0312	1		Clarification on tdd-FDD-CA-PCellDuplex	12.7.0
	RP-70	RP-152049	0299	2		Alternative new maximum transport block sizes for DL 64QAM and 256QAM in TM9/10	12.7.0
	RP-70	RP-152048	0318	-		Enabling multiple NS and P-Max operation per cell	12.7.0
	RP-70	RP-152055	0315	1		Correction on capability rsrq-OnAllSymbols	12.7.0
	RP-70	RP-152053	0313	1		Clarification on Pcell support	12.7.0
12/2015	RP-70	RP-152074	0301	1		Introduction of DC enhancement	13.0.0
	RP-70	RP-152078	0319	-		Introduction of Licensed-Assisted Access using LTE	13.0.0
	RP-70	RP-152075	0308	1		Introduction of RS-SINR measurements	13.0.0
	RP-70	RP-152080	0304	1		Introduction of SC-PTM	13.0.0
	RP-70	RP-152066	0314	-		Introduction of Application specific Congestion control for Data Communication in LTE	13.0.0
	RP-70	RP-152084	0311	1		White-list of cells for EUTRA measurement reporting	13.0.0
	RP-70	RP-152071	0305	2		Introduction of CA enhancement	13.0.0
	RP-70	RP-152076	0322	-		Introducing extended DRX	13.0.0
03/2016	RP-71	RP-160470	0323	1		Capture the UE capability for the extension of the MeasObjectId to 64	13.1.0
	RP-71	RP-160470	0330	-		Miscellaneous corrections to TS 36.306	13.1.0
	RP-71	RP-160460	0333	1		MDT enhancements support	13.1.0
	RP-71	RP-160460	0334	1		The introduction of UE capability concerning extended E-UTRA frequency priorities	13.1.0
	RP-71	RP-160459	0335	3		Introduction of LWIP UE capabilities	13.1.0
	RP-71	RP-160457	0337	2		Introducing LWA and RCLWI UE capabilities	13.1.0
	RP-71	RP-160460	0338	1		Leftover UE capabilities for LAA	13.1.0
	RP-71	RP-160470	0339	1		Minor corrections for CA enhancements	13.1.0
	RP-71	RP-160462	0341	1		Reference errors for inter-RAT capabilities	13.1.0
	RP-71	RP-160453	0342	1		UE capabilities for LC and CE	13.1.0
	RP-71	RP-160454	0343	2		Introduction of eD2D Capability	13.1.0
	RP-71	RP-160464	0344	2		Modification of network requested CA band combination retrieval for intra-band non-contiguous CA	13.1.0
	RP-71	RP-160467	0346	1		Correction on capability phy-TDD-ReConfig-FDD(TDD)-Pcell	13.1.0
	RP-71	RP-160470	0347	1		ANR in case of MFBI	13.1.0
	RP-71	RP-160455	0348	-		36.306 CR on TM10 CRS-IM UE capability report signalling introduction	13.1.0
	RP-71	RP-160470	0349	-		Introduction of capability on PDSCH collision handling	13.1.0
	RP-71	RP-160470	0350	1		Corrections on SC-PTM	13.1.0
	RP-71	RP-160470	0351	-		SC-PTM reception on non-Pcell	13.1.0
	RP-71	RP-160460	0352	1		Additional Layer 1 capabilities for Rel-13 CA enhancements	13.1.0
06/2016	RP-72	RP-161080	1321	-		Correction to WLAN measurement support for LWIP	13.2.0
	RP-72	RP-161080	1322	-		Introducing EBF/FD-MIMO capabilities	13.2.0
	RP-72	RP-161080	1315	-		Clarifications on LWA capability	13.2.0
	RP-72	RP-161080	1326	-		MBMS reception via MBSFN or SC-PTM	13.2.0
	RP-72	RP-161080	1329	-		Corrections on capability linking for measurement object extension	13.2.0
	RP-72	RP-161080	1327	2		Capturing a new capability signalling format for Rel-13 CA enhancements	13.2.0
	RP-72	RP-161080	1330	-		Correction on the value of maxmum channel bandwidth	13.2.0
	RP-72	RP-161080	1334	2		UE capabilities for eMTC	13.2.0
	RP-72	RP-161080	1333	1		UE Power Class in UE capability signaling	13.2.0
	RP-72	RP-161080	1314	2		Miscellaneous corrections to TS 36.306	13.2.0
	RP-72	RP-161080	1323	1		Clarification on eD2D capability	13.2.0
	RP-72	RP-161076	1317	-		Clarification on maximum number of DL-SCH transport block bits for DL Category 15 and 16	13.2.0
	RP-72	RP-161076	1318	-		UE capability of an additional Rx and Tx requirement for a CA band combination	13.2.0
	RP-72	RP-161081	1328	2		Introduction of NB-IoT UE capabilities	13.2.0
	RP-72	RP-161076	1320	2		Definition of a fallback band combination	13.2.0
09/2016	RP-73	RP-161761	1338	1		Support of CAT 9/10 and CAT 13	13.3.0
	RP-73	RP-161760	1346	2		Introduction of 1.2Gbps and 1.6Gbps UE categories in Rel-13	13.3.0
	RP-73	RP-161826	1347	2		Continuous uplink transmission in eMTC	13.3.0
	RP-73	RP-161751	1350	1		Indication of the maxLayersMIMO	13.3.0
	RP-73	RP-161759	1352	1		Supporting new UE Rx – Tx time difference mapping table	13.3.0
	RP-73	RP-161761	1353	-		Introducing UE capability of Rel 13 CCH IM	13.3.0
	RP-73	RP-161761	1354	-		Introducing UE capability of CRS-IM for TM 1-9	13.3.0
09/2016	RP-73	RP-161745	1348	-		Introduction of enhanced LAA for LTE	14.0.0
12/2016	RP-74	RP-162327	1361	1		Capability for LWIP aggregation	14.1.0
	RP-74	RP-162327	1364	1		Miscellaneous corrections to TS 36.306	14.1.0
	RP-74	RP-162318	1367	-		Clarification on UE power class 2 indication	14.1.0

	RP-74	RP-162317	1369	1		Correction on simultaneous transmission of PUCCH and PUSCH for B5C	14.1.0
	RP-74	RP-162321	1370	1		Correction on simultaneous transmission of PUCCH and PUSCH for eLAA	14.1.0
	RP-74	RP-162327	1371	-		Extension of PollByte	14.1.0
	RP-74	RP-162317	1373	-		Definition of cch-InterfMitigation-MaxNumCCs	14.1.0
	RP-74	RP-162310	1377	-		Clarification on UE category requirement	14.1.0
	RP-74	RP-162329	1383	1		UE capabilities for Latency Reduction	14.1.0
	RP-74	RP-162314	1393	-		Correction on channel bandwidth definition for NB-IoT	14.1.0
	RP-74	RP-162321	1397	-		Introduction of capabilities for eLAA	14.1.0
	RP-74	RP-162555	1399	1		Introduction of new UL UE category 15 for 225Mbps	14.1.0
03/2017	RP-75	RP-170630	1382	2	B	Introduction of mobility enhancement UE capabilities	14.2.0
	RP-75	RP-170639	1402	1	A	Introduction of 1Rx UE category	14.2.0
	RP-75	RP-170628	1403	1	B	Capability for extended reporting of WLAN measurements	14.2.0
	RP-75	RP-170668	1404	-	B	Introduction of a new special subframe configuration	14.2.0
	RP-75	RP-170637	1406	2	B	Introduction of UE capabilities for NB-IoT enhancements	14.2.0
	RP-75	RP-170636	1407	2	B	Introduction of UE capabilities for feMTC enhancements	14.2.0
	RP-75	RP-170657	1410	-	A	Support of multiple DRBs for S1-U data transfer	14.2.0
	RP-75	RP-170642	1416	1	B	Introduction of data inactivity timer	14.2.0
	RP-75	RP-170652	1419	1	A	IOT indication for unicast MPDCCH/PDSCH/PUSCH frequency hopping	14.2.0
	RP-75	RP-170638	1423	1	B	Introduction of Voice and Video enhancements for LTE	14.2.0
	RP-75	RP-170646	1424	1	B	Introduction of SRS switching capability	14.2.0
	RP-75	RP-170628	1425	1	B	Introduction of Enhanced LTE-WLAN Aggregation (eLWA)	14.2.0
	RP-75	RP-170632	1426	2	B	Introduction of new UL UE categories for UL 256QAM support	14.2.0
	RP-75	RP-170634	1429	2	B	CR for introduction of measurement gap enhancement	14.2.0
	RP-75	RP-170642	1430	1	C	Functional modification of retrieving different UE capabilities for a fallback band combination	14.2.0
	RP-75	RP-170636	1431	-	B	FeMTC UE CE mode and maximum PDSCH/PUSCH BW preference indication	14.2.0
	RP-75	RP-170806	1434	1	A	Feature optionality for Cat.1bis UE	14.2.0
06/2017	RP-76	RP-171231	1437	1	F	Correction on UE capabilities for eLAA	14.3.0
	RP-76	RP-171225	1438	2	B	Introduction of new Transport Block Size for DL 256QAM	14.3.0
	RP-76	RP-171236	1439	4	F	UE capabilities for eLWA	14.3.0
	RP-76	RP-171248	1442	2	A	Entry-Level UE Support UL 64QAM	14.3.0
	RP-76	RP-171224	1443	2	F	Miscellaneous corrections to TS 36.306	14.3.0
	RP-76	RP-171222	1445	1	F	CR for introduction of non-uniform gap in measurement gap enhancement	14.3.0
	RP-76	RP-171247	1446	1	B	Introduction of a new UL UE category for 300Mbps with 64QAM	14.3.0
	RP-76	RP-171223	1448	2	F	Corrections to capabilities for feMTC	14.3.0
	RP-76	RP-171223	1452	1	C	CE mode configuration/deconfiguration without handover	14.3.0
	RP-76	RP-171241	1458	1	A	Optional feature without UE capability bit for VoLTE	14.3.0
	RP-76	RP-171243	1461	2	A	LAA/WiFi sharing indication	14.3.0
	RP-76	RP-171225	1462	1	F	Update of ROHC profile referenc	14.3.0
	RP-76	RP-171225	1463	-	B	UE Capabilitites to enable Uplink-Only RoHC operations	14.3.0
	RP-76	RP-171224	1464	-	F	Corrections to capabilities for NB-IoT	14.3.0
	RP-76	RP-171234	1465	-	F	UL 256QAM capability clarification	14.3.0
	RP-76	RP-171221	1470	-	B	Introduction of FeMBMS to 36.306	14.3.0
	RP-76	RP-171223	1475	-	F	Correction on the description of ce-srsEnhancement for FeMTC	14.3.0
	RP-76	RP-171223	1476	-	F	Minor correction on TS 36.306 for FeMTC	14.3.0
	RP-76	RP-171407	1478	2	B	Introduction of UE capability for V2X in 36.306	14.3.0
	RP-76	RP-171223	1479	2	B	Introduction of enhanced RLM measurement capabilities	14.3.0
	RP-76	RP-171229	1480	-	B	Introduction of UE capabilities for high speed	14.3.0
	RP-76	RP-171223	1483	-	F	Correction to ceMeasurements-r14 measurement capability	14.3.0
	RP-76	RP-171224	1484	-	B	Introduction of RRC connection re-establishment for NB-IoT control plane	14.3.0
09/2017	RP-77	RP-171919	1486	-	A	RoHC profile support for CIoT-only NB-IoT UE	14.4.0
	RP-77	RP-171914	1494	1	F	Correction on UE category combination	14.4.0
	RP-77	RP-171918	1498	2	A	Clarification on MBMS reception with 256QAM	14.4.0
	RP-77	RP-171913	1499	-	F	Cat-M1 indication by Cat-M2 UE	14.4.0
	RP-77	RP-171913	1500	-	F	Corrections on TS 36.306 for Rel-14 MTC	14.4.0
	RP-77	RP-171914	1501	2	F	Clarification on NCSG UE capability	14.4.0
	RP-77	RP-171915	1502	-	C	UE Capabilty for support of RLC UM for LWA bearer	14.4.0
	RP-77	RP-171913	1504	2	C	Introduction of Release Assistance Indication	14.4.0
	RP-77	RP-171920	1506	2	A	TM9 capabilities in CE mode	14.4.0
	RP-77	RP-171915	1507	1	F	Introduction of interference randomisation in NB-IoT	14.4.0
12/2017	RP-78	RP-172615	1490	5	B	Introduction of the temporary UE capability for overheating indication	14.5.0
	RP-78	RP-172721	1508	2	B	Introduction of DL 2Gbps Category	14.5.0
	RP-78	RP-172622	1511	2	A	UE capabilities for Tx antenna selection	14.5.0
	RP-78	RP-172616	1514	-	F	UE capability for support of SRS enhancements without support of comb 4	14.5.0
	RP-78	RP-172616	1518	1	B	Introduction of Enhanced CRS and SU-MIMO Interference Mitigation Performance Requirements for LTE	14.5.0
	RP-78	RP-172617	1523	2	C	Introduction of relaxed monitoring in NB-IoT	14.5.0
	RP-78	RP-172624	1528	1	A	TM6 capabilities in CE mode	14.5.0
	RP-78	RP-172616	1533	-	F	MUST capability	14.5.0
	RP-78	RP-172617	1534	1	F	Correction to random access power control in 36.306	14.5.0

	RP-78	RP-172616	1536	1	B	Introduction of a new UE capability for ssp10 with less CRS	14.5.0
03/2018	RP-79	RP-180443	1545	-	F	Correction to description for HARQ-ACK delay for Rel-14 MTC	14.6.0
	RP-79	RP-180443	1552	1	C	Introduction of support of relaxed monitoring for BL and CE UE	14.6.0
	RP-79	RP-180448	1555	2	B	Introduction of LTE DL 1.4Gbps Category	14.6.0
	RP-79	RP-180446	1561	1	F	Capability for for reading shared PLMN information from non-CSG cells	14.6.0
	RP-79	RP-180446	1564	1	F	Supported bandwidths in Fallback band combination	14.6.0
	RP-79	RP-180494	1566	2	F	Correction on SRS carrier switching	14.6.0
03/2018	RP-79	RP-180440	1559	2	B	Introduction of EN-DC capabilities	15.0.0
07/2018	RP-80	RP-181222	1519	1	B	Introduction of QoE Measurement Collection for LTE	15.1.0
	RP-80	RP-181221	1535	3	B	Running 36.306 CR to introduce assistance information for local cache	15.1.0
	RP-80	RP-181218	1542	3	B	Introduction of shortened TTI and processing time for LTE	15.1.0
	RP-80	RP-181226	1543	3	B	Introduction of DEFLATE based UDC Solution	15.1.0
	RP-80	RP-181228	1546	3	B	Enhancement of SRS antenna switching in TS 36.306	15.1.0
	RP-80	RP-181220	1547	3	B	Support of 1024QAM in TS 36.306	15.1.0
	RP-80	RP-181234	1569	3	A	Addition of the number of SL processes for V2X sidelink communication	15.1.0
	RP-80	RP-181171	1570	2	C	Introduction of support for MAC PDU containing UE contention resolution identity MAC control element without RRC response message in NB-IoT	15.1.0
	RP-80	RP-181232	1575	2	A	Correction on reducedIntNonContComb-r13 description	15.1.0
	RP-80	RP-181232	1578	3	A	Different power class support for band combinations	15.1.0
	RP-80	RP-181252	1581	3	B	Introduction of further NB-IoT enhancements in 36.306	15.1.0
	RP-80	RP-181227	1584	1	B	Running 36.306 CR to introduce BT and WLAN in MDT	15.1.0
	RP-80	RP-181224	1591	3	B	Introduction of even further eMTC enhancmenets for eMTC	15.1.0
	RP-80	RP-181250	1592	2	B	UE capability definitions for euCA	15.1.0
	RP-80	RP-181225	1599	-	B	Implementing network-based CRS interference mitigation	15.1.0
	RP-80	RP-181233	1602	-	A	UE capability for handling of multiple numerologies in FeMBMS	15.1.0
	RP-80	RP-181233	1604	1	A	Additional UE capabilities for SRS carrier switching	15.1.0
	RP-80	RP-181232	1606	-	A	Additional UE capabilities for advanced CSI in FD-MIMO	15.1.0
	RP-80	RP-181223	1608	2	B	Introduce reportCGI towards NR neighbour cell	15.1.0
	RP-80	RP-181236	1611	1	A	Introduction of DL Channel Quality reporting	15.1.0
	RP-80	RP-181235	1612	1	A	Introduction of serving cell idle mode measurements reporting in 36.306	15.1.0
	RP-80	RP-181254	1613	1	B	Introduction of increased number of E-UTRAN data bearers	15.1.0
	RP-80	RP-181228	1614	2	B	Control Plane latency reduction	15.1.0
	RP-80	RP-181247	1616	2	B	Introduction of time reference provision	15.1.0
	RP-80	RP-181249	1618	-	B	Introduce feLAA in TS 36.306	15.1.0
	RP-80	RP-181247	1619	-	B	Introduction of Ultra Reliable Low Latency Communication for LTE	15.1.0
09/2018	RP-81	RP-181960	1593	2	B	Advanced CSI CBSR CBSR related capability for FD-MIMO	15.2.0
	RP-81	RP-181960	1596	1	B	Avoiding FGI20 limitation	15.2.0
	RP-81	RP-181960	1600	1	B	Introduction of QoE Measurement Collection for MTSI services	15.2.0
	RP-81	RP-181948	1620	1	B	Introduction of UE capability for eV2X in TS 36.306	15.2.0
	RP-81	RP-181940	1621	1	F	Cell reselection priorities for NR frequency	15.2.0
	RP-81	RP-181963	1623	-	A	Add missing NB-IoT capabilities in section 4	15.2.0
	RP-81	RP-181945	1624	1	F	Introducing FDD-TDD differentiation in NB-IoT in 36.306	15.2.0
	RP-81	RP-181960	1627	-	B	Introduction of modulation enhancements	15.2.0
	RP-81	RP-181947	1628	2	B	UE categories for 1024QAM	15.2.0
	RP-81	RP-181949	1633	1	F	UE capability related with SPS	15.2.0
	RP-81	RP-181956	1635	2	B	Introduction of capabilities for Rel-15 Aerial WI	15.2.0
	RP-81	RP-181945	1636	1	F	Make additional SIB transmission an optional feature with capability reporting	15.2.0
	RP-81	RP-181960	1637	1	C	Introduction of Geofencing information in CMAS	15.2.0
	RP-81	RP-181964	1643	-	B	Introduction of further enhancements to CoMP	15.2.0
	RP-81	RP-181949	1644	1	C	UE capabilities for short TTI	15.2.0
	RP-81	RP-181949	1645	2	C	UE capabilities for Ultra Reliable Low Latency Communication	15.2.0

Note: In CR0313R1 " Clarification on Pcell support " for TS 36.306 v12.7.0 of RP-152053 which was approved by RAN #70 wrong CR number, 1313 used in CR coversheet due to a misallocation.

History

Document history		
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