## ETSI TS 138 508-2 V15.1.0 (2018-10)



5G; 5GS;

User Equipment (UE) conformance specification;
Part 2: Common Implementation Conformance Statement (ICS)
proforma

(3GPP TS 38.508-2 version 15.1.0 Release 15)



# Reference RTS/TSGR-0538508-2vf10 Keywords 5G

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## **Foreword**

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

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- x the first digit:
  - 1 presented to TSG for information;
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- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
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The present document is part 2 of a multi-part deliverable covering the 5G System (5GS) User Equipment (UE) protocol conformance specification, as identified below:

- 3GPP TS 38.508-1 [11]: "5GS; User Equipment (UE) conformance specification; Part 1: Common test environment ".
- 3GPP TS 38.508-2: "5GS; User Equipment (UE) conformance specification; Part 2: Common Implementation Conformance Statement (ICS) proforma" (the present document).

## 1 Scope

The present document provides the Implementation Conformance Statement (ICS) proforma for 5G New Radio (NR) User Equipment (UE), in compliance with the relevant requirements.

Special conformance testing functions can be found in 3GPP TS 38.509 [12] and 3GPP TS 36.509 [14] and the common test environments are included in 3GPP TS 38.508-1 [11] and 3GPP TS 36.508 [13].

The present document is valid for UE implemented according to 3GPP Releases starting from Release 15 up to the Release indicated on the cover page of the present document.

## 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.

Conformance Testing".

- 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*.
- 3GPP TR 21.905: "Vocabulary for 3GPP Specifications". [1] 3GPP TS 38.523-1: "5GS; UE conformance specification; Part 1: Protocol conformance [2] specification". 3GPP TS 38.523-2: "5GS; User Equipment (UE) conformance specification; Part 2: Applicability [3] of protocol test cases". 3GPP TS 38.523-3: "5GS; User Equipment (UE) conformance specification; Part 3: Protocol Test [4] Suites". 3GPP TS 38.521-1: "NR: User Equipment (UE) conformance specification: Radio transmission [5] and reception; Part 1: Range 1 Standalone". 3GPP TS 38.521-2: "NR; User Equipment (UE) conformance specification; Radio transmission [6] and reception; Part 2: Range 2 Standalone". 3GPP TS 38.521-3: "NR; User Equipment (UE) conformance specification; Radio transmission [7] and reception; Part 3: Range 1 and Range 2 Interworking operation with other radios". [8] 3GPP TS 38.521-4: "NR; User Equipment conformance specification; Radio transmission and reception; Part 4: Performance". [9] 3GPP TS 38.522: "NR; User Equipment (UE) conformance specification; Applicability of radio transmission, radio reception and radio resource management test cases". 3GPP TS 38.523: "NR; User Equipment (UE) conformance specification; Radio resource [10] management". [11] 3GPP TS 38.508-1: "5GS; User Equipment (UE) conformance specification; Part 1: Common test environment". 3GPP TS 38.509: "5GS; Special conformance testing functions for UE". [12] 3GPP TS 36.508: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal [13]

Terrestrial Radio Access (E-UTRAN); Common Test Environments for User Equipment (UE)

[14]	3GPP TS 36.509: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Special conformance testing functions for User Equipment (UE)".
[15]	3GPP TS 34.229-2: "Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); User Equipment (UE) conformance specification; Part 2: Implementation Conformance Statement (ICS) specification".
[16]	3GPP TS 36.523-2: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access (E-UTRAN); User Equipment (UE) conformance specification; Part 2: Implementation Conformance Statement (ICS) proforma specification".
[17]	3GPP TS 38.306: "NR; User Equipment (UE) radio access capabilities".
[18]	ISO/IEC 9646-7: "Information technology - Open systems interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".
[19]	3GPP TS 38.307: "NR; User Equipments (UEs) supporting a release-independent frequency band".
[20]	3GPP TS 37.340:"Evolved Universal Terrestrial Radio Access (E-UTRA) and NR; Multiconnectivity; Stage 2".
[21]	3GPP TS 38.300: "NR; NR and NG-RAN Overall Description; Stage 2".

## 3 Definitions, symbols and abbreviations

#### 3.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 21.905 [5] 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 [5].

**Implementation Conformance Statement (ICS):** statement made by the supplier of an implementation or system claimed to conform to a given specification, stating which capabilities have been implemented

ICS proforma: document, in the form of a questionnaire, which when completed for an implementation or system becomes an ICS

**Implementation extra Information for Testing (IXIT):** A statement made by a supplier or implementer of an UEUT which contains or references all of the information (in addition to that given in the ICS) related to the UEUT and its testing environment, which will enable the test laboratory to run an appropriate test suite against the UEUT

IXIT proforma: A document, in the form of a questionnaire, which when completed for an UEUT becomes an IXIT

**Protocol Implementation Conformance Statement (PICS):** An ICS for an implementation or system claimed to conform to a given protocol specification

**Protocol Implementation extra Information for Testing (PIXIT):** An IXIT related to testing for conformance to a given protocol specification

**Static conformance review**: A review of the extent to which the static conformance requirements are claimed to be supported by the UEUT, by comparing the answers in the ICS(s) with the static conformance requirements expressed in the relevant specification(s)

## 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 3GPP 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 3GPP TR 21.905 [1].

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

FFS For Further Study

ICS Implementation Conformance Statement
IXIT Implementation extra Information for Testing
PICS Protocol Implementation Conformance Statement
PIXIT Protocol Implementation extra Information for Testing

SCS System Conformance Statement

TC Test Case

UEUT User Equipment Under Test

## Annex A (normative):ICS proforma for NR/5GS Generation User Equipment

Notwithstanding the provisions of the copyright clause related to the text of the present document, The Organizational Partners of 3GPP grant that users of the present document may freely reproduce the ICS proforma in this annex so that it can be used for its intended purposes and may further publish the completed ICS.

## A.1 Guidance for completing the ICS proforma

## A.1.1 Purposes and structure

The purpose of this ICS proforma is to provide a mechanism whereby a supplier of an implementation of the requirements defined in relevant specifications may provide information about the implementation in a standardised manner.

The ICS proforma is subdivided into clauses for the following categories of information:

- instructions for completing the ICS proforma;
- identification of the implementation;
- identification of the protocol;
- ICS proforma tables (for example: UE implementation types, Teleservices, etc).

#### A.1.2 Abbreviations and conventions

The ICS proforma contained in this annex is comprised of information in tabular form in accordance with the guidelines presented in ISO/IEC 9646-7 [18].

#### Item column

The item column contains a number which identifies the item in the table.

#### Item description column

The item description column describes in free text each respective item (e.g. parameters, timers, etc.). It implicitly means "is <item description> supported by the implementation?".

#### Reference column

The reference column gives reference to the relevant 3GPP core specifications.

#### Release column

The release column indicates the earliest release from which the capability or option is relevant.

#### Mnemonic column

The Mnemonic column contains mnemonic identifiers for each item.

#### Comments column

This column is left blank for particular use by the reader of the present document.

#### References to items

Telephone number:

For each possible item answer (answer in the support column) within the ICS proforma there exists a unique reference, used, for example, in the conditional expressions. It is defined as the table identifier, followed by a solidus character "/", followed by the item number in the table. If there is more than one support column in a table, the columns shall be discriminated by letters (a, b, etc.), respectively.

## A.1.3 Instructions for completing the ICS proforma

The supplier of the implementation may complete the ICS proforma in each of the spaces provided. More detailed instructions are given at the beginning of the different clauses of the ICS proforma.

## A.2 Identification of the User Equipment

Identification of the User Equipment should be filled in so as to provide as much detail as possible regarding version numbers and configuration options.

The product supplier information and client information should both be filled in if they are different.

A person who can answer queries regarding information supplied in the ICS should be named as the contact person.

A.2.1	Date of the statement
A.2.2 UEUT name	User Equipment Under Test (UEUT) identification
Hardware co	onfiguration:
Software co	nfiguration:
A.2.3 Name:	Product supplier
Address:	
•••••	

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dditional information:	

## A.3 Identification of the protocol

This ICS proforma applies to the 3GPP standards listed in the normative references clause of the present document.

## A.4 ICS proforma tables

## A.4.1 UE Implementation Types

Table A.4.1-1: UE Radio Technologies

Item	UE Radio Technologies	Ref.	Release	Mnemonic	Comments
1	NR FDD	38.101-1,	Rel-15	pc_nrFDD	
		38.101-2			
2	NR TDD	38.101-1,	Rel-15	pc_nrTDD	
		38.101-2			

#### Table A.4.1-2: UE general functionality

Item	UE Functionality	Ref.	Release	Mnemonic	Comments
1	Support of multiple NR FDD bands	38.101, 5.2	Rel-15	pc_nrFDD_MultiBand	
2	Support of multiple NR TDD bands	38.101, 5.2	Rel-15	pc_nrTDD_MultiBand	

#### Table A.4.1-3: RAN-CN Interface Options

Item	UE support of RAN-CN Interface Options	Ref.	Release	Mnemonic	Comments
1	NG-RAN NR (Option 2)	38.300	Rel-15	pc_NG_RAN_NR	
2	EN-DC (Option 3)	37.340	Rel-15	pc_EN_DC	
3	NE-DC (Option 4)	37.340	Rel-15	pc_NE_DC	
4	NG-RAN E-UTRA (Option 5)	38.300	Rel-15	pc_NG_RAN_EUTRA	
5	NGEN-DC (Option 7)	37.340	Rel-15	pc_NGEN_DC	

## A.4.2 UE Service Capabilities

## A.4.2.1 3GPP Standardised UE Service Capabilities

#### A.4.2.1.1 Bearer Services

Table A.4.2.1.1-1: Definition of Bearer Services

Item	Definition of Bearer Services	Ref.	Release	Mnemonic	Comments
1	FFS				

## A.4.3 Baseline Implementation Capabilities

Table A.4.3-1: Supported protocols

Item	Supported protocols	Ref.	Release	Mnemonic	Comments
1	5GS Mobility Management	24.501	Rel-15		
2	5GS Session Management	24.501	Rel-15		
3	Radio Resource Control	38.331	Rel-15		
4	Service Data Adaptation Protocol	37.324	Rel-15		
5	Packet Data Convergence Protocol	38.323	Rel-15		
6	Radio Link Control	38.322	Rel-15		
7	Medium Access Control	38.321	Rel-15		
8	Physical Layer	38.201	Rel-15		

**Table A.4.3-2: Special Conformance Testing Functions** 

Ī	tem	<b>Special Conformance Testing Functions</b>	Ref.	Release	Mnemonic	Comments
Ī	1	UE test loop	38.509	Rel-15		

### A.4.3.1 RF Baseline Implementation Capabilities

NOTE: The values indicated in column "Release" in tables A.4.3.1-1 and A.4.3.1-2 below are to be understood as the specifications release version in which a band was introduced and not as a mandate that a UE conforming to particular release shall support a particular band. For further guidance to release independent bands see TS 38.307 [19].

Table A.4.3.1-1: NR FDD RF Baseline Implementation Capabilities

Item	NR FDD RF Baseline Implementation Capabilities	Ref.	Release	Mnemonic	Comments
1	NR Frequency band: 1920-1980, 2110- 2170 MHz	38.101-1, 5.2	Rel-15	pc_nrBand1_Supp	NR Band 1
2	NR Frequency band: 1850-1910, 1930- 1990 MHz	38.101-1, 5.2	Rel-15	pc_nrBand2_Supp	NR Band 2
3	NR Frequency band: 1710-1785, 1805- 1880 MHz	38.101-1, 5.2	Rel-15	pc_nrBand3_Supp	NR Band 3
4	NR Frequency band: 824-849, 869-894 MHz	38.101-1, 5.2	Rel-15	pc_nrBand5_Supp	NR Band 5
5	NR Frequency band: 2500-2570, 2620- 2690 MHz	38.101-1, 5.2	Rel-15	pc_nrBand7_Supp	NR Band 7
6	NR Frequency band: 880-915, 925-960 MHz	38.101-1, 5.2	Rel-15	pc_nrBand8_Supp	NR Band 8
7	NR Frequency band: 832-862, 791-821 MHz	38.101-1, 5.2	Rel-15	pc_nrBand20_Supp	NR Band 20
8	NR Frequency band: 703-748, 758-803 MHz	38.101-1, 5.2	Rel-15	pc_nrBand28_Supp	NR Band 28
9	NR Frequency band: 1710-1780, 2110- 2200 MHz	38.101-1, 5.2	Rel-15	pc_nrBand66_Supp	NR Band 66
10	NR Frequency band: 1695-1710, 1995- 2020 MHz	38.101-1, 5.2	Rel-15	pc_nrBand70_Supp	NR Band 70

Table A.4.3.1-2: NR TDD RF Baseline Implementation Capabilities

Item	NR TDD RF Baseline Implementation Capabilities	Ref.	Release	Mnemonic	Comments
1	NR Frequency band: 2570-2620 MHz	38.101-1, 5.2	Rel-15	pc_nrBand38_Supp	NR Band 38
2	NR Frequency band: 2496-2690 MHz	38.101-1, 5.2	Rel-15	pc_nrBand41_Supp	NR Band 41
3	NR Frequency band: 3300-4200 MHz	38.101-1, 5.2	Rel-15	pc_nrBand77_Supp	NR Band 77
4	NR Frequency band: 3300-3800 MHz	38.101-1, 5.2	Rel-15	pc_nrBand78_Supp	NR Band 78

## A.4.3.2 Physical Layer Baseline Implementation Capabilities

Table A.4.3.2-1: UE Physical Layer Baseline Implementation Capabilities

Item	UE Physical Layer Baseline Implementation Capabilities	Ref.	Release	Mnemonic	Comments
1	Support PDSCH reception based on semi- persistent scheduling	38.306, 4.2.7	Rel-15	pc_downlinkSPS	
2	Support 256QAM for PDSCH for FR1	38.306, 4.2.7	Rel-15	pc_pdsch_256QAM _FR1	
3	Support 256QAM for PDSCH for FR2	38.306, 4.2.7	Rel-15	pc_pdsch_256QAM _FR2	
4	Support 256QAM for PUSCH for FR1	38.306, 4.2.7	Rel-15	pc_pusch_256QAM _FR1	
5	Support receiving PDSCH using PDSCH mapping type A with less than seven symbols	38.306, 4.2.7	Rel-15	pc_pdsch_Mapping TypeA	
6	Support receiving PDSCH using PDSCH mapping type B	38.306, 4.2.7	Rel-15	pc_pdsch_Mapping TypeB	
7	Support resource allocation Type 0 for PUSCH	38.306, 4.2.7	Rel-15	pc_ra_Type0_PUS CH	
8	Support scaling factor 0.75 is applied to the band in the max data rate calculation	38.306, 4.2.7	Rel-15	pc_scalingFactor0d ot75	
9	Support handover using a contention free random access on PRACH resources that are associated with CSI-RS resources of the target cell	38.306, 4.2.7	Rel-15	pc_csi_RS_CFRA_ ForHO	
10	Support Type 1 PUSCH transmissions with configured grant	38.306, 4.2.7	Rel-15	pc_configuredUL_G rantType1	
11	Support Type 2 PUSCH transmissions with configured grant	38.306, 4.2.7	Rel-15	pc_configuredUL_G rantType2	
12	Support PDSCH Reception when configured with higher layer parameter aggregationFactorDL > 1	38.306, 4.2.7	Rel-15	pc_pdsch_Repetitio nMultiSlots	_

## A.4.3.3 PDCP Implementation Capabilities

Table A.4.3.3-1: UE PDCP Implementation Capabilities

Item	UE PDCP Implementation Capabilities	Ref.	Release	Mnemonic	Comments
1	Support 12 bit length of PDCP sequence	38.306, 4.2.4	Rel-15	pc_shortSN	
	number				

## A.4.3.4 RLC Implementation Capabilities

Table A.4.3.4-1: UE RLC Implementation Capabilities

Item	UE RLC Implementation Capabilities	Ref.	Release	Mnemonic	Comments
1	Support RLC AM with 12 bit length of RLC	38.306, 4.2.5	Rel-15	pc_am_WithShortSN	
	sequence number				
	Support RLC UM with 12 bit length of RLC sequence number	38.306, 4.2.5	Rel-15	pc_um_WIthLongSN	
		00 000 40 5	5 1 4 5	14/31 01 (01)	
	Support RLC UM with 6 bit length of RLC sequence number	38.306, 4.2.5	Rel-15	pc_um_WithShortSN	

## A.4.3.5 MAC Implementation Capabilities

Table A.4.3.5-1: UE MAC Implementation Capabilities

Item	UE MAC Implementation Capabilities	Ref.	Release	Mnemonic	Comments
1	Support long DRX cycle	38.306, 4.2.6	Rel-15	pc_longDRX_Cycle	
2	Support short DRX cycle	38.306, 4.2.6	Rel-15	pc_shortDRX_Cycle	
3	Support skipping of UL transmission for an	38.306, 4.2.6	Rel-15	pc_skipUplinkTxDyna	
	uplink grant indicated on PDCCH if no data			mic	
	is available for transmission				

## A.4.3.6 Measurement Capabilities

Table A.4.3.6-1: UE Measurement Capabilities

Item	UE Measurement Capabilities	Ref.	Release	Mnemonic	Comments
1	Support NR measurements and events A triggered reporting	38.306, 4.2.9	Rel-15	pc_eventA_MeasAnd Report	
2	Support two independent measurement gap configurations for FR1 and FR2	38.306, 4.2.9	Rel-15	pc_independentGapC onfig	
	Support NR intra-frequency and inter- frequency measurements and at least periodical reporting	38.306, 4.2.9	Rel-15	pc_intraAndInterF_M easAndReport	
	Support CSI-RSRP and CSI-RSRQ measurement as specified in TS38.215 [21], where CSI-RS resource is configured with an associated SS/PBCH	38.306, 4.2.9	Rel-15	pc_csi_RSRP_AndR SRQ_MeasWithSSB	

## A.4.3.7 General Capabilities

Table A.4.3.7-1: UE General Capabilities

Item	UE General Capabilities	Ref.	Release	Mnemonic	Comments
1	Support UL transmission via either MCG path or SCG path for the split SRB as specified in TS 37.340[20]	38.306, 4.2.2		pc_splitSRB_WithOn eUL_Path	
	Support UL transmission via both MCG path and SCG path for the split DRB as specified in TS 37.340[20]	38.306, 4.2.2		pc_splitDRB_withUL_ Both_MCG_SCG	
	Support direct SRB between the SN and the UE as specified in TS 37.340[20]	38.306, 4.2.2	Rel-15	pc_srb3	

## A.4.4 Additional information

Table A.4.4-1: Additional information

Item	Additional information	Ref.	Release	Mnemonic	Comments
1	Support of ICMP or ICMP IPv6	RFC 792 OR	NA	pc_IP_Ping	UE supports ICMP or
		RFC 4443,			ICMPv6 protocol to enable
		RFC 4884			IP Ping Operation

## Annex B (informative): Change history

	Change history						
Date	Meeting	TDoc	CR	Rev	Cat	Subject/Comment	New version
2017-12	RAN5#77	R5-176852	-	-	-	Introduction of TS 38.508-2	0.1.0
2018-04	RAN5#2- 5G-NR Adhoc	R5-182069	-	-	-	Addition of several required PICS	0.2.1
2018-05	RAN5#79	R5-183271	-	-	-	Addition of Missing PICS	1.0.0
2018-06	RAN#80	RP-181208	-	-	-	put under revision control as v15.0.0 with small editorial changes	15.0.0
2018-09	RAN#81	R5-185161	000	1	F	Addition of PICS	15.1.0

## History

	Document history						
V15.0.0	July 2018	Publication					
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