# 1 Scope

The present document provides the UICC–Terminal Interface Conformance Test Specification between a terminal and the USIM (Universal Subscriber Identity Module) as an application on the UICC and the Terminal for a 3GPP network operation:

- the default setting of the USIM;

- the applicability of each test case;

- the test configurations;

- the conformance requirement and reference to the core specifications;

- the test purposes; and

- a brief description of the test procedure and the specific acceptance criteria.

For the avoidance of doubt, references to clauses of ETSI TS 102 221 [5] include all the clauses of that clause, unless specifically mentioned.

ETSI TS 102 221 [5] contains material that is outside of the scope of 3GPP requirements. A 3GPP ME may support functionality that is not required by 3GPP, but the requirements to do so are outside of the scope of 3GPP. Thus the present document does not contain tests for features defined in ETSI TS 102 221 [5] which are out of scope of 3GPP.

In the present document, unless explicitly stated otherwise, for Rel-13 onwards the term E-UTRAN implicitly refers to E-UTRAN in WB-S1 mode. E-UTRAN in NB-S1 mode is always explicitly referred to as NB-IoT.

# 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 in same release as the implementation release of the terminal under test applies.

[1] Void

[2] Void

[3] 3GPP TS 23.038: "Alphabets and language-specific information".

[4] 3GPP TS 31.102: "Characteristics of the USIM application".

[5] If the device under test is a

- R99 ME: ETSI TS 102 221 v3.18.0: "UICC-Terminal interface; Physical and logical characteristics",

- Rel-4 ME: ETSI TS 102 221 v4.16.0: "UICC-Terminal interface; Physical and logical characteristics",

- Rel-5 ME: ETSI TS 102 221 v5.10.0: "UICC-Terminal interface; Physical and logical characteristics",

- Rel-6 ME: ETSI TS 102 221 v6.15.0: "UICC-Terminal interface; Physical and logical characteristics",

- Rel-7 ME: ETSI TS 102 221 v7.17.0: "UICC-Terminal interface; Physical and logical characteristics",

- Rel-8 ME: ETSI TS 102 221 v8.5.0: "UICC-Terminal interface; Physical and logical characteristics",

- Rel-9 ME: ETSI TS 102 221 v9.2.0: "UICC-Terminal interface; Physical and logical characteristics"",

- Rel-10 ME: ETSI TS 102 221 v10.0.0: "UICC-Terminal interface; Physical and logical characteristics",

- Rel-11 ME: ETSI TS 102 221 v11.1.0: "UICC-Terminal interface; Physical and logical characteristics",

- Rel-12 ME: ETSI TS 102 221 v12.1.0: "UICC-Terminal interface; Physical and logical characteristics".

- Rel-13 ME: ETSI TS 102 221 v13.2.0: "UICC-Terminal interface; Physical and logical characteristics".

- Rel-14 ME: ETSI TS 102 221 v14.1.0: "UICC-Terminal interface; Physical and logical characteristics".

- Rel-15 ME: ETSI TS 102 221 v15.0.0: "UICC-Terminal interface; Physical and logical characteristics".

[6] 3GPP TS 22.011: "Service accessibility".

[7] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[8] 3GPP TS 22.024: "Description of Charge Advice Information (CAI)".

[9] 3GPP TS 23.086: "Advice of Charge (AoC) Supplementary Service – Stage 2".

[10] 3GPP TS 24.086: "Advice of Charge (AoC) Supplementary Service – Stage 3".

[11] 3GPP TS 22.101: "Service aspects; Service principles".

[12] 3GPP TS 22.030: "Man-Machine Interface (MMI) of the User Equipment (UE)".

[13] 3GPP TS 23.040: "Technical realization of the Short Message Service (SMS)".

[14] 3GPP TS 23.003: "Numbering, Addressing and Identification".

[15] 3GPP TS 44.018: "Mobile radio interface layer 3 specification; Radio Resource Control Protocol".

[16] 3GPP TS 24.008: "Mobile radio interface Layer 3 specification; Core Network protocols; Stage 3".

[17] 3GPP TS 24.080: "Mobile radio Layer 3 supplementary service specification; Formats and coding".

[18] 3GPP TS 22.086: "Advice of Charge (AoC) supplementary services; Stage 1".

[19] 3GPP TS 21.111: "USIM and IC card requirements".

[20] 3GPP TS 25.331 "Radio Resource Control (RRC); Protocol Specification".

[21] 3GPP TS 34.108 "Common test environments for User Equipment (UE) conformance testing".

[22] 3GPP TS 51.010‑1 "Mobile Station (MS) conformance specification; Part1: Conformance specification".

[23] 3GPP TS 23.140 Release 6 "Multimedia Messaging Service (MMS); Functional description; Stage 2".

[24] 3GPP TS 24.002 "GSM – UMTS Public Land Mobile Network (PLMN) Access Reference Configuration".

[25] 3GPP TS 23.060 "General Packet Radio Service (GPRS); Service description; Stage 2".

[26] 3GPP TS 24.301: "Technical Specification Group Core Network and Terminals; Non-Access-Stratum (NAS) protocol for Evolved Packet Systems (EPS): Stage 3".

[27] 3GPP TS 33.401: "3GPP System Architecture Evolution (SAE); Security architecture".

[28] 3GPP TS 36.331: "Evolved Universal Terrestrial Radio Access (E-UTRA) Radio Resource Control (RRC); Protocol specification".

[29] 3GPP TS 36.508: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Packet Core (EPC); Common test environments for User Equipment (UE) conformance testing"

[30] 3GPP TS 36.523-2 " Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Packet Core (EPC);User Equipment (UE) conformance specification Part 2: Implementation Conformance Statement (ICS) proforma specification"

[31] 3GPP TS 23.122: "Non-Access-Stratum functions related to Mobile Station (MS) in idle mode".

[32] 3GPP TS 31.103: "Characteristics of the IP Multimedia Services Identity Module (ISIM) application".

[33] 3GPP TS 34.229-1: "Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); User Equipment (UE) conformance specification; Part 1: Protocol conformance specification".

[34] 3GPP TS 22.220: "Universal Mobile Telecommunications System (UMTS); Service requirements for Home Node B (HNB) and Home eNode B (HeNB)".

[35] 3GPP TS 36.304: "Evolved Universal Terrestrial Radio Access (E-UTRA) User Equipment (UE); Procedures in idle mode ".

[36] 3GPP TS 24.368: "Non-Access Stratum (NAS) configuration Management Object (MO)"

[37] 3GPP TS 23.401: "General Packet Radio Service (GPRS) enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access".

[38] 3GPP 34.123-1: "User Equipment (UE) conformance specification; Part 1: Protocol conformance specification".

[39] 3GPP TS 31.101: " UICC-terminal interface; Physical and logical characteristics".

[40] 3GPP TS 38.508-1: "5GS; User Equipment (UE) conformance specification; Part 1: Common test environment".

[41] 3GPP TS 33.501: "Security architecture and procedures for 5G System".

[42] 3GPP TS 24.501: "Non-Access-Stratum (NAS) protocol for 5G System (5GS); Stage 3".

[43] 3GPP TS 22.261: "Service requirements for the 5G system".

[44] 3GPP TS 38.331: "NR Radio Resource Control (RRC) protocol specification".

[45] 3GPP TS 33.102: "3G security; Security architecture".

[46] RFC 5480; "Elliptic Curve Cryptography Subject Public Key Information".

[47] RFC 4187; "Extensible Authentication Protocol Method for 3rd Generation Authentication and Key Agreement (EAP-AKA)".

[48] Void

[49] 3GPP TS 23.501: "System architecture for the 5G System (5GS)".

[50] 3GPP TS 24.526: "User Equipment (UE) policies for 5G System (5GS)".

[51] 3GPP TS 23.501: "System architecture for the 5G System (5GS)".

[52] 3GPP TS 23.503: "Policy and charging control framework for the 5G System (5GS)".

[53] ISO/IEC 9646-7: "Information technology -- Open Systems Interconnection – Conformance testing methodology and framework -- Part 7: Implementation Conformance Statements".3 Definitions, symbols, abbreviations and coding.

[54] ETSI TS 101 220: "Smart cards; ETSI numbering system for telecommunication application providers".

[55] 3GPP TS 23.316: "Wireless and wireline convergence access support for the 5G System (5GS) "

[56] 3GPP TS 33.203: "Technical Specification Group Services and System Aspects; 3G security; Access security for IP-based services".

[57] 3GPP TS 34.229-5: "Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Part 5: Protocol conformance specification using 5G System (5GS) ".

[58] 3GPP TS 23.502: "Technical Specification Group Services and System Aspects; Procedures for the 5G System (5GS); Stage 2".

# 3 Definitions and abbreviations

## 3.1 Definitions

For the purposes of the present document, the following terms and definitions apply.

**Application DF (ADF):** entry point to an application

**access conditions:** set of security attributes associated with a file

**access technology:** Radio Access Technology of the Terminal (e.g. NG-RAN, E-UTRAN, UTRAN or GSM)

**application:** consists of a set of security mechanisms, files, data and protocols (excluding transmission protocols)

**application protocol:** set of procedures required by the application

**card session:** link between the card and the external world starting with the ATR and ending with a subsequent reset or a deactivation of the card

**current directory:** latest MF or DF or ADF selected

**current EF:** latest EF selected

**data object:** information coded as TLV objects, i.e. consisting of a Tag, a Length and a Value part

**Dedicated File (DF):** file containing access conditions and, optionally, Elementary Files (Efs) or other Dedicated Files (DFs)

**directory:** general term for MF, DF and ADF

**Elementary File (EF):** file containing access conditions and data and no other files

**file:** directory or an organised set of bytes or records in the UICC

**file identifier:** 2 bytes which address a file in the UICC

**function:** function contains a command and a response pair

**GSM session:** that part of the card session dedicated to the GSM operation

**Master File (MF):** unique mandatory file containing access conditions and optionally DFs and/or Efs

**MMS Relay/Server**: MMS-specific network entity/application that is under the control of the MMS service provider

NOTE: An MMS Relay/Server transfers messages, provides operations of the MMS that are specific or required by the mobile environment and provides (temporary and/or persistent) storage services to the MMS

**MMS User Agent**: application residing on a UE or an external device that performs MMS-specific operations on a user's behalf

**normal USIM operation:** relating to general, PIN related, 3GPP network security and subscription related procedures

**record:** string of bytes within an EF handled as a single entity

**record number:** number, which identifies a record within an EF

**record pointer:** pointer, which addresses one record in an EF

**SIB1:** *SystemInformationBlockType1* contains information relevant when evaluating if a UE is allowed to access a cell and defines the scheduling of other system information blocks

**terminal:** device into which a UICC can be inserted and which is capable of providing access to 3GPP system services to users, either alone or in conjunction with a UICC

**User Equipment (UE):** terminal with a UICC inserted with one or several Universal Subscriber Identity Module(s) (USIM) available for access either NG-RAN or E-UTRAN or UTRAN or GERAN or any combination.

**USIM session:** USIM session is a selectable application session for a USIM application.

**WLAN AP Cell Aw:** Wireless access point hosting WLAN Cell A.

## 3.2 Symbols

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

bx Bit x of byte (leftmost bit is MSB)

Bn Byte No. n

## 3.3 Abbreviations

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

2G 2nd Generation

3G 3rd Generation

3GPP 3rd Generation Partnership Project

5G 5th Generation

5G-CRG 5G Cable Residential Gateway

ACC Access Class

ACL APN Control List

ACM Accumulated Call Meter

ACMmax ACM maximal value

ACT Access Technology

ADF Application Dedicated File

AoC Advice of Charge

AoCC Advice of Charge Charging

APN Access Point Name

ASME Access Security Management Entity

ATR Answer To Reset

BCCH Broadcast Control Channel

BCD Binary Coded Decimal

BDN Barred Dialling Number

CAG Closed Access Group

CCI Capability / Configuration1 Identifier

CCI2 Capability / Configuration(2) Identifier

CCM Current Call Meter

CK Cipher key

CN Core Network

CS Circuit switched

CSG Closed Subscriber Group

DF Dedicated File

EPC Evolved Packet Core

E-USS Evolved Universal System Simulator

E-UTRA Evolved UTRA

EF Elementary File

eFDD evolved Frequency Division Duplex

EMM EPS Mobility Management

EMMI Electrical Man Machine Interface

EPS Evolved Packet System

eTDD evolved Time Division Duplex

Ext n Extension n

FDD Frequency Division Duplex

FDN Fixed Dialling Number

FN-BRG Fixed Network Broadband Residential Gateway

FN-CRG Fixed Network Cable Residential Gateway

FPLMN Forbidden PLMN

GCI Global Cable Identifier

GLI Global Line Identifier

GSM Global System for Mobile communications

HNB Home NodeB

HeNB Home eNodeB

HPLMN Home PLMN

ICC Integrated Circuit Card

ID Identifier

IEC International Electrotechnical Commission

IK Integrity key

IMSI International Mobile Subscriber Identity

ISO International Organization for Standardization

KSI Key Set Identifier

LAC Location Area Code

LAI Location Area Information

LSB Least Significant Bit

MCC Mobile Country Code

MCS Mission Critical Services

MF Master File

MM Multimedia Message

MMI Man Machine Interface

MMS Multimedia Messaging Service

MNC Mobile Network Code

MPS Multimedia Priority Service

MS Mobile Station

MSB Most Significant Bit

N3IWF Non-3GPP Inter-Working Function

NAI Network Access Identifier

NAS Non Access Stratum

NB-IoT Narrow Band Internet of Things

NB-SS Narrow Band System Simulator

NG-RAN Next Generation Radio Access Network

NG-SS Next Generation System Simulator

NPI Numbering Plan Identifier

NSI Network Specific Identifier

OSI Open System Interconnection

P1 Parameter 1

P2 Parameter 2

P3 Parameter 3

PIN Personal Identification Number

PLMN Public Land Mobile Network

PS Packet switched

RACH Random Access Channel

RFU Reserved for Future Use

RRC Radio Resource Control

SAT-NG-SS Satellite Next Generation System Simulator

SFI Short File Identifier

SIB System Information Block

SM Short Message

SMS Short Message Service

SOR Steering of Roaming

SS System Simulator (GSM)

SUCI Subscription Concealed Identifier

SUPI Subscription Permanent Identifier

TAI Tracking Area Identity

TDD Time Division Duplex

TE Terminal Equipment

TLV Tag Length Value

TMSI Temporary Mobile Subscriber Identity

TON Type Of Number

UAC Unified Access Control

UE User Equipment

URSP UE Route Selection Policy

USIM Universal Subscriber Identity Module

USS UMTS System Simulator

UTRA Universal Terrestrial Radio Access

UTRAN UMTS Terrestrial Radio Access Network

VPLMN Visitor PLMN

## 3.4 Coding Conventions

For the purposes of the present document, the following coding conventions apply:

All lengths are presented in bytes, unless otherwise stated. Each byte B is represented by eight bits b8 to b1, where b8 is the most significant bit (MSB) and b1 is the least significant bit (LSB). In each representation, the leftmost bit is the MSB.

In the UICC, all bytes specified as RFU shall be set to '00' and all bits specifies as RFU shall be set to '0'. If the GSM and/or USIM application exists on a UICC or is built on a generic telecommunications card, then other values may apply for the non- GSM or non-USIM applications. The values will be defined in the appropriate specifications for such cards and applications. These bytes and bits shall not be interpreted by a Terminal in a GSM or 3G session.

The coding of all data objects in the present document is according to ETSI TS 102 221 [5]. All data objects are BER-TLV except if otherwise defined.

## 3.5 Generic procedures for E-UTRAN/UTRAN/GERAN/IMS/NB-IoT/5G-NR

If a test case contains the statement "This test applies to Terminals accessing E-UTRAN", the procedures defined in TS 36.508 [29] shall be the basis for all performed procedures during the test. The procedures in clause 4.5 describe the default behaviour of a conformant UE regarding the specified protocols to be used for E-UTRAN and the required procedures from the NAS.

If a test case contains the statement "This test applies to Terminals accessing UTRAN", the procedures defined in TS 34.108 [21], clause 7.2 shall be the basis for all performed procedures during the test. The procedures in clause 7 describe the default behaviour of a conformant UE regarding the specified protocols to be used for UTRAN and the required procedures from the NAS.

If a test case contains the statement "This test applies to Terminals accessing GERAN", the procedures defined in TS 51.010‑1 [22], clause 10 shall be the basis for all performed procedures during the test. The procedures in clause 10 describe the default behaviour of a conformant UE regarding the specified protocols to be used for GERAN and the required procedures from the NAS.

3GPP TS 34.229-1[33], Annex C describes the generic test procedures for IMS.

If a test case contains the statement "This test applies to Terminals accessing NB", the procedures defined in TS 36.508 [29] shall be the basis for all performed procedures during the test. The procedures in TS 36.508 [29] clause 8.1.5 describe the default behaviour of a conformant UE regarding the specified protocols to be used for NB-IoT and the required procedures from the NAS.

If a test case contains the statement "This test applies to Terminals accessing 5G-NR", the procedures defined in TS 38.508-1 [40] shall be the basis for all performed procedures during the test. The procedures in clause 4.5 describe the default behaviour of a conformant UE regarding the specified protocols to be used for 5G-NR, and satellite NG‑RAN, and the required procedures from the NAS. Depending on the Usage Setting of the Terminal NG-SS and UE shall use the default configuration as defined in clause 4A. If the usage setting of the terminal is voice centric pc\_ue\_usage\_voice\_centric shall be set to TRUE.

5G-NR generic procedure for 5G Registration on 3GPP access with IMS service is defined in Annex Z.1.