

**Agenda Item: 7.1**

**Source: RAN**

**Title: Proposed update of Section 5.1.2**

**Document for: Approval**

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### **5.1.2 Detailed specification of the radio interface**

The standards contained in this section are derived from the global core specifications for IMT-2000 contained at [ties.itu.int/u/itu-r/ede/rsg8/wp8f/rtech/GCSrev4/5-1/](http://ties.itu.int/u/itu-r/ede/rsg8/wp8f/rtech/GCSrev4/5-1/).

### 5.1.2.1 25.200 series

#### 5.1.2.1.1 25.201 Physical layer – General description

This specification gives a general description of the physical layer of the UTRA radio interface.

Release 99	Document No.	Version	Status	Issued date	Location <sup>(1)</sup>
(2)	ARIB/ TTC				
	<a href="#">ATIS</a>				
	CCSA				
	ETSI				
	<del>TTT</del>				
	TTA				
Release 4					
(2)	ARIB/ TTC				
	<a href="#">ATIS</a>				
	CCSA				
	ETSI				
	<del>TTT</del>				
	TTA				
Release 5					
(2)	ARIB/ TTC				
	<a href="#">ATIS</a>				
	CCSA				
	ETSI				
	<del>TTT</del>				
	TTA				
Release 6					
(2)	ARIB/ TTC				
	<a href="#">ATIS</a>				
	CCSA				
	ETSI				
	<del>TTT</del>				
	TTA				

<sup>(1)</sup> The relevant SDOs should make their reference material available from their Web site.

<sup>(2)</sup> This information was supplied by the recognized external organizations and relates to their own deliverables of the transposed global core specification.

#### NOTE BY THE SECRETARIAT

Similar tables will appear under each of the following sub-sections of § 5.1.2. In accordance with the established procedure for updating this Recommendation, the SDO's information will be submitted to ITU by 31 May ~~2004~~ 2005 and included in these tables when the final text is sent out for approval.

#### **5.1.2.1.2 25.211 Physical channels and mapping of transport channels onto physical channels (FDD)**

This specification describes the characteristics of the Layer 1 transport channels and physical channels in the FDD mode of UTRA. The main objectives of the specification are to be a part of the full description of the UTRA Layer 1, and to serve as a basis for the drafting of the actual technical specification (TS).

#### **5.1.2.1.3 25.212 Multiplexing and channel coding (FDD)**

This specification describes the characteristics of the Layer 1 multiplexing and channel coding in the FDD mode of UTRA.

#### **5.1.2.1.4 25.213 Spreading and modulation (FDD)**

This specification describes spreading and modulation for UTRA physical layer FDD mode.

#### **5.1.2.1.5 25.214 Physical layer procedures (FDD)**

This specification describes and establishes the characteristics of the physical layer procedures in the FDD mode of UTRA.

#### **5.1.2.1.6 25.215 Physical layer – Measurements (FDD)**

This specification describes the measurements done at the UE and network in order to support operation in idle mode and connected mode for FDD mode.

### **5.1.2.2 25.300 series**

#### **5.1.2.2.1 25.301 Radio interface protocol architecture**

This specification describes an overview and overall description of the UE-UTRAN radio interface protocol architecture. Details of the radio protocols will be specified in companion documents.

#### **5.1.2.2.2 25.302 Services provided by the physical layer**

This specification describes a technical specification of the services provided by the physical layer of UTRA to upper layers.

#### **5.1.2.2.3 25.303 Interlayer procedures in connected mode**

This specification describes informative interlayer procedures to perform the required tasks.

This specification attempts to provide a comprehensive overview of the different states and transitions within the connected mode of universal mobile telecommunications system (UMTS) terminal.

#### **5.1.2.2.4 25.304 UE procedures in idle mode and procedures for cell reselection in connected mode**

This specification describes the overall idle mode process for the UE and the functional division between the non-access stratum and access stratum in the UE. The UE is in idle mode when the connection of the UE is closed on all layers, e.g. there is neither an MM connection nor an RRC connection.

This specification presents also examples of inter-layer procedures related to the idle mode processes and describes idle mode functionality of a dual mode UMTS/GSM UE.

#### **5.1.2.2.5 25.305 Stage 2 Functional Specification of UE positioning in UTRAN (LCS)**

This document specifies the stage 2 of the UE Positioning function of UTRAN, which provides the mechanisms to support the calculation of the geographical position of a UE.

#### **5.1.2.2.6 25.306 UE Radio Access capabilities definition**

This document identifies the parameters of the access stratum part of the UE radio access capabilities. Furthermore, some reference configurations of these values are defined. The intention is that these configurations will be used for test specifications.

#### **5.1.2.2.7 25.307 Requirements on UE supporting a release-independent frequency band**

This document specifies requirements on UEs supporting a frequency band that is independent of release.

#### **5.1.2.2.8 25.308 UTRA High Speed Downlink Packet Access – Overall Description (Stage 2)**

This document is a technical specification of the overall support of High Speed Downlink Packet Access in U0

#### **[5.1.2.2.9 25.309 FDD Enhanced Uplink – Overall Description \(Stage 2\)](#)**

[This document is a technical specification of the overall support of high data rates in the uplink through the use of the E-DCH transport channel.](#)

#### **5.1.2.2.9~~10~~ 25.321 Medium access control (MAC) protocol specification**

This specification describes the MAC protocol.

#### **5.1.2.2.10~~11~~ 25.322 Radio link control (RLC) protocol specification**

This specification describes the RLC protocol.

#### **5.1.2.2.11~~12~~ 25.323 Packet Data Convergence Protocol (PDCP) protocol**

This document provides the description of the Packet Data Convergence Protocol (PDCP). PDCP provides its services to the NAS at the UE or the relay at the Radio Network Controller (RNC). PDCP uses the services provided by the Radio Link Control (RLC) sublayer.

#### **5.1.2.2.12~~3~~ 25.324 Broadcast/Multicast Control (BMC) Services**

This document provides the description of the Broadcast/Multicast Control Protocol (BMC). This protocol adapts broadcast and multicast services on the radio interface.

#### **5.1.2.2.13~~14~~ 25.331 Radio resource control (RRC) protocol specification**

This specification describes the RRC protocol for the radio system. The scope of this specification contains also the information to be transported in a transparent container between source RNC and target RNC in connection to SRNC relocation.

#### **[5.1.2.2.14~~5~~ 25.346 Introduction of the Multimedia Broadcast Multicast Service \(MBMS\) in the Radio Access Network](#)**

[This document is a technical specification of the overall support of Multimedia Broadcast and Multicast Services in UTRA.](#)

#### **5.1.2.3 25.400 series**

#### **5.1.2.3.1 25.401 UTRAN overall description**

This specification describes the overall architecture of the UTRAN, including internal interfaces and assumptions on the radio and  $I_u$  interfaces.

#### **5.1.2.3.2 25.402 Synchronization in UTRAN Stage 2**

This document constitutes the stage 2 specification of different synchronisation mechanisms in UTRAN and on  $U_u$ .

#### **5.1.2.3.3 25.410 UTRAN $I_u$ interface: general aspects and principles**

This specification describes an introduction to the 25.41x series of technical specifications that define the  $I_u$  interface for the interconnection of RNC component of the UTRAN to the CN.

#### **5.1.2.3.4 25.411 UTRAN $I_u$ interface Layer 1**

This specification describes the standards allowed to implement Layer 1 on the  $I_u$  interface.

The specification of transmission delay requirements and O&M requirements are not in the scope of this specification.

#### **5.1.2.3.5 25.412 UTRAN $I_u$ interface signalling transport**

This specification describes the standards for Signalling Transport to be used across  $I_u$  Interface.

#### **5.1.2.3.6 25.413 UTRAN $I_u$ interface RANAP signalling**

This specification describes the signalling between the CN and the UTRAN over the  $I_u$  interface.

#### **5.1.2.3.7 25.414 UTRAN $I_u$ interface data transport and transport signalling**

This specification describes the standards for user data transport protocols and related signalling protocols to establish user plane transport bearers over the  $I_u$  interface.

#### **5.1.2.3.8 25.415 UTRAN $I_u$ interface user plane protocols**

This specification describes the protocols being used to transport and control over the  $I_u$  interface, the  $I_u$  user data streams.

#### **5.1.2.3.9 25.419 UTRAN $I_u$ -bc interface: Cell broadcast protocols between CBC and RNC**

This document specifies the Service Area Broadcast Protocol (SABP) between the Cell Broadcast Centre (CBC) and the Radio Network Controller (RNC).

#### **5.1.2.3.10 25.420 UTRAN $I_{ur}$ interface: general aspects and principles**

This specification describes an introduction to the TSG RAN TS 25.42x series of technical specifications that define the  $I_{ur}$  interface. It is a logical interface for the interconnection of two RNC components of the UTRAN.

#### **5.1.2.3.11 25.421 UTRAN $I_{ur}$ interface Layer 1**

This specification describes the standards allowed to implement Layer 1 on the  $I_{ur}$  interface.

The specification of transmission delay requirements and O&M requirements are not in the scope of this specification.

#### **5.1.2.3.12 25.422 UTRAN $I_{ur}$ interface signalling transport**

This specification describes the standards for Signalling Transport to be used across Iur Interface.

#### **5.1.2.3.13 25.423 UTRAN I<sub>ur</sub> interface RNSAP signalling**

This specification describes the radio network layer signalling procedures between RNCs in UTRAN.

#### **5.1.2.3.14 25.424 UTRAN I<sub>ur</sub> interface data transport and transport signalling for common transport channel data streams**

This specification describes the UTRAN RNS-RNS (I<sub>ur</sub>) interface data transport and transport signalling for common transport channel data streams.

#### **5.1.2.3.15 25.425 UTRAN I<sub>ur</sub> interface user plane protocols for common transport channel data streams**

This specification describes the UTRAN RNS-RNS (I<sub>ur</sub>) interface user plane protocols for common transport channel data streams.

#### **5.1.2.3.16 25.426 UTRAN I<sub>ur</sub> and I<sub>ub</sub> interface data transport and transport signalling for DCH data streams**

This specification describes the transport bearers for the DCH data streams on UTRAN I<sub>ur</sub> and I<sub>ub</sub> interfaces. The corresponding transport network control plane is also specified. The physical layer for the transport bearers is outside the scope of this TS.

#### **5.1.2.3.17 25.427 UTRAN I<sub>ur</sub> and I<sub>ub</sub> interface user plane protocols for DCH data streams**

This specification describes the UTRAN I<sub>ur</sub> and I<sub>ub</sub> interfaces user plane protocols for dedicated transport channel data streams.

#### **5.1.2.3.18 25.430 UTRAN I<sub>ub</sub> interface: general aspects and principles**

This specification describes the TSG RAN TS 25.43x series of UMTS technical specifications that define the I<sub>ub</sub> interface. The I<sub>ub</sub> interface is a logical interface for the interconnection of Node B and RNC components of the UTRAN.

#### **5.1.2.3.19 25.431 UTRAN I<sub>ub</sub> interface: Layer 1**

This specification describes the standards allowed to implement Layer 1 on the I<sub>ub</sub> interface.

The specification of transmission delay requirements and O&M requirements is not in the scope of this specification.

#### **5.1.2.3.20 25.432 UTRAN I<sub>ub</sub> interface: signalling transport**

This specification describes the signalling transport related to the Node B application part (NBAP) signalling to be used across the I<sub>ub</sub> interface. The I<sub>ub</sub> interface is a logical interface for the interconnection of Node B and RNC components of the UTRAN. The RNC signalling between these nodes is based on NBAP.

#### **5.1.2.3.21 25.433 UTRAN I<sub>ub</sub> interface: NBAP signalling**

This specification describes the standards for NBAP specification to be used over I<sub>ub</sub> interface.

#### **5.1.2.3.22 25.434 UTRAN I<sub>ub</sub> interface data transport and transport signalling for common transport channel data streams**

This specification describes the UTRAN RNC-Node B (I<sub>ub</sub>) interface data transport and transport signalling for CCH data streams.

#### **5.1.2.3.23 25.435 UTRAN I<sub>ub</sub> interface user plane protocols for common transport channel data streams**

This specification describes the UTRAN RNC-Node B (I<sub>ub</sub>) interface user plane protocols for common transport channel data streams.

#### **5.1.2.3.24 25.442 UTRAN implementation specific O&M transport**

This specification describes the transport of implementation specific O&M signalling between Node B and the management platform in case that the transport is routed via the RNC.

#### **5.1.2.3.25 25.450 UTRAN I<sub>upc</sub> interface general aspects and principles**

The present document is an introduction to the TSG RAN TS 25.45z series of UMTS Technical Specifications that define the I<sub>upc</sub> Interface. The I<sub>upc</sub> interface is a logical interface for the interconnection of Standalone SMLC (SAS) and Radio Network Controller (RNC) components of the Universal Terrestrial Radio Access Network (UTRAN) for the UMTS system.

#### **5.1.2.3.26 25.451 UTRAN I<sub>upc</sub> Interface Layer 1**

The present document specifies the standards allowed to implement Layer 1 on the I<sub>upc</sub> interface.

#### **5.1.2.3.27 25.452 UTRAN I<sub>upc</sub> Interface: Signalling Transport**

The present document specifies the signalling transport related to PCAP signalling to be used across the I<sub>upc</sub> interface.

#### **5.1.2.3.28 25.453 UTRAN I<sub>upc</sub> interface PCAP signalling**

The present document specifies the *Positioning Calculation Application Part (PCAP)* between the Radio Network Controller (RNC) and the Stand-alone SMLC (SAS).

#### **5.1.2.3.29 25.460 UTRAN I<sub>uant</sub> Interface: General Aspects and Principles**

This document is an introduction to the TSG RAN TS 25.46x series of UMTS Technical Specifications that define the I<sub>uant</sub> Interface. The logical I<sub>uant</sub> interface is a Node B internal interface between the implementation specific O&M function and the Remote Electrical Tilting (RET) Antenna Control unit function of the Node B.

#### **5.1.2.3.30 25.461 UTRAN I<sub>uant</sub> Interface: Layer 1**

This document specifies the standards allowed to implement Layer 1 on the I<sub>uant</sub> interface. The specification of transmission delay requirements and O&M requirements are not in the scope of the present document.

#### **5.1.2.3.31 25.462 UTRAN I<sub>uant</sub> Interface: Signalling Transport**

This document specifies the signalling transport related to RETAP signalling to be used across the I<sub>uant</sub> interface.

#### **5.1.2.3.32 25.463 UTRAN I<sub>uant</sub> Interface: Remote Electrical Tilting (RET) Antennas Application Part (RETAP) Signalling**

This document specifies the *Remote Electrical Tilting Application Part (RETAP)* between the implementation specific O&M function and the RET Antenna Control unit function of the Node B. It defines the I<sub>uant</sub> interface and its associated signaling procedures.

#### **5.1.2.4 25.100 series**

##### **5.1.2.4.1 25.101 UE radio transmission and reception (FDD)**

This document establishes the minimum RF characteristics of the UTRA User Equipment (UE) operating in the FDD mode. The values in the TS make no allowance for measurement uncertainty in conformance testing. Test limits to be used for conformance testing are specified separately in the UE conformance test specifications TS 34.121.

##### **5.1.2.4.2 25.106 UTRA Repeater; Radio Transmission and Reception**

The present document establishes the minimum radio frequency performance of UTRA repeaters.

##### **5.1.2.4.3 25.133 Requirements for support of radio resource management (FDD)**

This specification describes the requirements for support of radio resource management for FDD including requirements on measurements in UTRAN and the UE as well as on node dynamic behaviour and interaction, in terms of delay and response characteristics.

##### **5.1.2.4.4 25.104 BTS radio transmission and reception (FDD)**

This specification describes the base station minimum RF characteristics of the FDD mode of UTRA. The values in the TS make no allowance for measurements uncertainties in conformance testing. Test limit to be used for conformance testing are specified separately in the BS conformance test Specification TS 25.141.

##### **5.1.2.4.5 25.141 Base station conformance testing (FDD)**

This specification describes the RF test methods and conformance requirements for UTRA base transceiver stations (BTS) operating in the FDD mode. These have been derived from, and are consistent with, the core UTRA specifications specified in the requirements reference subclause of each test. The maximum acceptable measurement uncertainty is specified in the TS for each test, where appropriate.

#### **5.1.2.4.6 25.113 Base station EMC (see Note 1)**

This specification describes the assessment of base stations and associated ancillary equipment in respect of EMC.

NOTE 1 – This specification does not include the antenna port immunity and emissions.

#### **5.1.2.4.7 25.143 UTRA Repeater; Conformance Testing**

The present document specifies the Radio Frequency (RF) test methods and Minimum Requirements for UTRA Repeaters. These have been derived from, and are consistent with the UTRA Repeater specifications defined in TS 25.106.

#### **5.1.2.4.8 25.171 Requirements for support of A-GPS (FDD)**

The present document establishes the minimum performance requirements for A-GPS for FDD mode of UTRA for the User Equipment (UE).

#### **5.1.2.5 34.100 Series**

##### **5.1.2.5.1 34.108 Common Test Environments for User Equipment (UE) Conformance Testing**

This document contains definitions of reference conditions and test signals, default parameters, reference Radio Bearer configurations, common requirements for test equipment and generic set-up procedures for use in UE conformance tests.

##### **5.1.2.5.2 34.109 Logical Test Interface (TDD and FDD)**

This document specifies for User Equipment (UE), in UMTS system, for FDD and TDD modes, those UE functions that are required for conformance testing purposes.

##### **5.1.2.5.3 34.121 Terminal Conformance Specification, Radio Transmission and Reception (FDD)**

This document specifies the Radio Frequency (RF) test methods and conformance requirements for UTRA User Equipment (UE) operating in the FDD mode. These have been derived from, and are consistent with, the core UTRA specifications. The maximum acceptable measurement uncertainty is specified in the TS for each test, where appropriate.

##### **5.1.2.5.4 34.123-1 UE Conformance Specification, Part 1- Conformance specification**

This document specifies the protocol conformance testing for the 3<sup>rd</sup> Generation User Equipment (UE). This is the first part of a multi-part test specification.

##### **5.1.2.5.5 34.123-2 UE Conformance Specification, Part 2- ICS**

This document provides the Implementation Conformance Statement (ICS) proforma for 3<sup>rd</sup> Generation User Equipment (UE), in compliance with the relevant requirements, and in accordance with the relevant guidance given in ISO/IEC 9646-7 and ETS 300 406. This document also specifies a recommended applicability statement for the test cases included in TS 34.123-1. These applicability statements are based on the features implemented in the UE.

#### **5.1.2.5.6 34.124 Electromagnetic compatibility (EMC) requirements for Mobile terminals and ancillary equipment**

This document establishes the essential EMC requirements for “3<sup>rd</sup> generation” digital cellular mobile terminal equipment and ancillary accessories in combination with a 3GPP user equipment (UE).

### **5.1.2.6 Core network aspects**

#### **5.1.2.6.1 23.108 Mobile radio interface Layer 3 specification core network protocols – Stage 2**

This specification describes the procedures used at the radio interface for call control (CC), mobility management (MM) and session management (SM). It shall hold examples of the structured procedures.

#### **5.1.2.6.2 23.110 UMTS access stratum services and functions**

This specification describes the detailed specifications of the protocols which rule the information flows, both control and user data, between the access stratum and the parts of UMTS outside the access stratum, and of the detailed specifications of the UTRAN. These detailed specifications are to be found in other technical specifications.

#### **5.1.2.6.3 23.122 Functions related to Mobile Stations (MS) in idle mode and group receive mode**

This specification shall give an overview of the tasks undertaken by a Mobile Station (MS) when in idle mode, that is, switched on but not having a dedicated channel allocated, e.g. not making or receiving a call, or when in group receive mode, that is, receiving a group call or broadcast call but not having a dedicated connection. It also describes the corresponding network functions.

#### **5.1.2.6.4 24.007 Mobile radio interface signalling Layer 3 – general aspects**

This specification describes the principal architecture of Layer 3 and its sub-layers on the GSM Um interface, i.e. the interface between mobile station (MS) and network; for the CM sub-layer, the description is restricted to paradigmatic examples, CC, supplementary services, and short message services for non-general packet radio service (GPRS) services. It also defines the basic message format and error handling applied by the Layer 3 protocols.

#### **5.1.2.6.5 24.008 Mobile radio interface Layer 3 specification; core network protocols – Stage 3**

This specification describes the procedures used at the radio interface for CC, MM and SM.

The procedures currently described are for the CC of circuit-switched connections, SM for GPRS services, MM and radio resource management for circuit-switched and GPRS services.

#### **5.1.2.6.6 24.011 Point-to-point short message service (SMS) support on mobile radio interface**

This specification describes the procedures used across the mobile radio interface by the signalling Layer 3 function short message control (SMC) and short message relay (SM-RL) function for both circuit-switched GSM and GPRS.

#### **5.1.2.6.7 23.060 General packet radio service (GPRS) service description – Stage 2**

This specification describes a general overview over the GPRS architecture as well as a more detailed overview of the MS – CN protocol architecture. Details of the protocols will be specified in companion documents.

#### **5.1.2.6.8 24.022 Radio link protocol (RLP) for circuit switched bearer and teleservices**

This specification describes the RLP for data transmission over the UMTS public land mobile network (PLMN). RLP covers the Layer 2 functionality of the ISO OSI reference model (IS 7498). It is based on ideas contained in IS 3309, IS 4335 and IS 7809 (HDLC of ISO) as well as ITU-T Recommendations X.25, Q.921 and Q.922 (LAP-B and LAP-D, respectively). RLP has been

tailored to the special needs of digital radio transmission. RLP provides to its users the OSI data link service (IS 8886).

#### **5.1.2.6.9 24.010 Mobile radio interface Layer 3 – supplementary services specification – general aspects**

This specification describes the general aspects of the specification of supplementary services at the Layer 3 radio interface. Details will be specified in other documents.

#### **5.1.2.6.10 24.080 Mobile radio interface Layer 3 – supplementary services specification – formats and coding**

This specification describes the coding of information necessary for support of supplementary service operation on the mobile radio interface L3. Details will be specified in other documents.

### **5.1.2.7 Terminal aspects**

#### **5.1.2.7.1 21.111 USIM and IC card requirements**

This specification describes the requirements of the USIM and the USIM IC card (UICC). These are derived from the service and security requirements defined in the respective specifications. The document is the basis for the detailed specification of the USIM and the UICC, and the interface to the terminal.

#### **5.1.2.7.2 22.112 USAT Interpreter – Stage 1**

This document specifies a system to make Mobile Operator services, based on USAT functionality and USIM based security functionality, available to an internet environment. This is achieved by specifying the necessary components and protocols for a secure narrow band channel between the internet application and an USAT Interpreter on the USIM.

#### **5.1.2.7.3 31.101 UICC-Terminal Interface; Physical and Logical Characteristics**

This document specifies the interface between the UICC and the Terminal for 3G telecom network operation. This includes the requirements for the physical characteristics of the UICC, the electrical interface between the UICC and the Terminal, the initial communication establishment and the transport protocols, the communication commands and the procedures and the application independent files and protocols.

#### **5.1.2.7.4 31.102 Characteristics of the USIM Application**

This document defines the USIM application for 3G telecom network operation. The present document specifies, command parameters, file structures and content, security functions and the application protocol to be used on the interface between UICC (USIM) and ME.

#### **5.1.2.7.5 31.103 Characteristics of the ISIM Application**

This document defines the ISIM application for 3G telecom network operation. The present document specifies, command parameters, file structures and content, security functions and the application protocol to be used on the interface between UICC (ISIM) and ME.

#### **5.1.2.7.6 31.110 Numbering system for telecommunication IC card applications**

This document describes the numbering system for Application IDentifiers (AID) for 3G telecommunication Integrated Circuits (IC) card applications. The numbering system provides a means for an application and related services offered by a provider to identify if a given card contains the elements required by its application and related services.

#### **5.1.2.7.7 31.111 USIM application toolkit (USAT)**

This document defines the interface between the UICC and the Mobile Equipment (ME), and mandatory ME procedures, specifically for "USIM Application Toolkit". USAT is a set of commands and procedures for use during the network operation phase of 3G, in addition to those defined in TS 31.101.

#### **5.1.2.7.8 31.112 USIM Application Toolkit (USAT) interpreter architecture**

This document defines the overall architecture for the USAT Interpreter system including the role models, system architecture and information flow.

#### **5.1.2.7.9 31.113 USAT Interpreter Byte Codes**

This document specifies the byte codes that are recognised by an USAT Interpreter. The primary purpose of the byte codes is to provide efficient programmatic access to the SIM Application Toolkit commands.

#### **5.1.2.7.10 31.120 Physical, Electrical and Logical Test Specification**

This document tests the physical, electrical and logical requirements as specified in TS 31.101.

#### **5.1.2.7.11 31.121 UICC-Terminal Interface; USIM Application Test specification**

This document provides the UICC-Terminal Interface Conformance Test Specification between the 3G Terminal and USIM (Universal Subscriber Identity Module) as an application on the UICC and the Terminal for 3G telecom network operation.

#### **5.1.2.7.12 31.122 USIM Conformance Test Specification**

The present document provides the Conformance Test Specification for a UICC defined in TS 31.101 with Universal Subscriber Identity Module (USIM) defined in 3G TS 31.102.

#### **5.1.2.7.13 TS [31.130 \(U\)SIM API for Java Card](#)**

[This document defines the \(U\)SIM Application Programming Interface extending the "UICC API for Java Card™". This API allows to develop a \(U\)SAT application running together with a \(U\)SIM application and using GSM/3G network features.](#)

#### **5.1.2.7.14 [TS 31.116 APDU Structure for \(U\)SIM Toolkit applications](#)**

[This document defines the remote management of files and applets on the SIM/USIM.](#)

#### **5.1.2.7.15 TS 31.131 'C' Language Binding to USIM API**

This document includes information applicable to (U)SIM toolkit application developers creating applications using the C programming language ISO/IEC 9899 [7]. The present document describes an interface between toolkit applications written in the C programming language and the (U)SIM in order to realize the cooperation set forth in TS 42.019 [4]. In particular, the API described herein provides the service of assembling proactive commands and disassembling the responses to these commands for the application programmer.

#### **5.1.2.7.16 TS [34.131 Test Specification for 'C'-language binding to \(U\)SIM API](#)**

[This document covers the minimum characteristics considered necessary in order to provide compliance to 3GPP TS 31.131 "'C'-language binding to \(U\)SIM API".](#)

#### **5.1.2.7.17 22.048 Security mechanisms for (U)SIM application toolkit – stage 1**

This document provides standardised security mechanisms in conjunction with the SIM Application Toolkit for the interface between a 3G or GSM PLMN Entity and a UICC at the functional level.

#### **5.1.2.7.18 23.048 Security mechanisms for (U)SIM application toolkit – stage 2**

This document specifies the structure of the Secured Packets in a general format and in implementations using Short Message Service Point to Point (SMS-PP) and Short Message Service Cell Broadcast (SMS-CB).

#### **5.1.2.7.19 23.038 Alphabets and language specific information**

This specification describes the language specific requirements for the terminals including character coding.

#### **5.1.2.7.21 23.040 Technical realization of SMS point-to-point**

This specification describes the point-to-point SMS.

#### **5.1.2.7.22 23.041 Technical realization of cell broadcast service (CBS)**

This specification describes the point-to-multipoint CBS.

#### **5.1.2.7.23 23.042 Compression algorithm for text messaging services**

This specification describes the compression algorithm for text messaging services.

#### **5.1.2.7.24 23.057 Mobile Execution Environment (MExE) – stage 2**

This TS describes the functional capabilities and the security architecture of the Mobile Execution Environment.

#### **5.1.2.7.25 23.140 Multimedia Messaging Service – stage 2**

This TS describes the MMS network architecture, the application protocol framework and the technical realization of service features needed to support the non-realtime Multimedia Messaging Service.

#### **5.1.2.7.26 27.005 Use of data terminal equipment – data circuit terminating equipment (DTE – DCE) interface for cell broadcast service (CBS)**

This specification describes three interface protocols for control of SMS functions within a GSM mobile telephone from a remote terminal via an asynchronous interface.

#### **5.1.2.7.27 27.007 AT command set for the user equipment (UE)**

This specification describes a profile of AT commands and recommends that this profile be used for controlling mobile equipment (ME) functions and GSM network services from a terminal equipment (TE) through terminal adaptor (TA).

#### **5.1.2.7.28 27.010 Terminal equipment to mobile station (TE-MS) multiplexer protocol**

This specification describes a multiplexing protocol between a mobile station and an external data terminal for the purposes of enabling multiple channels to be established for different purposes (e.g. simultaneous SMS and data call).

#### **5.1.2.7.29 27.103 Wide area network synchronization standard**

This specification describes a definition of a wide area synchronization protocol. The synchronization protocol is based upon infrared mobile communication (IrMC) Level 4 for Release 99. The synchronization protocol is based upon SyncML from Release 4 onwards.

#### **5.1.2.7.30 23.227 Application and user interaction in the UE; Principles and specific requirements**

This Technical Specification defines the principles for scheduling resources between applications in different application execution environment (e.g. MExE, USAT etc.) and internal and external peripherals (e.g. infra-red, Bluetooth, USIM, radio interface, MMI, memory etc.).

#### **5.1.2.8.31 System aspects**

IMT-2000 CDMA Direct Spread specification also includes the following documents which are useful and related to this Recommendation.

#### **5.1.2.8.1 TS 23.002 ~~UMTS release 1999 n~~Network ~~architecture~~Architecture**

This specification describes the possible architectures of the mobile system.

#### **5.1.2.8.2 TS 23.101 General UMTS architecture**

This specification describes the basic physical and functional separation of UMTS. The content of this specification is limited to those features that are common to all UMTS networks independent of their origin. It identifies and names the reference points and functional groupings appearing at this level.

#### **5.1.2.8.3 TS 23.107 QoS concept and architecture**

This specification describes the framework for QoS in UMTS. The document shall be used as a living document which will cover all issues related QoS in UMTS.

#### **5.1.2.8.4 TS 23.121 Architectural requirements for release 1999**

This specification describes architectural requirements for release 1999 related to the evolution of the GSM platform towards UMTS with the overall goal of fulfilling the UMTS service requirements, support of roaming and support of new functionality, signalling systems and interfaces.

#### **5.1.2.8.5 TS 23.228 IP Multimedia Subsystem Stage 2**

This specifications describes the architectural requirement for an IP Multimedia Components incorporated in an UMTS System as well as second generation systems for GSM inside the core network and identify relevant interfaces to the existing system and the new one in between the new components incorporated.

#### **5.1.2.8.6 TR 23.930 I<sub>u</sub> principles**

This specification describes the requirements on the I<sub>u</sub> and studies relevant principles to guide further standardization of the related interface(s).

#### **5.1.2.8.7 TS 22.002 Bearer services supported by a GSM PLMN**

This 3G specification describes a set of bearer services to be provided to 3G subscribers by a 3G network itself and in connection with other networks. This document is also be used as a reference for defining the corresponding required mobile network capabilities which are specified by means of the connection type concept.

#### **5.1.2.8.8 TS 22.004 General on supplementary services**

This specification describes a recommended set of supplementary services to the teleservices and bearer services which will be supported by a 3G network in connection with other networks as a basis for the definition of the network capabilities required.

#### **5.1.2.8.9 TS 22.011 Service accessibility**

This specification describes the service access procedures as presented to the user. The document contains definitions and procedures are provided for international roaming, national roaming and regionally provided service. These are mandatory in relation to the technical realization of the UE.

#### **5.1.2.8.10 TS 22.016 International mobile equipment identities (IMEI)**

This specification describes the principal purpose and use of unique equipment identities.

#### **5.1.2.8.11 TS 22.022 Personalization of GSM ME mobile functionality specification – Stage 1**

This specification describes functional specifications of five features to personalize UE. These features are called:

- network personalization;
- network subset personalization;
- service provider (SP) personalization;
- corporate personalization;
- UMTS subscriber identity module (USIM) personalization.

This specification describes requirements for UE, which provide these personalization features.

#### **5.1.2.8.12 TS 22.024 Description of charge advice information (CAI)**

This specification describes an overall view of how the charging advice supplementary service shall operate both in the network and within the UE. The charging supplementary service is described in TS 22.086.

#### **5.1.2.8.13 TS 22.030 Man-machine interface (MMI) of the mobile station**

This specification describes the requirements for and gives guidelines on the MMI for calls on the 3G UE. This includes the requirements of the user procedures for call control and supplementary service control, the requirements on the physical input media and the output, such as indications and displayed information.

#### **5.1.2.8.14 TS 22.034 High speed circuit switched data (HSCSD) – Stage 1**

This specification describes the Stage 1 description of HSCSD. HSCSD is a feature that allows users subscribing to the general bearer services to access user rates that can be achieved with one or more traffic channel. HSCSD also defines a flexible use of air interface resources, which makes efficient and flexible use of higher user rates feasible.

#### **5.1.2.8.15 TS 22.038 SIM application toolkit (SAT) – Stage 1**

This specification describes the Stage 1 description of the SAT primarily from the subscriber's and serving environment's points of view, and does not deal with the details of the human interface itself. It includes information applicable to network operators, serving environments and terminal, switch and database manufacturers and contains the core requirements for a SAT which are sufficient to provide a complete service.

#### **5.1.2.8.16 TS 22.041 Operator determined call barring**

The feature operator determined barring (ODB) allows the network operator or service provider to regulate, by means of an exceptional procedure, access by the subscribers to 3G services, by the barring of certain categories of outgoing or incoming calls or of roaming. ODB shall take effect immediately and shall terminate ongoing calls and bar future calls. The purpose of this network feature is to be able to limit the service provider's financial exposure to new subscribers, or to those who have not promptly paid their bills. It may only be applied to the service provider's own subscribers.

#### **5.1.2.8.17 TS 22.042 Network identity and time zone (NITZ) – Stage 1**

The feature NITZ provides the means for serving networks to transfer current identity, time, daylight saving time and the local time zone to user equipment storage and use.

#### **5.1.2.8.18 TS 22.057 Mobile station application execution environment (MExE) – Stage 1**

This specification describes the Stage 1 description of the MExE.

#### **5.1.2.8.19 TS 22.060 General packet radio service (GPRS) – Stage 1**

This specification describes the Stage 1 description of the GPRS.

#### **5.1.2.8.20 TS 22.066 Support of mobile number portability (MNP) – Stage 1**

This specification describes the Stage 1 description of the support of MNP between networks in the same country. It is in response to a study mandate agreed between the European Commission and ETSI under order voucher ETSI/97/M-251.

#### **5.1.2.8.21 TS 22.067 Priority set-up service – Stage 1 (ASCI spec)**

This specification describes the Stage 1 description of the enhanced multi-level precedence and pre-emption (eMLPP) service. This service has two parts: precedence and pre-emption. Precedence involves assigning a priority level to a call in combination with fast call set-up. Pre-emption involves the seizing of resources, which are in use by a call of a lower precedence, by a higher level precedence call in the absence of idle resources. Pre-emption can also involve the disconnection of an on-going call of lower precedence to accept an incoming call of higher precedence.

#### **5.1.2.8.22 TS 22.071 Location services (LCS) – Stage 1**

LCS is a network provided enabling technology consisting of standardized service capabilities which enables the provision of location applications. This application may be service provider specific. The description of the numerous and varied possible location applications which are enabled by this technology are outside the scope of this specification. However, clarifying examples of how the functionality being specified may be used to provide specific LCS is included in various sections of the specification.

#### **5.1.2.8.23 TS 22.072 Call deflection (CD) – Stage 1**

CD enables the served mobile subscriber to respond to an incoming call offered by the network by requesting redirection of this call to another number specified in the response. The CD supplementary service can only be invoked before the connection is established by the served mobile subscriber, i.e. in response to the offered call, or during the period that the served subscriber is being informed of the call. The served subscriber's ability to originate calls is unaffected by the CD supplementary service.

#### **5.1.2.8.24 TS 22.078 Customized applications for mobile network enhanced logic (CAMEL) – Stage 1**

This specification describes the Stage 1 description for CAMEL feature which provides the mechanisms to support services consistently independently of the serving network. The CAMEL features shall facilitate service control of operator specific services external from the serving network. The CAMEL feature is a network feature and not a supplementary service. It is a tool to help the network operator to provide the subscribers with the operator specific services even when roaming outside the home network.

#### **5.1.2.8.25 TS 22.079 Support of optimal routing – Stage 1**

Support of optimal routing is a network feature to reduce the number of unnecessary inter-network call legs when the subscriber is roaming.

#### **5.1.2.8.26 TS 22.081 Line identification supplementary services – Stage 1**

This specification describes the supplementary services belonging to the group line identification supplementary services. The group of line identification supplementary services is divided into the following four supplementary services:

CLIP: calling line identification presentation (clause 1);

CLIR: calling line identification restriction (clause 2);

COLP: connected line identification presentation (clause 3);

COLR: connected line identification restriction (clause 4).

#### **5.1.2.8.27 TS 22.082 Call forwarding (CF) supplementary services – Stage 1**

This specification describes the supplementary services belonging to the group call offering supplementary services.

The group of supplementary services call offering supplementary services is divided into four different supplementary services:

- call forwarding unconditional (§ 1);
- call forwarding on mobile subscriber busy (§ 2);
- call forwarding on no reply (§ 3);
- call forwarding on mobile subscriber not reachable (§ 4).

#### **5.1.2.8.28 TS 22.083 Call waiting (CW) and call hold (HOLD) supplementary services – Stage 1**

This specification describes the supplementary services belonging to the group call completion supplementary services which are divided into the following two supplementary services:

- call waiting (clause 1);
- call hold (clause 2).

#### **5.1.2.8.29 TS 22.084 Multiparty (MPPTY) supplementary service – Stage 1**

This supplementary service provides a mobile subscriber with the ability to have a multi-connection call, i.e. a simultaneous communication with more than one party.

#### **5.1.2.8.30 TS 22.085 Closed user group (CUG) supplementary services – Stage 1**

The CUG supplementary service enables subscribers, connected to a network and possibly also other networks, to form CUGs to and from which access is restricted. A specific user may be a member of one or more CUGs. Members of a specific CUG can communicate among each other but not, in general, with users outside the group.

#### **5.1.2.8.31 TS 22.086 Advice of charge (AoC) supplementary services – Stage 1**

These services are designed to supply to a mobile user sufficient information to allow a real-time estimate to be made of the bill which will eventually be levied in the home public land mobile network (PLMN) on the mobile station subscriber.

#### **5.1.2.8.32 TS 22.087 User-to-user signalling (UUS) – Stage 1**

The UUS supplementary service allows a mobile subscriber to send/receive a limited amount of information to/from another network or ISDN subscriber over the signalling channel in association with a call to the other subscriber.

#### **5.1.2.8.33 TS 22.088 Call barring (CB) supplementary services – Stage 1**

The call restriction supplementary services allow the possibility for a mobile subscriber to have barring of certain categories of outgoing or incoming calls at the mobile subscribers access.

The group of call restriction services includes two supplementary services:

- barring of outgoing calls;
- barring of incoming calls.

By use of subscription options, the mobile subscriber can at provision time select a set of one or more barring programs to determine the categories of calls to be barred. The following categories are defined:

- all outgoing calls;
- outgoing international calls;
- outgoing international calls except those directed to the home PLMN country;
- all incoming calls;
- incoming calls when roaming outside the home PLMN country.

#### **5.1.2.8.34 TS 22.090 Unstructured supplementary service data (USSD) – Stage 1**

There are two modes of USSD: MMI-mode and application mode. MMI-mode USSD is for the transparent transport of MMI strings entered by the user to the network and for the transparent transport of text strings from the network that are displayed by the mobile for user information.

Application mode USSD is for the transparent transport of data between the network and the mobile station. Application mode USSD is intended to be used by applications in the network and their peer applications in the UE.

The communication over the radio interface takes place on the signalling channels using short dialogues with peak data throughput rate capabilities of up to approximately 600 bits/s outside of a call and 1 000 bits/s during a call.

#### **5.1.2.8.35 TS 22.091 Explicit call transfer (ECT) supplementary service – Stage 1**

The ECT supplementary service enables the served mobile subscriber (subscriber A) who has two calls, each of which can be an incoming or outgoing call, to connect the other parties in the two calls and release the served mobile subscribers own connection.

#### **5.1.2.8.36 TS 22.093 Call completion to busy subscriber (CCBS) – Stage 1**

In the situation when subscriber A encounters a network determined user busy (NDUB) destination B, the subscriber A can request the CCBS supplementary service (i.e. activate a CCBS request against destination B). The network will then monitor the wanted destination B for becoming idle.

When the wanted destination B becomes idle, then the network will wait a short time in order to allow destination B to make an outgoing call. If destination B does not make any outgoing call within this time, then the network shall automatically recall subscriber A.

#### **5.1.2.8.37 TS 22.096 Calling name presentation (CNAP) – Stage 1**

The CNAP supplementary service enables the called party to receive the calling name information of the calling party.

#### **5.1.2.8.38 TS 22.097 Multiple subscriber profile (MSP) – Stage 1**

MSP is an optional service to enable mobile subscribers to have several profiles associated with a single subscriber identity (SIM) and a single international mobile subscriber identity (IMSI), with each profile being a subscription option. Each profile may be used for mobile originated and mobile terminated calls.

Up to four different profiles can be provisioned against a subscriber using the MSP feature. This will allow the subscriber to separate her telecommunication service needs into different identities (e.g. business and home).

#### **5.1.2.8.39 TS 22.100 UMTS phase 1 capabilities**

This specification describes how the definition of the UMTS system will be achieved in a phased approach. This document also specifies the requirements for release 99 of UMTS. Some requirements which are necessary to ensure a smooth transition to later releases are also indicated. This document should, however, be read in conjunction with the other 22.000 series documents which provide a complete description of the requirements for UMTS release 1999 and beyond.

#### **5.1.2.8.40 TS 22.101 UMTS service principles**

This specification describes the service principles of the UMTS.

#### **5.1.2.8.41 TS 22.105 Services and service capabilities**

Pre-UMTS systems have largely standardized the complete sets of bearer services, teleservices and supplementary services which they provide. One major difference between UMTS and pre-UMTS systems is that service capabilities rather than services are standardized for UMTS, allowing service differentiation and system continuity. This document describes how and what kind of services the UMTS user has access to.

#### **5.1.2.8.42 TS 22.115 Service aspects: charging and billing**

This specification describes the service aspects of charging and billing of the UMTS.

This standard is not intended to duplicate existing standards or standards being developed by other groups on these topics, and will reference these where appropriate. This standard will elaborate on the charging requirements described in the charging principles in TS 22.101 UMTS service principles. It will allow the generation of accurate charging information to be used in the commercial and contractual relationships between the parties concerned.

#### **5.1.2.8.43 TS 22.121 Virtual home environment (VHE)**

This specification describes the content of the Stage 1 requirement for realization of VHE. VHE is defined as a concept for personal service environment (PSE) portability across network boundaries and between terminals. The concept of the VHE is such that users are consistently presented with the same personalized features, user interface customization and services in whatever network and whatever terminal (within the capabilities of the terminal and the network), wherever the user may be located.

A key feature to support VHE is the ability to build services using a standardized application interface.

#### **5.1.2.8.44 TS 22.129 Handover requirements between UMTS and GSM or other radio systems**

This specification describes service requirements for handover (terms are defined below) within UMTS systems and between UMTS, other IMT-2000 family members and second generation systems. Particular emphasis has been placed on the description of requirements for handover between UMTS and GSM but requirements specific to other systems are incorporated as required.

#### **5.1.2.8.45 TS 22.135 Multicall**

This specification describes multicall scenarios and requirements for UMTS phase 1 release 1999.

Multicall feature specifies functionality and interactions related to usage of several simultaneous bearers between a terminal and a network. Multicall features allows both circuit-switched call(s) and packet session(s) to exist simultaneously.

#### **5.1.2.8.46 TS 22.228 IP Multimedia Subsystem Stage 1**

This specification describes all IP Multimedia services offered by UMTS Systems and second generation systems.

#### **5.1.2.8.47 TR 22.971 Automatic establishment of roaming relations**

This report describes a proposed framework for commercial and technical interworking between UMTS home environments and serving networks who have no direct prior commercial agreements with each other.

This text is applicable to UMTS standardization within ETSI, and is produced with the intent to clarify the concepts involved, and identify those areas which require standardization.

#### **5.1.2.8.48 TR 22.975 Advanced addressing**

This report describes the requirements for numbering and addressing for UMTS. This technical report is aimed at generating discussion and should be agreed with ETSI WG NA2. The responsibility for developing of numbering and addressing schemes for all networks being in ETSI NA2.

#### **5.1.2.8.49 TS 21.133 Security threats and requirements**

Detailed security requirements.

#### **5.1.2.8.50 TS 33.102 Security architecture**

Provides a specification of all security mechanisms and protocols, except algorithms.

#### **5.1.2.8.51 TS 33.103 Security integration guidelines**

#### **5.1.2.8.52 TS 33.105 Cryptographic algorithm requirements**

Defines requirements for standard cipher and integrity algorithm.

#### **5.1.2.8.53 TS 33.106 Lawful interception requirements**

Defines all requirements for network based lawful interception.

#### **5.1.2.8.54 TS 33.120 Security objectives and principles**

Elaborates on the basic principles underlying the security.

#### **5.1.2.8.55 TR 33.901 Criteria for cryptographic algorithm design process**

This report describes the process used to design cipher and integrity algorithm.

#### **5.1.2.8.56 TR 33.902 Formal analysis of the 3G authentication protocol with modified sequence number management**

Formal analysis using BAN and temporal logic of authentication mechanism.

#### **5.1.2.8.57 TS 26.071 AMR speech codec: general description**

This specification describes an introduction to the set of the adaptive multi-rate (AMR) specifications.

#### **5.1.2.8.58 TS 26.090 AMR speech codec: transcoding functions**

This specification describes a detailed description of the AMR speech codec transcoding functions.

#### **5.1.2.8.59 TS 26.091 AMR speech codec: error concealment of lost frames**

This specification describes example procedures for the error concealment, also called frame substitution or muting procedure, of lost speech or silence indicator frames.

#### **5.1.2.8.60 TS 26.092 AMR speech codec: comfort noise aspects**

This specification describes the detailed requirements for the correct operation of the background acoustic noise evaluation, noise parameter encoding/decoding and comfort noise generation for the AMR speech codec during source controlled rate (SCR) operation.

#### **5.1.2.8.61 26.093 AMR speech codec: source controlled rate (SCR) operation**

This specification describes the operation of the AMR speech codec during SCR operation.

#### **5.1.2.8.62 TS 26.094 AMR speech codec: voice activity detector (VAD)**

This specification describes two alternatives for the VAD to be used during SCR operation in conjunction with the AMR codec.

#### **5.1.2.8.63 TS 26.110 Codec for circuit-switched multimedia telephony service: general description**

This specification describes an introduction to the set of specifications for the support of circuit-switched 3G-324M multimedia telephony service.

#### **5.1.2.8.64 TS 26.111 Codec for circuit-switched multimedia telephony service: modifications to ITU-T Recommendation H.324**

This specification describes the modifications applicable to the ITU-T Recommendation H.324, Annex C for the support of circuit-switched 3G-324M multimedia telephony service.

#### **5.1.2.8.65 TR 26.911 Codec for circuit-switched multimedia telephony service: terminal implementor's guide**

This report describes non-mandatory Recommendations for the use of the different codec implementation options for the circuit-switched 3G-324M multimedia telephony service based on ITU-T Recommendation H.324, Annex C. These Recommendations address issues specific to the third generation operating environment, including guaranteeing sufficient error resilience and inter-working between terminals.

### **5.1.2.9 Vocabulary**

#### **[5.1.2.9.1 21.905 Vocabulary](#)**

Document 21.905 is a collection of terms, definitions and abbreviations related to the baseline documents defining the objectives and systems framework. This document provides a tool for further work on the technical documentation and facilitates their understanding.

### 5.1.2.10 SDO's complete system standard

SDO	Location (Release 99)
ARIB	
<a href="#">ATIS</a>	
CCSA	
TTC	
ETSI	
⚠	
TTA	
SDO	Location (Release 4)
ARIB	
<a href="#">ATIS</a>	
CCSA	
TTC	
ETSI	
⚠	
TTA	
SDO	Location (Release 5)
ARIB	
<a href="#">ATIS</a>	
CCSA	
TTC	
ETSI	
⚠	
TTA	
SDO	Location (Release 6)
ARIB	
<a href="#">ATIS</a>	
CCSA	
TTC	
ETSI	
⚠	
TTA	