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SERIES Q: SWITCHING AND SIGNALLING

Signalling requirements and protocols for IMT-2000

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**IMT-2000 references to release 5 of GSM  
evolved UMTS core network**

ITU-T Recommendation Q.1741.3

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*For further details, please refer to the list of ITU-T Recommendations.*

## **ITU-T Recommendation Q.1741.3**

### **IMT-2000 references to release 5 of GSM evolved UMTS core network**

#### **Summary**

This Recommendation identifies a release of the IMT-2000 Family Member, "GSM evolved UMTS Core Network". This release of the Family Member is known to the Standards Development Organizations (i.e., ARIB, CWTS, ETSI, T1, TTA, TTC) as the "3GPP Release 5". Earlier releases, known as "3GPP Release 99" and "3GPP Release 4", of this Family Member are specified in ITU-T Recs Q.1741.1 and Q.1741.2, respectively, while other IMT-2000 Family Members are specified in other ITU-T Recommendations in the Q.174x series.

This Recommendation combines and associates the relevant standards from a number of Standards Development Organizations for the core network for this IMT-2000 Family Member into a global Recommendation.

#### **Source**

ITU-T Recommendation Q.1741.3 was approved on 13 September 2003 by ITU-T Study Group SSG (2001-2004) under the ITU-T Recommendation A.8 procedure.

#### **Keywords**

Core Network, GSM, IMT-2000, Release 5, third generation system, UMTS.

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# ITU-T Recommendation Q.1741.3

## IMT-2000 references to release 5 of GSM evolved UMTS core network

### 1 Scope

This Recommendation identifies the IMT-2000 Family Member, "GSM evolved UMTS Core Network". This release of the Family Member is known to the Standards Development Organizations (i.e., ARIB, CWTS, ETSI, T1, TTA, TTC) as the "3GPP Release 5".

The Core Network interfaces identified in this Recommendation and the radio interfaces and radio access interfaces which are identified in ITU-R Rec. M.1457 [1] constitute a complete system specification for the 3rd generation mobile system for terrestrial usage of this IMT-2000 Family Member.

It is the intent of the ITU-T that the references in this Recommendation are only to specifications that specify the network aspects of this IMT-2000 family member. In the event that a referenced specification also includes material that specifies any of the radio aspects of this IMT-2000 family member, ITU-R Rec. M.1457 [1] shall take precedence.

### 2 References<sup>1</sup>

The following ITU-T Recommendations and other references contain provisions, which through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

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- [5] TTA; TTAT.3G-23.002(R5-5.9.0) (2003), *Network Architecture (Release 5)*.

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<sup>1</sup> Technical documents of Standards Development Organizations recognized under the provisions of ITU-T Rec. A.5 can be found under:

ARIB	at <a href="http://www.arib.or.jp/english/index.html">http://www.arib.or.jp/english/index.html</a>
CWTS	at <a href="http://www.cwts.org/cwts/index_eng.html">http://www.cwts.org/cwts/index_eng.html</a>
ETSI	at <a href="http://www.etsi.org/">http://www.etsi.org/</a>
T1	at <a href="http://www.t1.org/">http://www.t1.org/</a>
TTA	at <a href="http://www.tta.or.kr/English/main/index.htm">http://www.tta.or.kr/English/main/index.htm</a>
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Details and links to the 3G Vocabulary references are given in the following table.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB TR-T12-21.905V5.5.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A21905-550.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A21905-550.pdf</a>
CWTS	CWTS-TSD-CN 21.905 (R5)	5.5.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TR 121.905	5.5.0	Published	20-09-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17362">http://pda.etsi.org/pda/home.asp?wki_id=17362</a>
T1	T1.3GPP.21.905V550-2003	5.5.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-21.905(R5-5.5.0)	5.5.0	Approved	21-03-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-21.905(R5-5.5.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-21.905(R5-5.5.0).zip</a>
TTC	TR-3GA-21.905(Rel5)v5.5.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/tr/tr21905rel5v550.pdf">http://www.ttc.or.jp/imt2000/tr/tr21905rel5v550.pdf</a>

## 3 Definitions

The text is based on references [71]-[76].

This Recommendation defines the following terms:

**3.1 A/Gb mode:** Mode of operation of the MS when connected to the Core Network via GERAN and the A and/or Gb interfaces.

**3.2 applet:** A small program that is intended not to be run on its own, but rather to be embedded inside another application

**3.3 application:** An application is a service enabler deployed by service providers, manufacturers or users. Individual applications will often be enablers for a wide range of services.

**3.4 application interface:** Standardized interface used by application/clients to access service capability features.

**3.5 application protocol:** The set of procedures required by the application.

- 3.6 authentication:** A property by which the correct identity of an entity or party is established with a required assurance. The party being authenticated could be a user, subscriber, home environment or serving network.
- 3.7 base station:** A base station is a macrocell, microcell or picocell site and consists of transmitters generating radio frequency electromagnetic energy and receivers in a cabin or cabinet. A base station is connected to antennas by feeder cables.
- 3.8 base station subsystem:** Either a full network or only the access part of a GERAN offering the allocation, release and management of specific radio resources to establish means of connection between an MS and the GERAN. A Base Station Subsystem is responsible for the resources and transmission/reception in a set of cells.
- 3.9 basic telecommunication service:** This term is used as a common reference to both bearer services and teleservices.
- 3.10 bearer:** An information transmission path of defined capacity, delay and bit error rate, etc.
- 3.11 bearer capability:** A transmission function, which the UE requests to the network.
- 3.12 bearer service:** A type of telecommunication service that provides the capability of transmission of signals between access points.
- 3.13 billing:** A function whereby CDRs generated by the charging function are transformed into bills requiring payment.
- 3.14 call:** A logical association between several users (this could be connection-oriented or connectionless).
- 3.15 Charging Data Record (CDR):** A formatted collection of information about a chargeable event (e.g., time of call set-up, duration of the call, amount of data transferred, etc.) for use in billing and accounting. For each party to be charged for parts of or all charges of a chargeable event a separate CDR shall be generated, i.e., more than one CDR may be generated for a single chargeable event, e.g. because of its long duration, or because more than one charged party is to be charged.
- 3.16 cell:** Radio network object that can be uniquely identified by a User Equipment from a (cell) identification that is broadcasted over a geographical area from one UTRAN or GERAN Access Point. A Cell in UTRAN is either FDD or TDD mode.
- 3.17 Cellular Text telephone Modem (CTM):** A modulation and coding method intended for transmission of text in voice channels for the application of real time text conversation.
- 3.18 charging:** A function whereby information related to a chargeable event is formatted and transferred in order to make it possible to determine usage for which the charged party may be billed.
- 3.19 cipher key:** A code used in conjunction with a security algorithm to encode and decode user and/or signalling data.
- 3.20 closed user group:** A group with a predefined set of members. Only defined members may participate in a closed group.
- 3.21 confidentiality:** The avoidance of disclosure of information without the permission of its owner.
- 3.22 connection:** A communication channel between two or more end-points (e.g., terminal, server, etc.).

- 3.23 connectionless (for a bearer service):** In a connectionless bearer, no connection is established beforehand between the source and the destination entities; the source and destination network addresses need to be specified in each message. Transferred information cannot be guaranteed of ordered delivery. Connectionless bearer services lifetime is reduced to the transport of one message.
- 3.24 connectionless service:** A service, which allows the transfer of information among service users without the need for end-to-end call establishment procedures [26].
- 3.25 control channel:** A logical channel that carries system control information.
- 3.26 core network:** An architectural term relating to the part of a 3G System, which is independent of the connection technology of the terminal (e.g., radio, wired).
- 3.27 corporate personalization:** Allows a corporate customer to personalize MEs that he provides for his employees or customers use so that they can only be used with the company's own SIMs.
- 3.28 coverage area (of a mobile cellular system):** An area where mobile cellular services are provided by that mobile cellular system to the level required of that system.
- 3.29 coverage area:** Area over which a 3G System service is provided with the service probability above a certain threshold.
- 3.30 dedicated channel:** A channel dedicated to a specific UE.
- 3.31 domain:** The highest-level group of physical entities. Reference points are defined between domains.
- 3.32 downlink:** Unidirectional radio link for the transmission of signals from a UTRAN access point to a UE. Also in general the direction from Network to UE.
- 3.33 element manager:** Provides a package of end-user functions for management of a set of closely related types of network elements. These functions can be divided into two main categories.
- 3.34 elementary file:** A file containing access conditions and data and no other files.
- 3.35 file:** A directory or an organized set of bytes or records in the SIM.
- 3.36 GSM/EDGE radio access network:** GERAN is a conceptual term identifying that part of the network which consists of BSCs and BTSs between A/Gb or Iu and Um interfaces.
- 3.37 GPRS MS:** An MS capable of GPRS services.
- 3.38 group:** A set of members allowed to participate in the group call service. The group is defined by a set of rules that identifies a collection of members implicitly or explicitly. These rules may associate members for the purpose of participating in a group call, or may associate members who do not participate in data transfer but do participate in management, security, control, or accounting for the group.
- 3.39 group call:** The relationship that exists between the members of a group for the purpose of transferring data. More than one group call may exist in a group. A group call establishes an active group.
- 3.40 handover:** The transfer of a user's connection from one radio channel to another (can be the same or different cell).
- 3.41 handover:** The process in which the radio access network changes the radio transmitters or radio access mode or radio system used to provide the bearer services, while maintaining a defined bearer service QoS.
- 3.42 hard handover:** Hard handover is a category of handover procedures where all the old radio links in the UE are abandoned before the new radio links are established.

- 3.43 home environment:** Responsible for overall provision and control of the Personal Service Environment of its subscribers.
- 3.44 home PLMN:** PLMN where the Mobile Country Code (MCC) and Mobile Network Code (MNC) of the PLMN identity are the same as the MCC and MNC of the IMSI.
- 3.45 IC card:** A card holding an Integrated Circuit containing subscriber, end user, authentication and/or application data for one or more applications.
- 3.46 idle mode:** The state of UE switched on but which does not have any established RRC connection.
- 3.47 integrity:** (in the context of security) The avoidance of unauthorized modification of information.
- 3.48 interface:** The common boundary between two associated systems [25].
- 3.49 International Mobile Station Equipment Identity (IMEI):** An "International Mobile Station Equipment Identity" is a unique number, which shall be allocated to each individual mobile station equipment in the PLMN and shall be unconditionally implemented by the MS manufacturer.
- 3.50 IRP information model:** An IRP Information Model consists of an IRP Information Service and a Network Resource Model (see below for definitions of IRP Information Service and Network Resource Model).
- 3.51 IRP information service:** An IRP Information Service describes the information flow and support objects for a certain functional area, e.g., the alarm information service in the fault management area. As an example of support objects, for the Alarm IRP there is the alarm record and alarm list.
- 3.52 Iu:** Interconnection point between an RNC and a Core Network. It is also considered as a reference point.
- 3.53 Iub:** Interface between an RNC and a Node B.
- 3.54 Iur:** A logical interface between two RNCs. Whilst logically representing a point-to-point link between RNC, the physical realization may not be a point-to-point link.
- 3.55 Location Registration (LR):** The UE registers its presence in a registration area, for instance regularly or when entering a new registration area.
- 3.56 medium access control:** A sublayer of radio interface layer 2 providing unacknowledged data transfer service on logical channels and access to transport channels.
- 3.57 messaging service:** An interactive service, which offers user-to-user communication between individual users via storage units with store-and-forward, mailbox and/or message handling, (e.g., information editing, processing and conversion) functions [26].
- 3.58 MExE server:** A node supporting MExE services in the MExE service environment.
- 3.59 MExE service:** A service enhanced (or made possible) by MExE technology.
- 3.60 MExE service environment:** Depending on the configuration of the PLMN, the operator may be able to offer support to MExE services in various ways. Examples of possible sources are from traditional GSM nodes, IN nodes, operator-specific nodes, operator franchised nodes and services provider nodes, together with access to nodes external (i.e., vendor-specific) to the PLMN depending on the nature of the MExE service. These nodes are considered to constitute the MExE service environment. The MExE service environment shall support direct MExE UE to MExE UE interaction of MExE services.
- 3.61 mobile number portability:** The ability for a mobile subscriber to change subscription network within the same country whilst retaining their original MSISDN(s).



- 3.62 mobile termination:** The mobile termination is the component of the mobile station which supports functions specific to management of the radio interface (Um).
- 3.63 mobility:** The ability for the user to communicate whilst moving independent of location.
- 3.64 mobility management:** A relation between the mobile station and the UTRAN that is used to set-up, maintain and release the various physical channels.
- 3.65 multipoint:** A value of the service attribute "communication configuration", which denotes that the communication involves more than two network terminations [26].
- 3.66 multimedia service:** Services that handle several types of media such as audio and video in a synchronized way from the user's point of view. A multimedia service may involve multiple parties, multiple connections, and the addition or deletion of resources and users within a single communication session.
- 3.67 network element:** A discrete telecommunications entity, which can be managed over a specific interface, e.g., the RNC.
- 3.68 network manager:** Provides a package of end-user functions with the responsibility for the management of a network, mainly as supported by the EM(s) but it may also involve direct access to the network elements. All communication with the network is based on open and well standardized interfaces supporting management of multi-vendor and multi-technology network elements.
- 3.69 network operator:** See PLMN operator.
- 3.70 network personalization:** Allows the network operator to personalize a ME so that it can only be used with that particular network operator's SIMs.
- 3.71 network resource model:** A protocol independent model describing managed objects representing network resources, e.g., an RNC or Node B.
- 3.72 network subset personalization:** A refinement of network personalization, which allows network operators to limit the usage of a ME to a subset of SIMs.
- 3.73 network termination:** A functional group on the network side of a user-network interface [25].
- 3.74 number portability:** Where the provision of diallable numbers is independent of home environment and/or serving network.
- 3.75 open service architecture:** Concept for introducing a vendor-independent means for introduction of new services.
- 3.76 operations system:** This term indicates a generic management system, independent of its location level within the management hierarchy.
- 3.77 OSA interface:** Standardized interface used by application/clients to access service capability features.
- 3.78 packet data protocol (PDP):** Any protocol, which transmits data as discrete units known as packets, e.g., IP, or ITU-T Rec. X.25 [61].
- 3.79 paging:** The act of seeking a User Equipment.
- 3.80 performance:** The ability to track service and resource usage levels and to provide feedback on the responsiveness and reliability of the network.
- 3.81 personal service environment:** Contains personalized information defining how subscribed services are provided and presented towards the user. Each subscriber of the Home Environment has her own Personal Service Environment. The Personal Service Environment is defined in terms of one or more User Profiles.

- 3.82 personalization:** The process of storing information in the ME and activating the procedures, which verify this information against the corresponding information stored in the SIM whenever the ME is powered up or a SIM is inserted, in order to limit the SIMs with which the ME will operate.
- 3.83 PLMN operator:** Public Land Mobile Network operator. The entity, which offers telecommunication services over an air interface.
- 3.84 point-to-point:** A value of the service attribute "communication configuration", which denotes that the communication involves only two network terminations.
- 3.85 protocol:** A formal set of procedures that are adopted to ensure communication between two or more functions within the same layer of a hierarchy of functions [25].
- 3.86 public land mobile network:** A telecommunications network providing mobile cellular services.
- 3.87 quality of service:** The collective effect of service performances, which determine the degree of satisfaction of a user of a service. It is characterized by the combined aspects of performance factors applicable to all services, such as:
- service operability performance;
  - service accessibility performance;
  - service retainability performance;
  - service integrity performance; and
  - other factors specific to each service.
- 3.88 radio access bearer:** The service that the access stratum provides to the non-access stratum for transfer of user data between User Equipment and CN.
- 3.89 radio access mode:** Mode of the cell, either FDD or TDD.
- 3.90 radio access network application part:** Radio Network Signalling over the Iu.
- 3.91 radio access network technology:** UTRAN, GERAN, etc.
- 3.92 radio interface:** The "radio interface" is the tetherless interface between User Equipment and a UTRAN access point. This term encompasses all the functionality required to maintain such interfaces.
- 3.93 radio link:** A "radio link" is a logical association between single User Equipment and a single UTRAN access point. Its physical realization comprises one or more radio bearer transmissions.
- 3.94 radio link control:** A sublayer of radio interface layer 2 providing transparent, unacknowledged and acknowledged data transfer service.
- 3.95 radio network controller:** This equipment in the RNS is in charge of controlling the use and the integrity of the radio resources.
- 3.96 radio network subsystem:** Either a full network or only the access part of a UTRAN offering the allocation and the release of specific radio resources to establish means of connection in between an UE and the UTRAN. A Radio Network Subsystem is responsible for the resources and transmission/reception in a set of cells.
- 3.97 radio system:** the selected 2nd or 3rd generation radio access technology.
- 3.98 real time:** Time, typically in number of seconds, to perform the on-line mechanism used for fraud control and cost control.

- 3.99 regionally provided service:** A service entitlement to only certain geographical part(s) of a PLMN, as controlled by the network operator.
- 3.100 registration:** This is the process of camping on a cell of the PLMN and doing any necessary LRs.
- 3.101 release 99:** A particular version of the 3G System standards produced by the 3GPP project. Also: Release 4, Release 5, Release 6, etc.
- 3.102 roaming:** The ability for a user to function in a serving network different from the home network.
- 3.103 security:** The ability to prevent fraud as well as the protection of information availability, integrity and confidentiality.
- 3.104 service area:** The Service Area is defined in the same way as the Service Area according to ITU-T Rec. Q.1001 [39]. In contrast to the PLMN area, it is not based on the coverage of a PLMN. Instead it is based on the area in which a fixed network user can call a mobile user without knowing his location. The Service Area can therefore change when the signalling system is being extended, for example.
- 3.105 service capabilities:** Bearers defined by parameters, and/or mechanisms needed to realize services. These are within networks and under network control.
- 3.106 service capability feature:** Functionality offered by service capabilities that are accessible via the standardized application interface.
- 3.107 service capability server:** Network functionality providing open interfaces towards the functionality offered by 3G System service capabilities.
- 3.108 service control:** The ability of the user, home environment or serving environment to determine what a particular service does, for a specific invocation of that service, within the limitations of that service.
- 3.109 service enabler:** A capability which may be used, either by itself or in conjunction with other service enablers, to provide a service to the end user.
- 3.110 service request:** This is defined as being one invocation of the service through a service request primitive.
- 3.111 service requester:** The entity, which requests the initiation of a GPRS operation, through a service request.
- 3.112 service subscriber:** Entity, which subscribes to the General Packet Radio Service (GPRS) service.
- 3.113 services (of a mobile cellular system):** The set of functions that the mobile cellular system can make available to the user.
- 3.114 serving network:** The serving network provides the user with access to the services of home environment.
- 3.115 settlement:** Payment of amounts resulting from the accounting process.
- 3.116 SIM personalization:** Enables a user to personalize a ME so that it may only be used with particular SIM(s).
- 3.117 stratum:** Grouping of protocols related to one aspect of the services provided by one or several domains.
- 3.118 subscriber:** A Subscriber is an entity (e.g., a user) that is engaged in a Subscription with a service provider.

- 3.119 subscription:** A subscription describes the commercial relationship between the subscriber and the service provider.
- 3.120 supplementary service:** A service, which modifies or supplements a basic telecommunication service. Consequently, it cannot be offered to a user as a stand-alone service. It must be offered together with or in association with a basic telecommunication service. The same supplementary service may be common to a number of basic telecommunication services.
- 3.121 telecommunication service:** What is offered by a PLMN operator or service provider to its customers in order to satisfy a specific telecommunication requirement. [25]. Telecommunication services are divided into two broad families: bearer services and teleservices (ITU-T Rec. I.210 [28]).
- 3.122 teleservice:** A type of telecommunication service that provides the complete capability, including terminal equipment functions, for communication between users according to standardized protocols and transmission capabilities established by agreement between operators.
- 3.123 text conversation:** Real time transfer of text between users in at least two locations.
- 3.124 text telephony:** An audiovisual conversation service providing bidirectional real time transfer of text and optionally audio between users in two locations. Audio may be transmitted alternating with text or simultaneously with text. (ITU-T Rec. F.703 [67].)
- 3.125 traffic channel:** A "traffic channel" is a logical channel which carries user information.
- 3.126 Universal Integrated Circuit Card (UICC):** A physically secure device, an IC card (or "smart card"), that can be inserted and removed from the terminal equipment. It may contain one or more applications. One of the applications may be a USIM.
- 3.127 Universal Subscriber Identity Module (USIM):** An application residing on the UICC used for accessing services provided by mobile networks, which the application is able to register on with the appropriate security.
- 3.128 uplink:** A unidirectional radio link for the transmission of signals from a UE to a base station, from a Mobile Station to a mobile base station or from a mobile base station to a base station.
- 3.129 user:** An entity, not part of the 3G System, which uses 3G System services. Example: a person using a 3G System mobile station as a portable telephone.
- 3.130 user access or user network access:** The means by which a user is connected to a telecommunication network in order to use the services and/or facilities of that network [25].
- 3.131 user equipment:** A device allowing a user access to network services. For the purpose of 3G specifications the interface between the UE and the network is the radio interface. A User Equipment can be subdivided into a number of domains, the domains being separated by reference points. Currently defined domains are the USIM and ME Domains. The ME Domain can further be subdivided into several components showing the connectivity between multiple functional groups. These groups can be implemented in one or more hardware devices. An example of such a connectivity is the TE-MT interface. Further, an occurrence of a User Equipment is an MS for GSM.
- 3.132 UTRA radio access mode:** The selected UTRA radio access mode, i.e., UTRA-FDD; UTRA-TDD.
- 3.133 UTRA-TDD:** Time Division Duplex UTRA Radio access mode.
- 3.134 virtual home environment:** A concept for personal service environment portability across network boundaries and between terminals.

#### 4 Abbreviations and acronyms

This Recommendation uses the following abbreviations:

2G	Second Generation
3G	Third Generation
3GMS	Third Generation Mobile Communication System
3GPP	Third Generation Partnership Project
AAL2	ATM Adaptation Layer type 2
ACELP	Algebraic Code-Excited Linear Prediction
AES	Advanced Encryption Standard
AID	Application IDentifier
AMF	Authentication Management Field
AMR	Adaptive Multi Rate (also appears as "Adaptive Multi-Rate")
AMR-WB	Adaptive Multi-Rate Wideband
ANSI	American National Standards Institute
AoC	Advice of Charge
AoCC	Advice of Charge Charging (also appears as "Advice of Charge (Charging)")
AoCI	Advice of Charge Information (also appears as "Advice of Charge (Information)")
API	Application Programming Interface
ARIB	Association of Radio Industries and Businesses
ASE	Application Service Element
AT-command	ATtension Command
ATM	Asynchronous Transfer Mode
AuC	Authentication Centre
BAIC	Barring of All Incoming Calls supplementary service (also appears without "supplementary service")
BAOC	Barring of All Outgoing Calls supplementary service (also appears without "supplementary service")
BICC	Bearer Independent Call Control
BIC-Roam	Barring of Incoming Calls when Roaming outside the home PLMN country
BOIC	Barring of Outgoing International Calls
BOIC-exHC	Barring of Outgoing International Calls except those directed to the Home PLMN Country
BS	Base Station
BS	Bearer Service
BSC	Base Station Controller
BSS	Base Station Subsystem
BSSMAP	Base Station Subsystem Management Application Part

BTS	Base Transceiver Station
CAI	Charge Advice Information
CAMEL	Customized Applications for Mobile network Enhanced Logic
CAP	CAMEL Application Part
CB	Call Barring
CBC	Cell Broadcast Centre
CBS	Cell Broadcast Service
CC	Call Control
CCBS	Completion of Calls to Busy Subscriber (also appears as "Call Completion to Busy Subscriber")
CD	Call Deflection
CDR	Charging Data Record
CF	Call Forwarding
CFB	Call Forwarding on mobile subscriber Busy
CFNRc	Call Forwarding on mobile subscriber Not Reachable supplementary service (also appears without "supplementary service")
CFNRy	Call Forwarding on No Reply supplementary service (also appears without "supplementary service")
CFU	Call Forwarding Unconditional
CGF	Charging Gateway Function
CLI	Calling Line Identity
CLIP	Calling Line Identification Presentation
CLIR	Calling Line Identification Restriction
CM	Configuration Management
CMIP	Common Management Information Protocol
CN	Core Network
CNAP	Calling Name Presentation
COLP	Connected Line identification Presentation
COLR	Connected Line identification Restriction
CORBA	Common Object Request Broker Architecture
CS	Circuit Switched
CSE	CAMEL Service Environment
CS-MGW	Circuit Switched Media GateWay
CTM	Cellular Text telephone Modem
CUG	Closed User Group
CW	Call Waiting
CWTS	China Wireless Telecommunication Standard Group

DCE	Data Circuit-terminating Equipment
DTE	Data Terminal Equipment
DTMF	Dual-Tone Multiple Frequency
DTX	Discontinuous Transmission
ECT	Explicit Call Transfer supplementary service
EDGE	Enhanced Data rates for GSM Evolution
EF	Elementary Files
EFR	Enhanced Full Rate
EGPRS	Enhanced GPRS
EIR	Equipment Identity Register
EM	Element Manager
eMLPP	Enhanced Multi-Level Precedence and Pre-emption (also appears as "enhanced Multi-Level Precedence and Pre-emption service")
EN	European Norm
EP	Elementary Procedure
ETSI	European Telecommunications Standards Institute
FDD	Frequency Division Duplex
FM	Fault Management
GAD	Geographical Area Description
GBS	General Bearer Services
GERAN	GSM/EDGE Radio Access Network
GGSN	Gateway GPRS Support Node
GLR	Gateway Location Register
GMLC	Gateway Mobile Location Centre
GMSC	Gateway MSC
GPRS	General Packet Radio Service
gprsSSF	GPRS Service Switching Function
GPS	Global Positioning System
GSM	Global System for Mobile communications
GSM-EFR	GSM Enhanced Full Rate speech Codec
gsmSCF	GSM Service Control Function
gsmSRF	GSM Specialized Resource Function
gsmSSF	GSM Service Switching Function
GSN	GPRS Support Nodes
GT	Global Title
GTT	Global Text Telephony
GTP	GPRS Tunnelling Protocol

HDLC	High-Level Data Link Control
HE	Home Environment
HLR	Home Location Register
HPLMN	Home Public Land Mobile Network
HSCSD	High-Speed Circuit-Switched Data
IC	Integrated Circuit (also appears as "Integrated Circuits")
ICC	Integrated Circuit Card
IDL	Interface Definition Language
IETF	Internet Engineering Task Force
IMEI	International Mobile Equipment Identity
IM	IP Multimedia
IM-GSN	Intermediate GPRS Serving Node (also appears as "Intermediate GPRS Support Node")
IM-MGW	Intermediate Media GateWay
IM-MSC	Intermediate Mobile-services Switching Centre
IMS	IP Multimedia Subsystem
IMSI	International Mobile Subscriber Identity (also appears as "International Mobile Station Identity")
IN	Intelligent Network
INAP	Intelligent Network Application Protocol
IP	Internet Protocol
IPDL	Idle Period Downlink
IPLMN	Interrogating PLMN
IrDA	Infrared Data Association
IRP	Integration Reference Point
IS	Information Service
ISDN	Integrated Services Digital Network
ISO	International Organization for Standardization
ISUP	ISDN User Part
Irf-N	Interface N
IWF	InterWorking Function
K	Subscriber key
LAN	Local Area Network
LCS	LoCation Services
LMSI	Local Mobile Station Identity



LMU	Location Measurement Unit
LR	Location Registration
MAP	Mobile Application Part
MC	Multicall
ME	Mobile Equipment
MExE	Mobile station application Execution Environment
MGC	Media Gateway Controller
MGW	Media GateWay
MIM	Management Information Model
MIME	Multipurpose Internet Mail Extensions
MLC	Mobile Location Centre
MM	Mobility Management
MMI	Man-Machine Interface
MMS	Multimedia Messaging Service
MNP	Mobile Number Portability
MO	Mobile Originated
MO-LR	Mobile Originating Location Request
MPTY	MultiParty
MR	Multi Rate
MRFC	Multimedia Resource Function Controller (also appears as "Media Resource Function Controller")
MS	Mobile Station
MSC	Mobile Switching Centre (also appears as "Mobile-services Switching Centre")
MSISDN	Mobile Subscriber ISDN number (also appears as "Mobile Station International ISDN Number(s)")
MSP	Multiple Subscriber Profile
MSRN	Mobile Station Roaming Number
MT	Mobile Terminal
MT	Mobile Termination
MTP	Message Transfer Part
NE	Network Element
NITZ	Network Identity and Time Zone
NM	Network Manager
NRM	Network Resource Model
NSS	Network Subsystem
NW	Network
OACSU	Off-Air Call Set-Up

ODB	Operator Determined Barring
OoBTC	Out of Band Transcoder Control
OP	OPerator
OS	Operations System
OSA	Open Service Architecture
OSI	Open Systems Interconnection
OTDOA	Observed Time Difference Of Arrival
PBX	Private Branch eXchange
PCM	Pulse Code Modulation
PDC	Personal Digital Communication
PDC-EFR	ARIB PDC-EFR 6.7 kbit/s speech Codec
PDN	Public Data Network
PDP	Packet Data Protocol
PDU	Protocol Data Unit
PI	Presentation Indicator
PIX	Proprietary application Identifier eXtension
PLMN	Public Land Mobile Network
PM	Performance Management
PP	Point-to-Point
PS	Packet Switched
PSE	Personal Service Environment
PSS	Packet-switched Streaming Service
PSTN	Public Switched Telephone Network
QoS	Quality of Service
RANAP	Radio Access Network Application Part
RAND	RANdOm number (used for authentication)
RID	Registered application provider Identifier
RLC/MAC	Radio Link Control/Medium Access Control
RLP	Radio Link Protocol
RNC	Radio Network Controller
RNS	Radio Network Subsystem (also appears as "Radio Network System")
RR	Radio Resources
RTP	Real Time Protocol
SAGE	Security Algorithms Group of Experts
SAT	SIM Application Toolkit
SC	Service Centre (used for SMS)
SCCP	Signalling Connection Control Part

SCF	Service Control Function (IN context), Service Capability Feature (VHE/OSA context)
SCR	Source Controlled Rate
SCTP	Stream Control Transmission Protocol
SDL	Specification Description Language
SDO	Standards Development Organization
SGSN	Serving GPRS Support Node
SGW	Signalling GateWay
SID	Silence Descriptor
SIM	GSM Subscriber Identity Module
SIWFS	Shared InterWorking Function Server
SM	Session Management
SM	Short Message
SMC	Short Message Control
SMIL	Synchronized Multimedia Integration Language
SM-RL	Short Message Relay Layer
SMLC	Serving Mobile Location Centre
SMS	Short Message Service
SMTP	Simple Mail Transfer Protocol
SP	Service Provider
SP	Switching Point
SQN	Sequence number
SOR	Support of Optimal Routing
SRNC	Serving Radio Network Controller
SRNS	Serving RNS
SS	Supplementary Service
SS	Solution Set
SS7	Signalling System No. 7
SSAP	Supplementary Service Application Part
SSF	Service Switching Function
T1	Standards Committee T1 Telecommunications
TA	Terminal Adaptor
TAF	Terminal Adaptation Function
T-BCSM	Terminating Basic Call State Model
TCAP	Transaction Capabilities Application Part
TCH/F	A full rate Traffic CHannel
TDD	Time Division Duplex

TDMA	Time Division Multiple Access
TDMA_EFR	TIA IS-641 Enhanced speech Codec
TDMA_USI	TIA TDMA-US1 (12.2 kbit/s Codec, similar to GSM-EFR)
TE	Terminal Equipment
TFO	Tandem Free Operation
TIA	Telecommunications Industry Association
TMSI	Temporary Mobile Subscriber Identity (also appears as "Temporary Mobile Station Identity")
TrFO	Transcoder Free Operation
TS	Technical Specification
TSG	Technical Specification Group
TTA	Telecommunications Technology Association
TTC	Telecommunication Technology Committee
TUP	Telephone User Part (SS7)
UDP	User Datagram Protocol
UE	User Equipment
UI	User Interface
UICC	Universal IC Card
UIM	User Identity Module
UMTS	Universal Mobile Telecommunications System
USAT	USIM Application Toolkit
USIM	Universal Subscriber Identity Module
USSD	Unstructured Supplementary Service Data
UTRA	Universal Terrestrial Radio Access
UTRA-FDD	Universal Terrestrial Radio Access – Frequency Division Duplex
UTRAN	Universal Terrestrial Radio Access Network
UTRA-TDD	Universal Terrestrial Radio Access – Time Division Duplex
UUS	User-to-User Signalling
VAD	Voice Activity Detector
VBS	Voice Broadcast Service
VGCS	Voice Group Call Service
VHE	Virtual Home Environment
VLR	Visitor Location Register
VMSC	Visited Mobile Switching Centre
VPLMN	Visited Public Land Mobile Network
WAP	Wireless Application Protocol
XML	EXtensible Markup Language

## 5 Introduction

The Core Network for this IMT-2000 family member referred to as "3GPP Release 5", is based on an evolved Core Network from the 3rd generation release 1999. The technical specifications have been developed in a partnership project and transposed to the involved Standards Development Organizations (SDOs). The system will support different applications ranging from narrow-band to wideband communications capability with integrated personal and terminal mobility to meet the user and service requirements.

Release 5 is the third release of this 3rd generation of mobile communications technology. The core network interfaces identified in this Recommendation constitute a complete mobile core network system for this IMT-2000 family member. The core network of 3GPP Release 5 supports both 2nd and 3rd generation radio access networks as options.

Refer to 10.2.40 Service principles for more information.

The descriptions of the Technical Specifications listed in clause 10 are for informative purposes only. Normative information is in the table for respective specification.

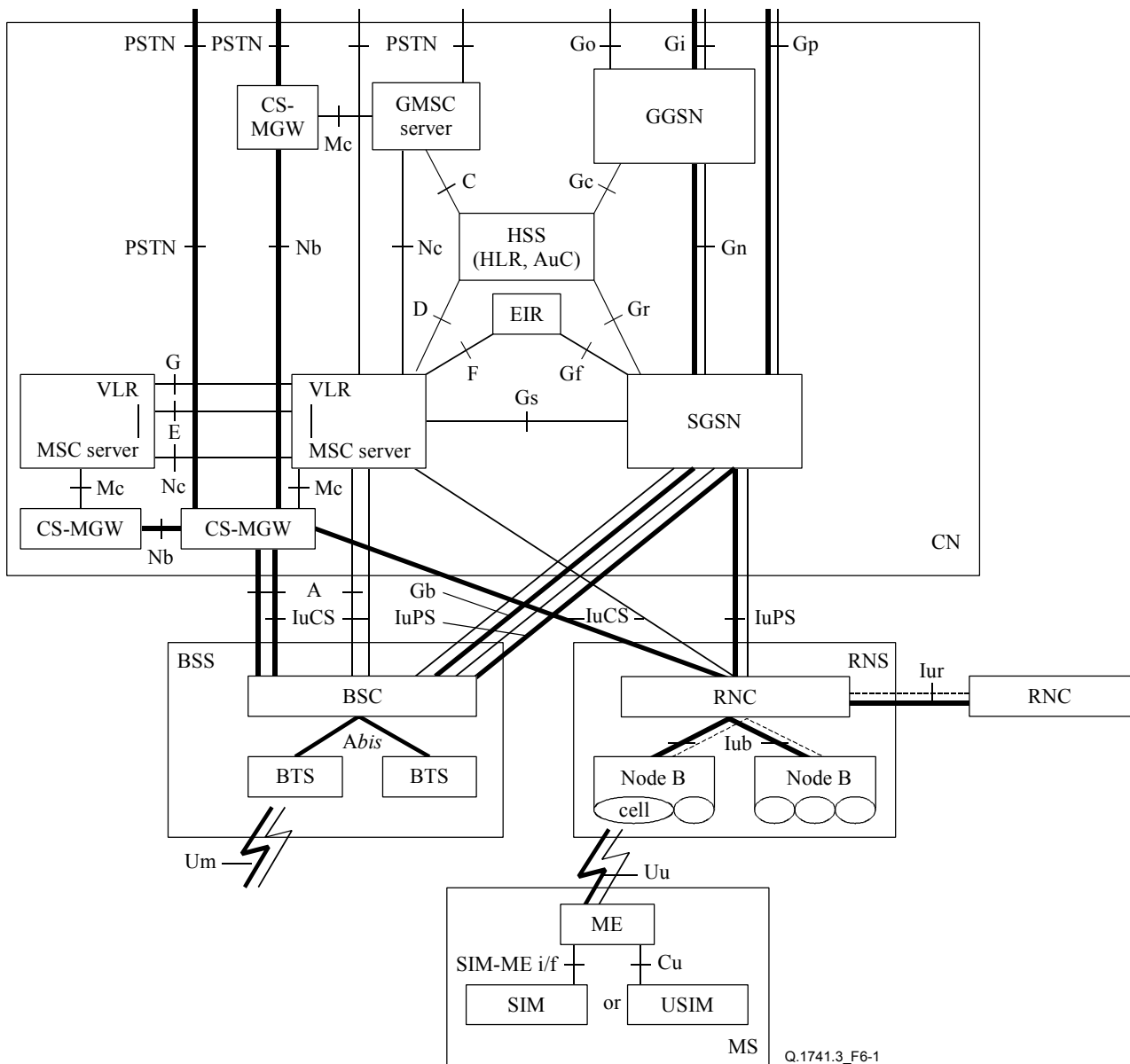
## 6 Basic architecture for the UMTS IMT-2000 family member

This text is based on the text in references [2] – [6], clause 5.1.

The basic configuration of a Public Land Mobile Network (PLMN) supporting GPRS and the interconnection to the PSTN/ISDN and PDN is presented in Figure 6-1. This configuration presents signalling and user traffic interfaces which can be found in a PLMN. Implementations may be different: some particular functions may be gathered in the same equipment and then some interfaces may become internal interfaces.

In the basic configuration presented in Figure 6-1, all the functions are considered implemented in different equipments. Therefore, all the interfaces within PLMN are external. This Recommendation will only describe the internal interfaces in the Core Network (CN) and the external interfaces to and from CN. Interfaces *Iu*, *Iur* and *Iub* are defined in the UMTS 25.4xx-series of Technical Specifications, which are outside the scope of this Recommendation. Interfaces *A* and *Abis* are defined in the UMTS 48-series of Technical Specifications, which are also outside the scope of this Recommendation. Interfaces *C*, *D*, *E*, *F* and *G* need the support of the Mobile Application Part of the signalling system No. 7 to exchange the data necessary to provide the mobile service. No protocols for the *H*-interface and for the *I*-interface are standardized. All the GPRS-specific interfaces (*G*-series) are defined in the UMTS 23-series and 24-series of Technical Specifications. Interfaces *Mc*, *Nb*, and *Nc* are defined in UMTS 23.205 and in the UMTS 29-series of Technical Specifications.

From this configuration, all the possible PLMN organizations can be deduced. In the case when some functions are contained in the same equipment, the relevant interfaces become internal to that equipment.



Bold lines            Interfaces supporting user traffic  
Dashed lines         Interfaces supporting signalling

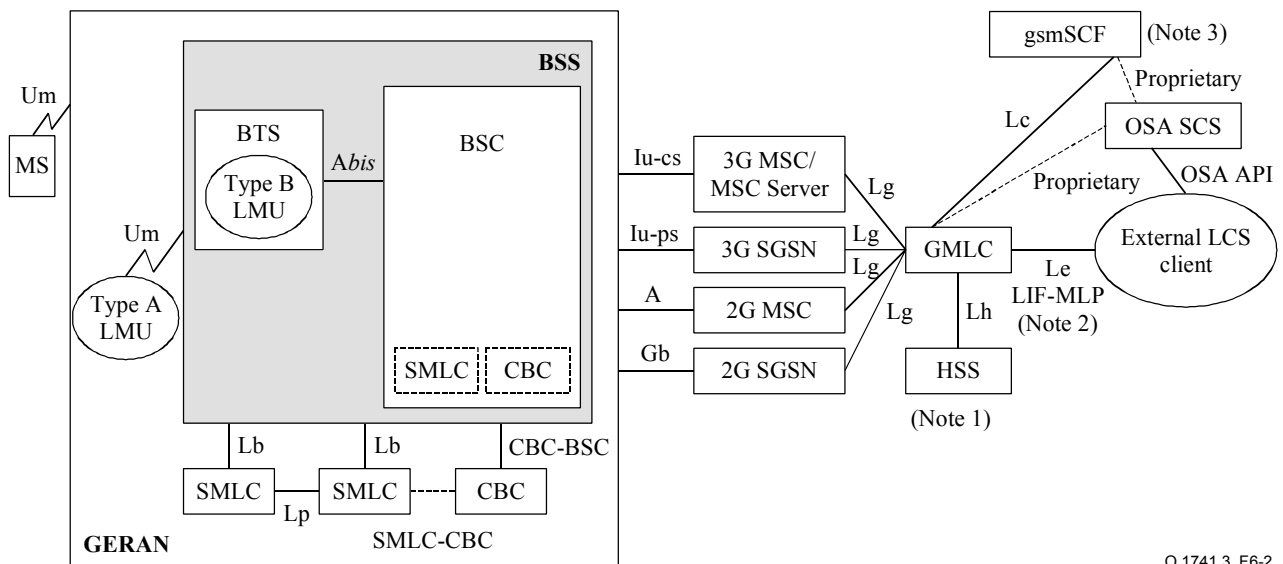
NOTE 1 – The figure shows direct interconnections between the entities. The actual links may be provided by an underlying network (e.g., SS7 or IP): this needs further studies.

NOTE 2 – This is a simplified architecture figure. Not all nodes and interfaces are indicated.

**Figure 6-1/Q.1741.3 – Basic configuration of a PLMN supporting CS and PS services and interfaces**

The following text is based on the text in references [2] – [6], clause 5.2.1.

The configuration of LCS entities for GSM GERAN are as presented in Figure 6-2. In the figure, all the functions are considered implemented in different logical nodes. If two logical nodes are implemented in the same physical equipment, the relevant interfaces may become internal to that equipment.



Q.1741.3\_F6-2

NOTE 1 – HSS includes both 2G-HLR and 3G-HLR functionality.

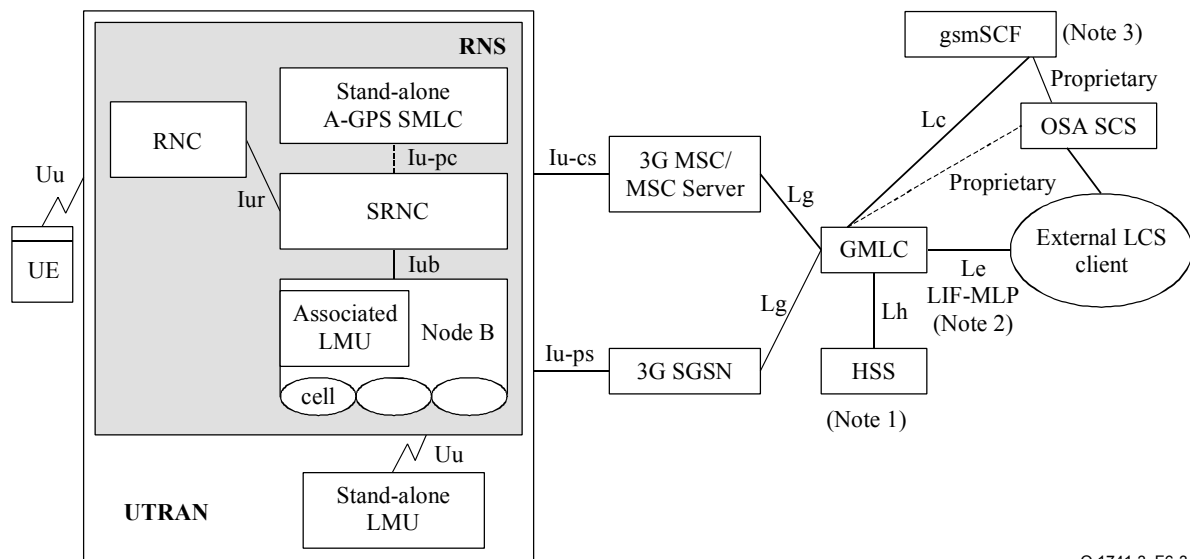
NOTE 2 – LIF-MLP may be used on the Le interface.

NOTE 3 – As one alternative, the LCS client may get location information directly from GMLC, which may contain OSA Mobility SCS with support for the OSA user location interfaces.

**Figure 6-2/Q.1741.3 – Configuration of LCS entities for a GERAN PLMN**

The following text is based on the text in references [2] – [6], clause 5.2.2.

The basic configuration of UTRAN UMTS LCS is presented in Figure 6-3. The SMLC functionality is integrated in SRNC. There is no SMLC entity in this figure because the SMLC functionality of UTRAN is integrated in SRNC.



Q.1741.3\_F6-3

NOTE 1 – HSS includes both 2G-HLR and 3G-HLR functionality.

NOTE 2 – LIF-MLP may be used on the Le interface.

NOTE 3 – As one alternative, the LCS client may get location information directly from GMLC, which may contain OSA Mobility SCS with support for the OSA user location interfaces.

**Figure 6-3/Q.1741.3 – Configuration of LCS entities for a UTRAN PLMN**

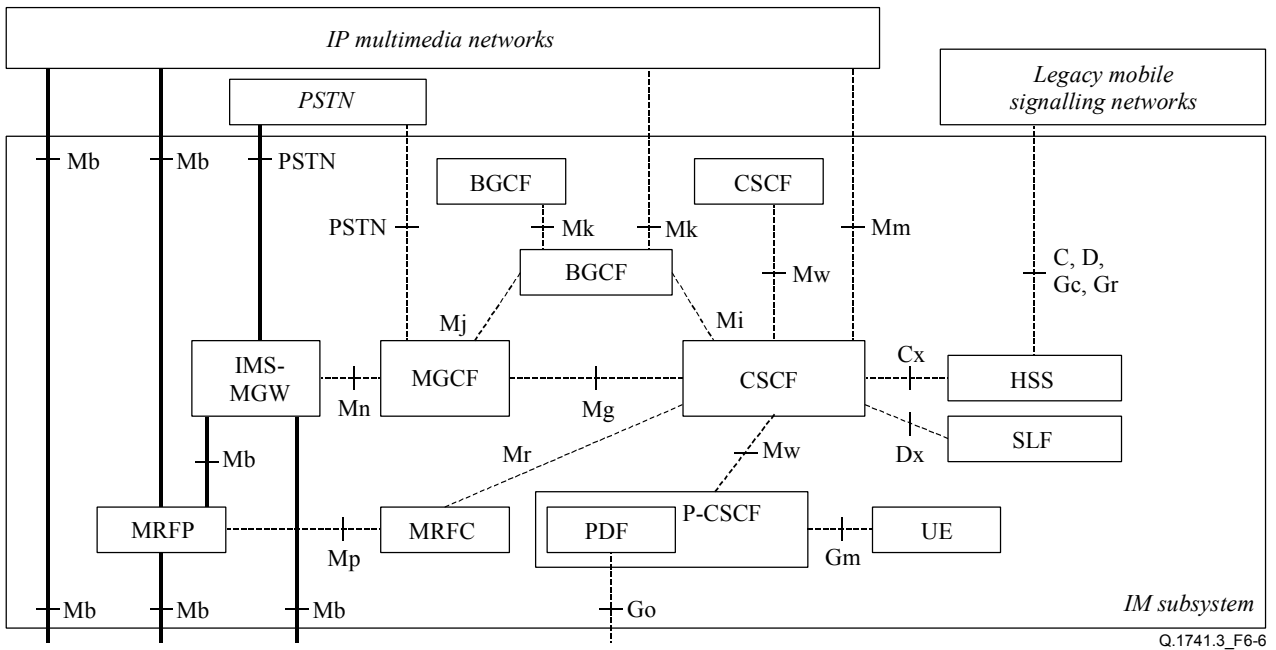




The following text is based on the text in references [2] – [6], clause 5.5.

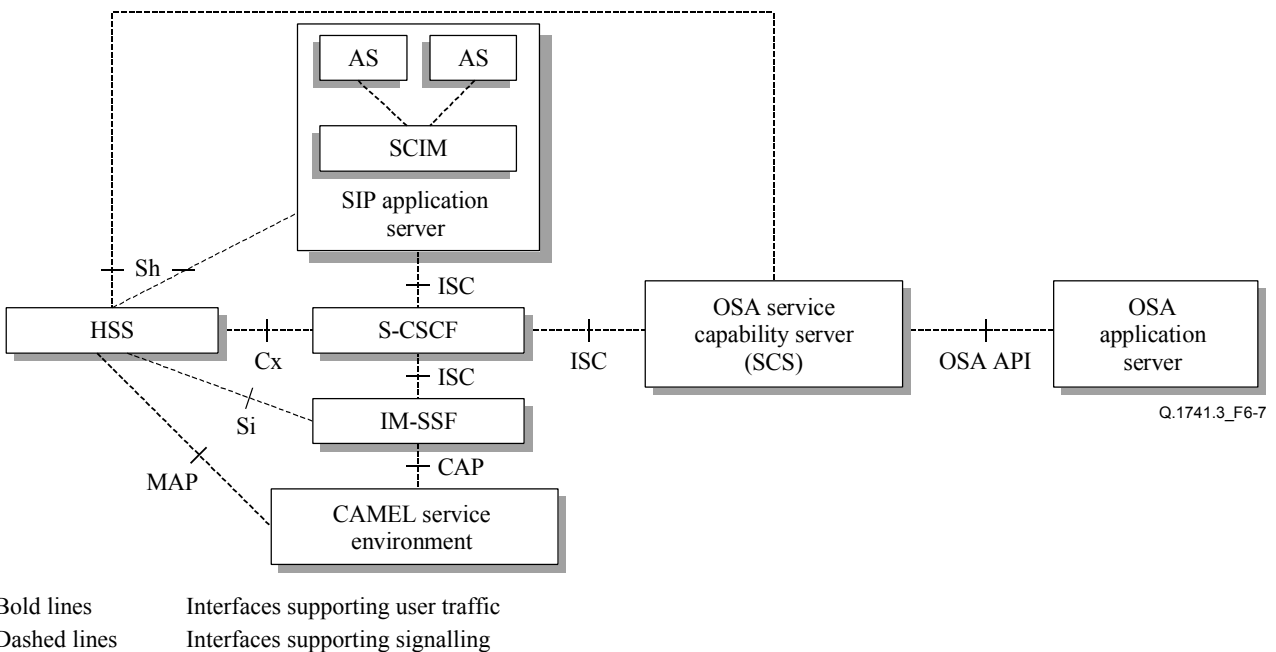
The configuration of IM CN Subsystem entities is presented in Figure 6-6. In the figure, all the functions are considered implemented in different logical nodes. If two logical nodes are implemented in the same physical equipment, the relevant interfaces may become internal to that equipment.

Only the interfaces specifically linked to the IM subsystem are shown, i.e., all the SGSN, GGSN and HSS interfaces depicted in Figure 6-6 are still supported by these entities even if not shown.



**Figure 6-6/Q.1741.3 – Configuration of IM subsystem entities**

Figure 6-7 depicts an overall view of the functional architecture for services.



Bold lines            Interfaces supporting user traffic  
 Dashed lines        Interfaces supporting signalling

**Figure 6-7/Q.1741.3 – Functional architecture for the provision of service in the IMS**

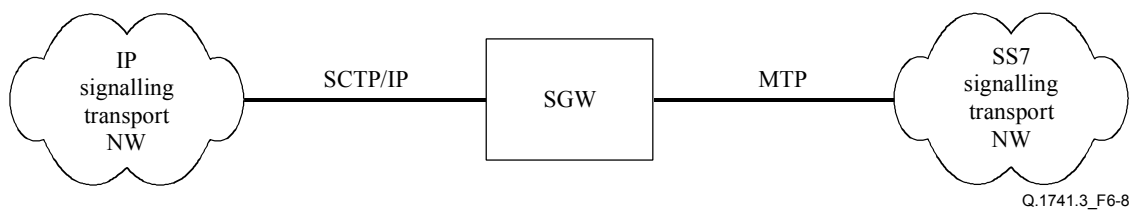
The purpose of the IM SSF is to host the CAMEL network features (i.e., trigger detection points, CAMEL Service Switching Finite State Machine, etc.) and to interwork with CAP.

The IM SSF and the CAP interface support legacy services only.

The application server may contain "service capability interaction manager" (SCIM) functionality and other application servers. The SCIM functionality is an application which performs the role of interaction management. The internal components are represented by the "dotted boxes" inside the SIP application server. The internal structure of the application server is outside the standards. The Sh interface shall have sufficient functionality to enable this scenario.

The following text is based on the text in references [2] – [6], clause 5.6.

The Signalling gateway function is used to interconnect different signalling networks, i.e., SCTP/IP based signalling networks and SS7 signalling networks. The application layer (e.g., ISUP, BICC, MAP or CAP) is not affected. The signalling gateway function may be implemented as a stand-alone entity or inside another entity.



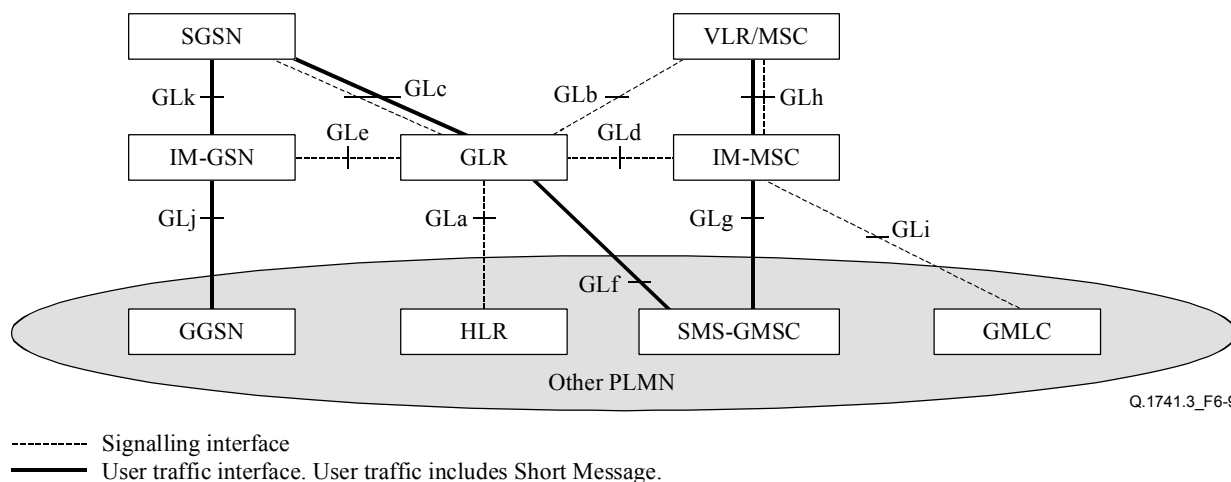
**Figure 6-8/Q.1741.3 – Configuration of a signalling gateway function**

NOTE 2 – SS7 application transport and SCTP/IP adaptation protocols are not shown.

The following text is based on the text in references [2] – [6], Annex A.

Gateway Location Register (GLR) is an optional functional entity to optimize signalling traffic between PLMNs. This entity handles location management of roaming subscriber in visited network without involving HLR. The location register function in the GLR stores subscription information and routing information for both CS services and PS services. This entity can be only located in a visited PLMN.

In the basic configuration with GLR introduction presented in Figure 6-9, all the functions related to GLR introduction are considered implemented in different equipments. Therefore, all the interfaces within PLMN are external. Interfaces GLa, GLb, GLc, GLd, GLf, GLg, GLh, and GLi need the support of the Mobile Application Part of the signalling system No. 7 to exchange the data necessary to provide the mobile service. No protocols for the GLe interface are standardized. GLj and GLk need the support of GPRS Tunnelling Protocol – Control to provide the packet domain services.



**Figure 6-9/Q.1741.3 – Configuration of a PLMN and interfaces with GLR**

## 7 Network entities

### 7.1 Gateway Mobile Switching Centre (GMSC)

The text in this clause is based on the text in references [2] – [6], clause 4.1.2.2.

The Mobile Switching Centre (MSC), which performs the routing function to the actual location of the Mobile Station (MS) is called the Gateway MSC (GMSC).

If a network delivering a call to the PLMN cannot interrogate the Home Location Register (HLR), the call is routed to an MSC. This MSC will interrogate the appropriate HLR and then route the call to the MSC where the mobile station is located.

The acceptance of an interrogation to an HLR is the decision of the operator.

The choice of which MSCs can act as Gateway MSCs is for the operator to decide (i.e., all MSCs or some designated MSCs).

When needed, the GMSC can be implemented in two different entities: the GMSC Server, handling only signalling, as defined below, and the CS-MGW, defined below. A GMSC Server and a CS-MGW make up the full functionality of a GMSC.

#### 7.1.1 Gateway MSC Server (GMSC Server)

The text in this clause is based on the text in references [2] – [6], clause 4.1.2.2.1.

The GMSC server mainly comprises the call control and mobility control parts of a GMSC.

### 7.2 Mobile Switching Centre and Visitor Location Register (MSC/VLR)

#### 7.2.1 Mobile Switching Centre (MSC)

The text in this clause is based on the text in references [2] – [6] clause 4.1.2.1.

The Mobile-services Switching Centre (MSC) constitutes the interface between the radio system and the fixed networks. The MSC performs all necessary functions in order to handle the circuit switched services to and from the mobile stations.

In order to obtain radio coverage of a given geographical area, a number of BSS and/or RNS are normally required; i.e., each MSC would thus have to interface to one or more BSS(s) and/or RNS(s). In addition, several MSCs may be required to cover a country.

When Intra Domain Connection of RAN Nodes to Multiple CN Nodes is applied, all the MSCs serving a pool-area share the responsibility to serve the MSs located in the pool-area. All these MSCs interface to all the BSS(s) and/or RNS(s) forming the pool-area.

The Mobile-services Switching Centre is an exchange that performs all the switching and signalling functions for mobile stations located in a geographical area designated as the MSC area. When Intra Domain Connection of RAN Nodes to Multiple CN Nodes is applied, one or more MSCs serve a pool-area, but each individual MS is served by only one out of these MSCs, as described in 3G TS 23.236. The main difference between a MSC and an exchange in a fixed network is that the MSC has to take into account the impact of the allocation of radio resources and the mobile nature of the subscribers and has to perform in addition, at least the following procedures:

- Procedures required for the location registration;
- Procedures required for handover.

When needed, the MSC can be implemented in two different entities: the MSC Server, handling only signalling, and the CS-MGW, handling user's data. A MSC Server and a CS-MGW make up the full functionality of a MSC.

### **7.2.2 Mobile Switching Centre Server (MSC Server)**

The text in this clause is based on the text in references [2] – [6], clause 4.1.2.1.1.

The MSC Server mainly comprises the call control (CC) and mobility control parts of a MSC.

The MSC Server is responsible for the control of mobile originated and mobile terminated CC CS Domain calls. It terminates the user-network signalling and translates it into the relevant network-network signalling. The MSC Server also contains a VLR to hold the mobile subscriber's service data and CAMEL related data.

The MSC Server controls the parts of the call state that pertain to connection control for media channels in a CS-MGW.

### **7.2.3 Visitor Location Register (VLR)**

The text in this clause is based on the text in references [2] – [6], clause 4.1.1.2.

A mobile station roaming in an MSC area is controlled by the Visitor Location Register (VLR) in charge of this area. When a Mobile Station (MS) enters a new location area it starts a registration procedure. The MSC in charge of that area notices this registration and transfers to the Visitor Location Register the identity of the location area where the MS is situated. If this MS is not yet registered, the VLR and the HLR exchange information to allow the proper handling of calls involving the MS.

A VLR may be in charge of one or several MSC areas.

The VLR contains also the information needed to handle the calls set-up or received by the MSs registered in its database (for some supplementary services the VLR may have to obtain additional information from the HLR). The following elements are included:

- the International Mobile Subscriber Identity (IMSI);
- the Mobile Station International ISDN number (MSISDN);
- the Mobile Station Roaming Number (MSRN);
- the Temporary Mobile Station Identity (TMSI), if applicable;
- the Local Mobile Station Identity (LMSI), if used;
- the location area where the mobile station has been registered;
- the identity of the SGSN where the MS has been registered. Only applicable to PLMNs supporting GPRS and which have a Gs interface between MSC/VLR and SGSN;

- the last known location and the initial location of the MS.

The VLR also contains supplementary service parameters attached to the mobile subscriber and received from the HLR.

### 7.3 Home Subscriber Server (HSS)

The text in this clause is based on the text in references [2] – [6], clause 4.1.1.1.

The HSS is the master database for a given user. It is the entity containing the subscription-related information to support the network entities actually handling calls/sessions.

A Home Network may contain one or several HSSs: it depends on the number of mobile subscribers, on the capacity of the equipment and on the organization of the network.

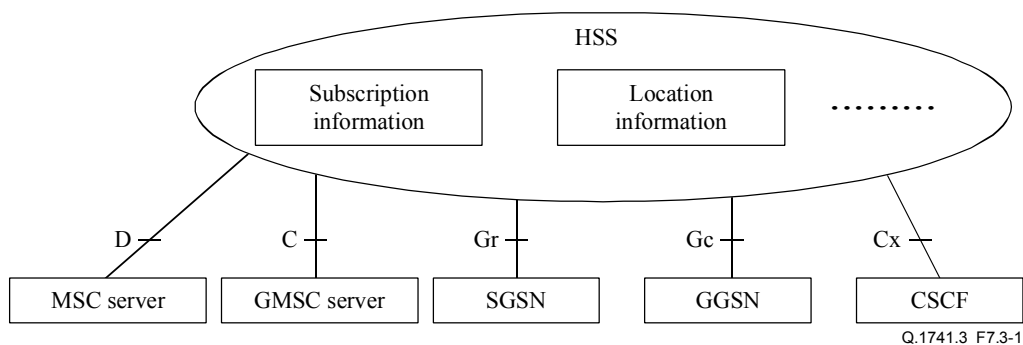
As an example, the HSS provides support to the call control servers in order to complete the routing/roaming procedures by solving authentication, authorization, naming/addressing resolution, location dependencies, etc.

The HSS is responsible for holding the following user related information:

- User Identification, Numbering and addressing information.
- User Security information: Network access control information for authentication and authorization.
- User Location information at inter-system level: the HSS supports the user registration, and stores inter-system location information, etc.
- User profile information.

The HSS also generates User Security information for mutual authentication, communication integrity check and ciphering.

Based on this information, the HSS also is responsible to support the call control and session management entities of the different Domains and Subsystems (defined in 3.3 and 3.3a) of the operator as shown in Figure 7.3-1.



**Figure 7.3-1/Q.1741.3 – Example of a generic HSS structure and basic interfaces**

The HSS may integrate heterogeneous information, and enable enhanced features in the core network to be offered to the application & services domain, at the same time hiding the heterogeneity.

The HSS consists of the following functionalities:

- IP multimedia functionality to provide support to control functions of the IM subsystem such as the CSCF. It is needed to enable subscriber usage of the IM CN subsystem services. This IP multimedia functionality is independent of the access network used to access the IM CN subsystem.
- The subset of the HLR/AUC functionality required by the PS Domain.

- The subset of the HLR/AUC functionality required by the CS Domain, if it is desired to enable subscriber access to the CS Domain or to support roaming to legacy GSM/UMTS CS Domain networks.

The organization of the subscriber data is outlined in 3GP TS 23.008. It also indicates which numbers, addresses and identifiers specified in 3G TS 23.003 are stored in HSS.

### **7.3.1 Home Location Register (HLR)**

The text in this clause is based on the text in references [2] – [6], clause 4.1.1.1.1.

The HLR can be considered a subset of the HSS that holds the following functionalities:

- The functionality required to provide support to PS Domain entities such as the SGSN and GGSN, through the Gr and Gc interfaces. It is needed to enable subscriber access to the PS Domain services.
- The functionality required to provide support to CS Domain entities such as the MSC/MSC server and GMSC/GMSC server, through the C and D interfaces. It is needed to enable subscriber access to the CS Domain services and to support roaming to legacy GSM/UMTS CS Domain networks.

### **7.3.2 Authentication Centre (AuC)**

The text in this clause is based on the text in references [2] – [6], clause 4.1.1.1.2.

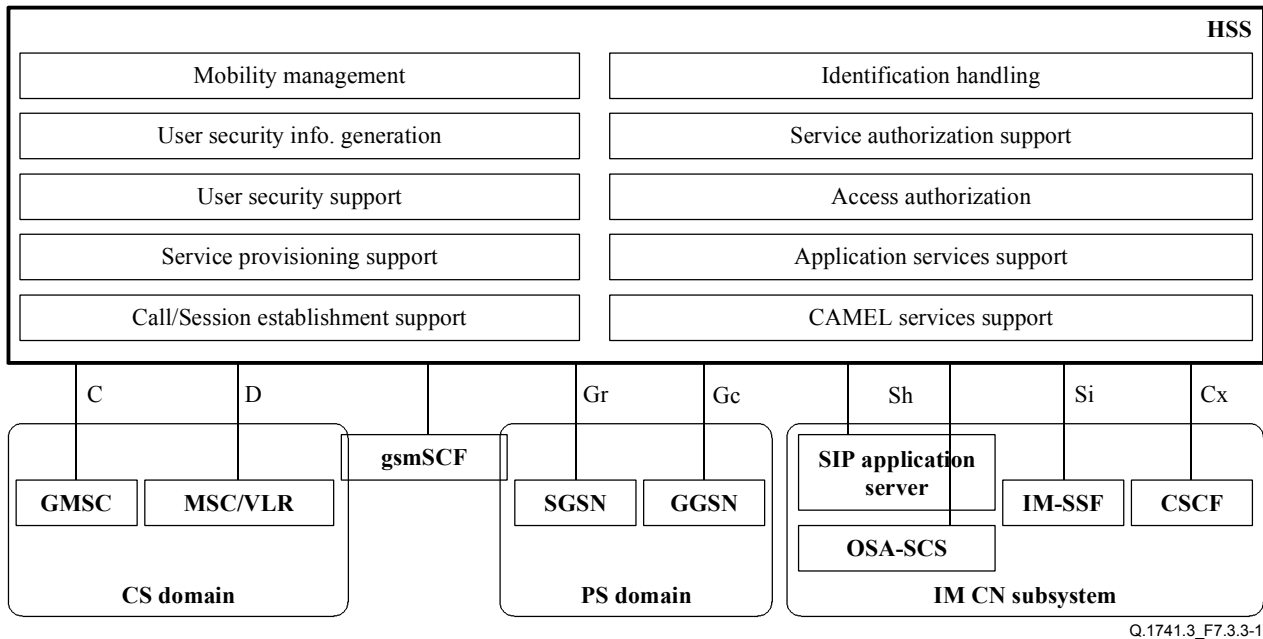
The AuC can be considered a subset of the HSS that holds the following functionality for the CS Domain and PS Domain:

- The AuC is associated with an HLR and stores an identity key for each mobile subscriber registered with the associated HLR. This key is used to generate security data for each mobile subscriber:
  - data which are used for mutual authentication of the International Mobile Subscriber Identity (IMSI) and the network;
  - a key used to check the integrity of the communication over the radio path between the mobile station and the network;
  - a key used to cipher communication over the radio path between the mobile station and the network.
- The AuC communicates only with its associated HLR over a non-standardized interface denoted the H-interface. The HLR requests the data needed for authentication and ciphering from the AuC via the H-interface, stores them and delivers them to the VLR and SGSN which need them to perform the security functions for a mobile station.

### 7.3.3 HSS logical functions

The text in this clause is based on the text in references [2] – [6], clause 4.1.1.1.3.

This clause provides a high level and not exhaustive description of HSS functionality.



**Figure 7.3.3-1/Q.1741.3 – HSS logical functions**

- *Mobility Management*  
This function supports the user mobility through CS Domain, PS Domain and IM CN subsystem.
- *Call and/or session establishment support*  
The HSS supports the call and/or session establishment procedures in CS Domain, PS Domain and IM CN subsystem. For terminating traffic, it provides information on which call and/or session control entity currently hosts the user.
- *User security information generation*  
The HSS generates user authentication, integrity and ciphering data for the CS and PS Domains and for the IM CN subsystem.
- *User security support*  
The HSS supports the authentication procedures to access CS Domain, PS Domain and IM CN subsystem services by storing the generated data for authentication, integrity and ciphering and by providing these data to the appropriate entity in the CN (i.e., MSC/VLR, SGSN or CSCF).
- *User identification handling*  
The HSS provides the appropriate relations among all the identifiers uniquely determining the user in the system: CS Domain, PS Domain and IM CN subsystem (e.g., IMSI and MSISDNs for CS Domain; IMSI, MSISDNs and IP addresses for PS Domain, private identity and public identities for IM CN subsystem).
- *Access authorization*  
The HSS authorizes the user for mobile access when requested by the MSC/VLR, SGSN or CSCF, by checking that the user is allowed to roam to that visited network.

- *Service authorization support*  
The HSS provides basic authorization for MT call/session establishment and service invocation. Besides, the HSS updates the appropriate serving entities (i.e., MSC/VLR, SGSN, CSCF) with the relevant information related to the services to be provided to the user.
- *Service provisioning support*  
The HSS provides access to the service profile data for use within the CS Domain, PS Domain and/or IM CN subsystem.
- *Application services and CAMEL services support*  
The HSS communicates with the SIP Application Server and the OSA-SCS to support Application Services in the IM CN subsystem. It communicates with the IM-SSF to support the CAMEL Services related to the IM CN subsystem. It communicates with the gsmSCF to support CAMEL Services in the CS Domain and PS Domain.

#### **7.4 Equipment Identity Register (EIR)**

The text in this clause is based on the text in references [2] – [6], clause 4.1.1.4.

The Equipment Identity Register (EIR) is the logical entity, which is responsible for storing in the network the International Mobile Equipment Identities (IMEIs), used.

The equipment is classified, as "white listed", "grey listed", "black listed" or it may be unknown.

This functional entity contains one or several databases which store(s) the IMEIs used.

The mobile equipment may be classified as "white listed", "grey listed" and "black listed" and therefore may be stored in three separate lists.

An IMEI may also be unknown to the EIR.

An EIR shall as a minimum contain a "white list" (Equipment classified as "white listed").

#### **7.5 SMS Gateway MSC (SMS-GMSC)**

The text in this clause is based on the text in references [2] – [6], clause 4.1.1.5.

The SMS Gateway MSC (SMS-GMSC) acts as an interface between a Short Message Service Centre and the PLMN, to allow short messages to be delivered to mobile stations from the Service Centre (SC).

The choice of which MSCs can act as SMS Gateway MSCs is a network operator matter (e.g., all MSCs or some designated MSCs).

#### **7.6 SMS Interworking MSC**

The text in this clause is based on the text in references [2] – [6], clause 4.1.1.6.

The SMS Interworking MSC acts as an interface between the PLMN and a Short Message Service Centre (SC) to allow short messages to be submitted from mobile stations to the SC.

The choice of which MSCs can act as SMS Interworking MSCs is a network operator matter (e.g., all MSCs or some designated MSCs).



## 7.7 Gateway GPRS Support Node (GGSN)

The text in this clause is based on the text in references [2] – [6], clauses 4.1.3 and 4.1.3.2.

The UMTS GPRS Support Nodes (GSN) is the Gateway GSN (GGSN) and the Serving GSN (SGSN). They constitute the interface between the radio system and the fixed networks for packet switched services. The GSN performs all necessary functions in order to handle the packet transmission to and from the mobile stations.

Gateway GPRS Support Node (GGSN): The location register function in the GGSN stores subscriber data received from the HLR and the SGSN. There are two types of subscriber data needed to handle originating and terminating packet data transfer:

- Subscription information:
  - the IMSI;
  - zero or more PDP addresses.
- Location information:
  - the SGSN address for the SGSN where the MS is registered.

## 7.8 Serving GPRS Support Node (SGSN)

The text in this clause is based on the text in references [2] – [6], clauses 4.1.3 and 4.1.3.1.

The UMTS GPRS Support Nodes (GSN) is the Gateway GSN (GGSN) and the Serving GSN (SGSN). They constitute the interface between the radio system and the fixed networks for packet switched services. The GSN performs all necessary functions in order to handle the packet transmission to and from the mobile stations.

Serving GPRS Support Node (SGSN): The location register function in the SGSN stores two types of subscriber data needed to handle originating and terminating packet data transfer:

- Subscription information:
  - the IMSI;
  - one or more temporary identities;
  - zero or more PDP addresses.
- Location information:
  - depending on the operating mode of the MS, the cell or the routing area where the MS is registered;
  - the VLR number of the associated VLR (if the Gs interface is implemented);
  - the GGSN address of each GGSN for which an active PDP context exists.

## 7.9 Circuit Switched – Media Gateway Function (CS-MGW)

The text in this clause is based on the text in references [2] – [6], clause 4.1.2.1.2.

NOTE – In this Recommendation, the term Media Gateway Function (MGW) is used when there is no need to differentiate between the CS domain entity and the IP Multimedia CN Subsystem entity. When referring specifically to the CS domain entity, the term CS-MGW is used. When referring specifically to the IP Multimedia CN Subsystem entity, the term IM-MGW is used.

This component is the PSTN/PLMN transport termination point for a defined network and interfaces UTRAN with the core network over Iu.

A CS-MGW may terminate bearer channels from a switched circuit network and media streams from a packet network (e.g., RTP streams in an IP network). Over Iu, the CS-MGW may support media conversion, bearer control and payload processing (e.g., codec, echo canceller, conference bridge) for support of different Iu options for CS services (AAL2/ATM based as well as RTP/UDP/IP based).

The CS-MGW:

- Interacts with MGCF, MSC server and GMSC server for resource control.
- Owns and handles resources such as echo cancellers, etc.
- May need to have codecs.

The CS-MGW will be provisioned with the necessary resources for supporting UMTS/GSM transport media. Further tailoring (i.e., packages) of the H.248 [22] may be required to support additional codecs and framing protocols, etc.

The CS-MGW bearer control and payload processing capabilities will also need to support mobile specific functions such as SRNS relocation/handover and anchoring. It is expected that current H.248 [22] standard mechanisms can be applied to enable this.

## **7.10 IP Multimedia (IM) Core Network (CN) subsystem entities**

The text in this clause is based on the text in references [2] – [6], clause 4a.7.

### **7.10.1 Call Session Control Function (CSCF)**

The text in this clause is based on the text in references [2] – [6], clause 4a.7.1.

The CSCF can act as Proxy CSCF (P-CSCF), Serving CSCF (S-CSCF) or Interrogating CSCF (I-CSCF). The P-CSCF is the first contact point for the UE within the IM subsystem (IMS); the S-CSCF actually handles the session states in the network; the I-CSCF is mainly the contact point within an operator's network for all IMS connections destined to a subscriber of that network operator, or a roaming subscriber currently located within that network operator's service area. Further definitions of the P-, S- and I-CSCF are provided in 3G TS 23.228.

### **7.10.2 Media Gateway Control Function (MGCF)**

The text in this clause is based on the text in references [2] – [6], clause 4a.7.2.

The MGCF:

- Controls the parts of the call state that pertain to connection control for media channels in an IMS-MGW.
- Communicates with CSCF.
- Selects the CSCF depending on the routing number for incoming calls from legacy networks.
- Performs protocol conversion between ISUP and the IM subsystem call control protocols.
- Out-of-band information assumed to be received in MGCF and may be forwarded to CSCF/IMS-MGW.

### **7.10.3 IP Multimedia Subsystem – Media Gateway Function (IMS-MGW)**

The text in this clause is based on the text in references [2] – [6], clause 4a.7.3.

NOTE – In this Recommendation, the term Media Gateway Function (MGW) is used when there is no need to differentiate between the CS domain entity and the IP Multimedia CN Subsystem entity. When referring specifically to the CS domain entity, the term CS-MGW is used. When referring specifically to the IP Multimedia CN Subsystem entity, the term IMS-MGW is used.

An IMS-MGW may terminate bearer channels from a switched circuit network and media streams from a packet network (e.g., RTP streams in an IP network). The IMS-MGW may support media conversion, bearer control and payload processing (e.g., codec, echo canceller, conference bridge), it:

- Interacts with the MGCF for resource control.
- Owns and handles resources such as echo cancellers, etc.
- May need to have codecs.

The IMS-MGW will be provisioned with the necessary resources for supporting UMTS/GSM transport media. Further tailoring (i.e., packages) of the H.248 [22] may be required to support additional codecs and framing protocols, etc.

#### **7.10.4 Multimedia Resource Function Controller (MRFC)**

The text in this clause is based on the text in references [2] – [6], clause 4a.7.4.

The MRFC:

- Controls the media stream resources in the MRFP.
- Interprets information coming from an AS and S-CSCF (e.g., session identifier) and control MRFP accordingly.
- Generates CDRs.

#### **7.10.5 Multimedia Resource Function Processor (MRFP)**

The text in this clause is based on the text in references [2] – [6], clause 4a.7.4a.

The MRFP:

- Controls bearers on the Mb reference point.
- Provides resources to be controlled by the MRFC.
- Mixes incoming media streams (e.g., for multiple parties).
- Sources media streams (for multimedia announcements).
- Processes media streams (e.g., audio transcoding, media analysis).

#### **7.10.6 Subscription Locator Function (SLF)**

The text in this clause is based on the text in references [2] – [6], clause 4a.7.5.

The SLF:

- Is queried by the I-CSCF during the Registration and Session Setup to get the name of the HSS containing the required subscriber specific data. Furthermore the SLF is also queried by the S-CSCF during the Registration.
- Is accessed via the Dx interface.

The SLF is not required in a single HSS environment. An example for a single HSS environment is a server farm architecture.

#### **7.10.7 Breakout Gateway Control Function (BGCF)**

The text in this clause is based on the text in references [2] – [6], clause 4a.7.6.

The Breakout Gateway Control Function (BGCF) selects the network in which PSTN breakout is to occur and – within the network where the breakout is to occur – selects the MGCF.

### 7.10.8 Application Server (AS)

The text in this clause is based on the text in references [2] – [6], clause 4a.7.7.

An Application Server (AS) i.e., SIP Application Server, OSA Application Server, or CAMEL IM-SSF, offers value-added IM services and resides either in the user's home network or in a third party location. The third party could be a network or simply a stand-alone AS.

NOTE – The OSA Application Server does not directly interact with the IMS network entities but through the OSA Service Capability Servers (OSA SCSs). Further information on OSA is provided in 3G TS 22.127.

The AS (SIP Application Server and/or the OSA Service Capability Server and/or IM-SSF) can communicate with the HSS. The Sh and Si interfaces are used for this purpose.

The Serving-CSCF to AS interface is used to provide services residing in an AS. Two cases were identified:

- Serving-CSCF to an AS in Home Network.
- Serving-CSCF to an AS in a trusted External Network (e.g., Third Party or Visited). The S-CSCF does not provide authentication and security functionality for secure direct third party access to the IM Subsystem. The OSA framework provides a standardized way for third party access to the IM Subsystem.

An Application Server may influence and impact the SIP session on behalf of the services supported by the operator's network. An AS may host and execute services.

### 7.11 Signalling Gateway Function (SGW)

The text in this clause is based on the text in references [2] – [6], clause 4a.8.

The SGW performs the signalling conversion (both ways) at transport level between the SS7 based transport and the IP based transport of signalling (i.e., between Sigtran SCTP/IP and SS7 MTP). The SGW does not interpret the application layer (e.g., MAP, CAP, BICC, ISUP) messages but may have to interpret the underlying SCCP or SCTP layer to ensure proper routing of the signalling.

### 7.12 Global Text Telephony Specific entities

The text in this clause is based on the text in references [2] – [6], clause 4a.9.

Interworking between cellular text modem (CTM) and text telephony standards (e.g. ITU-T Rec. V.18) used in external networks can be supported by three methods:

- Routing calls through a CTM Special resource function (CTM-SRF) in the core network. The CTM-SRF is linked into the call path via CAMEL procedures. Depending on operator configuration, the CTM-SRF may also be linked into the call path for Emergency calls.
- A CTM/Text telephone converting function included along the speech call path selected by the network after an indication from the terminal that CTM is required.
- A CTM/Text telephone converting function included in all speech call paths.

Further information of the support for text telephony is found in 3G TS 23.226.

For further details of CTM, see 3G TS 26.226.

### 7.13 Security Gateway (SEG)

The text in this clause is based on the text in references [2] – [6], clause 4a.10.

The UMTS network domain shall be logically and physically divided into security domains in order to protect IP based control plane signalling. These security domains typically coincide with operator borders.

The interface between different security domains is protected by Security Gateways (SEGs). The SEGs are responsible for enforcing the security policy of a IP security domain towards other SEGs in the destination IP security domain. All NDS/IP traffic shall pass through a SEG before entering or leaving a security domain. The security policy between security domains is subject to inter-domain agreements. This may differ from the security policy within the same security domain, which is optional to implementation and unilaterally decided by the security domain operator. For further details of SEG, see 3G TS 33.210.

#### **7.14 Gateway Mobile Location Centre (GMLC)**

The text in this clause is based on the text in references [2] – [6], clause 4a.3.2.

The Gateway Mobile Location Centre (GMLC) is the first node an external Location Application accesses in the PLMN. The GMLC performs registration authorization and requests routing information from the HLR. There may be more than one GMLC in a PLMN.

#### **7.15 GPRS Service Switching Function (gprsSSF)**

The text in this clause is based on the text in references [2] – [6], clause 4a.4.4.

GPRS Service Switching Function (gprsSSF) is a functional entity that interfaces the SGSN to the gsmSCF. The concept of the gprsSSF is derived from the IN SSF, but uses different triggering mechanisms because of the nature of the mobile network.

#### **7.16 GSM Service Control Function (gsmSCF)**

The text in this clause is based on the text in references [2] – [6], clause 4a.4.1.

GSM Service Control Function (gsmSCF) is a functional entity that contains the CAMEL service logic to implement Operator Specific Service. It interfaces with the gsmSSF, the gsmSRF and the HLR.

#### **7.17 GSM Service Switching Function (gsmSSF)**

The text in this clause is based on the text in references [2] – [6], clause 4a.4.2.

GSM Service Switching Function (gsmSSF) is a functional entity that interfaces the MSC/GMSC to the gsmSCF. The concept of the gsmSSF is derived from the IN SSF, but uses different triggering mechanisms because of the nature of the mobile network.

#### **7.18 GSM Specialized Resource Function (gsmSRF)**

The text in this clause is based on the text in references [2] – [6], clause 4a.4.3.

GSM Specialized Resource Function (gsmSRF) is a functional entity, which provides various specialized resources. It interfaces with the gsmSCF and with the MSC. This entity is defined in ITU-T Rec. Q.1214 [40] with variations defined in 3G TS 23.078.

#### **7.19 Gateway Location Register (GLR)**

The text in this clause is based on the text in references [2] – [6], clause A.2.1.

The Gateway Location Register (GLR) handles location management of roaming subscriber in visited network without involving HLR. The location register function in the GLR stores subscription information and routing information for both CS services and PS services. This entity can be only located in a visited PLMN. The GLR is an optional function entity to optimize signalling traffic between PLMNs.

## **7.20 Intermediate GPRS Serving Node (IM-GSN)**

The text in this clause is based on the text in references [2] – [6], clause A.2.3.

The Intermediate GPRS Serving Node (IM-GSN) is used as serving GSN towards home network and relay some PDU notification messages between serving GSN and Gateway GSN. This entity can be only located in a visited PLMN.

## **7.21 Intermediate Mobile-service Switching Centre (IM-MSC)**

The text in this clause is based on the text in references [2] – [6], clause A.2.2.

The Intermediate Mobile-services Switching Centre (IM-MSC) is used as serving MSC towards home network and relays some messages between home network and serving MSC. This entity can be only located in a visited PLMN.

# **8 Interfaces and reference points**

## **8.1 C Interface (Gateway Mobile Switching Centre Server (GMSC Server) – Home Location Register (HLR))**

The text in this clause is based on the text in references [2] – [6], clause 6.4.1.2.

The Gateway MSC server must interrogate the HLR of the required subscriber to obtain routing information for a call or a short message directed to that subscriber.

Signalling on this interface uses the Mobile Application Part (MAP), which in turn uses the services of Transaction Capabilities.

For Customized Application for Mobile network Enhanced Logic (CAMEL) purposes, this interface is used, for example, at terminating calls to exchange routing information, subscriber status, location information, subscription information, etc.

## **8.2 D Interface (Visitor Location Register (VLR) – Home Location Register (HLR))**

The text in this clause is based on the text in references [2] – [6], clause 6.4.1.3.

This interface is used to exchange the data related to the location of the mobile station and to the management of the subscriber. The main service provided to the mobile subscriber is the capability to set up or to receive calls within the whole service area. To support this, the location registers have to exchange data. The VLR informs the HLR of the location of a mobile station managed by the latter and provides it (either at location updating or at call set-up) with the roaming number of that station. The HLR sends to the VLR all the data needed to support the service to the mobile subscriber. The HLR then instructs the previous VLR to cancel the location registration of this subscriber. Exchanges of data may occur when the mobile subscriber requires a particular service, when he wants to change some data attached to his subscription or when some parameters of the subscription are modified by administrative means.

Signalling on this interface uses the Mobile Application Part (MAP), which in turn uses the services of Transaction Capabilities.

For Customized Application for Mobile network Enhanced Logic (CAMEL) purposes, this interface is used to send the CAMEL related subscriber data to the visited PLMN and for provision of Mobile Station Roaming Number (MSRN). The interface is also used for the other purposes, for example, to retrieve subscriber status and location information of the mobile subscriber or to indicate suppression of announcement for a CAMEL service.

### **8.3 E Interface (Mobile Switching Centre Server (MSC Server) – Mobile Switching Centre Server (MSC Server))**

The text in this clause is based on the text in references [2] – [6], clause 6.4.1.4.

When a mobile station moves from one MSC area to another during a call, a handover procedure has to be performed in order to continue the communication. For that purpose the MSC servers have to exchange data to initiate and then to realize the operation.

After the handover operation has been completed, the MSC servers will exchange information to transfer A-interface or Iu-interface signalling as defined in 3G TS 23.009.

When a short message is to be transferred between a Mobile Station and Short Message Service Centre (SC), in either direction, this interface is used to transfer the message between the MSC server serving the Mobile Station and the MSC server, which acts as the interface to the SC.

Signalling on this interface uses the Mobile Application Part (MAP), which in turn uses the services of Transaction Capabilities (see 3G TS 29.002).

### **8.4 F Interface (Mobile Switching Centre Server (MSC Server) – Equipment Identity Register (EIR))**

The text in this clause is based on the text in references [2] – [6], clause 6.4.1.5.

This interface is used between MSC server and EIR to exchange data, in order that the EIR can verify the status of the IMEI retrieved from the Mobile Station.

Signalling on this interface uses the Mobile Application Part (MAP), which in turn uses the services of Transaction Capabilities.

### **8.5 G Interface (Visitor Location Register (VLR) – Visitor Location Register (VLR))**

The text in this clause is based on the text in references [2] – [6], clause 6.4.1.6.

When a mobile subscriber moves from a VLR area to another, Location Registration procedure will happen. This procedure may include the retrieval of the IMSI and authentication parameters from the old VLR.

Signalling on this interface uses the Mobile Application Part (MAP), which in turn uses the services of Transaction Capabilities.

### **8.6 Gc Interface (Home Location Register (HLR) – Gateway GPRS Support Node (GGSN))**

The text in this clause is based on the text in references [2] – [6], clause 6.4.2.3.

This optional signalling path may be used by the GGSN to retrieve information about the location and supported services for the mobile subscriber, to be able to activate a packet data network address.

There are two alternative ways to implement this signalling path:

- If an SS7 interface is implemented in the GGSN, signalling between the GGSN and the HLR uses the Mobile Application Part (MAP), which in turn uses the services of Transaction Capabilities (TCAP);
- If there is *no* SS7 interface in the GGSN, any GSN in the same PLMN and which has an SS7 interface installed can be used as a GTP to MAP protocol converter, thus forming a signalling path between the GGSN and the HLR.

### **8.7 Gf Interface (Equipment Identity Register (EIR) – Serving GPRS Support Node (SGSN))**

The text in this clause is based on the text in references [2] – [6], clause 6.4.2.4.

This interface is used between SGSN and EIR to exchange data, in order that the EIR can verify the status of the IMEI retrieved from the Mobile Station.

Signalling on this interface uses the Mobile Application Part (MAP), which in turn uses the services of Transaction Capabilities (TCAP).

### **8.8 Reference point GGSN – packet data networks (Gi reference point)**

The text in this clause is based on the text in references [2] – [6], clause 7.2.

This is the reference point between the GGSN and a packet data network. It may be an operator external public or private packet data network or an intra operator packet data network, e.g., for provision of IMS services.

### **8.9 GLa Interface (Gateway Location Register (GLR) – Home Location Register (HLR))**

The text in this clause is based on the text in references [2] – [6], clause A.5.1.

In circuit-switched domain, this interface is the same as that between the VLR and the HLR. The HLR regards the GLR as the VLR via this interface. On the other hand, in packet-switched domain, this interface is the same as that between the SGSN and the HLR. The HLR regards the GLR as the SGSN via this interface.

### **8.10 GLb Interface (Gateway Location Register (GLR) – Visitor Location Register (VLR))**

The text in this clause is based on the text in references [2] – [6], clause A.5.2.

This interface is the same as those between the VLR and the HLR. The VLR regards the GLR as the HLR via this interface.

### **8.11 GLc Interface (Gateway Location Register (GLR) – Serving GPRS Support Node (SGSN))**

The text in this clause is based on the text in references [2] – [6], clause A.5.3.

This interface is the same as those between the SGSN and the HLR. The SGSN regards the GLR as the HLR via this interface.

### **8.12 GLd Interface (Gateway Location Register (GLR) – Intermediate Mobile services Switching Centre (IM-MSC))**

The text in this clause is based on the text in references [2] – [6], clause A.5.4.

In the network with the GLR, when the IM-MSC receives a message, it interrogates the GLR for the routing information of the MSC. However, this interface is internal because GLR and IM-MSC are implemented in the same physical node and the protocol on this interface is not specified.

### **8.13 GLe Interface (Gateway Location Register (GLR) – Intermediate GPRS Serving Node (IM-GSN))**

The text in this clause is based on the text in references [2] – [6], clause A.5.5.

In the network with the GLR when the IM-GSN receiving a PDU notification from the GGSN, the IM-GSN relays the notification to the SGSN by interrogating via the interface the routing information to the GLR. The interrogation uses the same operation on the interface between the SGSN and the HLR.



#### **8.14 GLf Interface (Gateway Location Register (GLR) – Short Message Service-Gateway Mobile Switching Centre (SMS-GMSC))**

The text in this clause is based on the text in references [2] – [6], clause A.5.6.

This interface is used to forward mobile-terminated short messages in the network with the GLR in case of SMS transfer over GPRS. Signalling on this interface uses the Mobile Application Part (MAP).

The SMS-GMSC regards the GLR as the SGSN via this interface.

#### **8.15 GLg Interface (Intermediate Mobile-services Switching Centre (IM-MSC) – Short Message Service-Gateway Mobile Switching Centre (SMS-GMSC))**

The text in this clause is based on the text in references [2] – [6], clause A.5.7.

This interface is used to forward short messages in the network with the GLR in case of SMS transfer over non-GPRS. Signalling on this interface uses the Mobile Application Part (MAP).

The SMS-GMSC regards the IM-MSC as the MSC via this interface.

#### **8.16 GLh Interface (Intermediate Mobile-services Switching Centre (IM-MSC) – Mobile Switching Centre (MSC))**

The text in this clause is based on the text in references [2] – [6], clause A.5.8.

This interface is used to forward short messages in the network with the GLR in case of SMS transfer over non-GPRS. Also this interface is used to exchange data needed by the MSC to perform subscriber authorization and allocate network resources. Signalling on this interface uses the Mobile Application Part (MAP).

#### **8.17 GLi Interface (Intermediate Mobile-services Switching Centre (IM-MSC) – Gateway Mobile Location Centre (GMLC))**

The text in this clause is based on the text in references [2] – [6], clause A.5.9.

Also this interface is used to exchange data needed by the MSC to perform subscriber authorization and allocate network resources. Signalling on this interface uses the Mobile Application Part (MAP).

The GMLC regards the IM-MSC as the MSC via this interface.

#### **8.18 GLj Interface (Intermediate GPRS Serving Node (IM-GSN) – Gateway GPRS Support Node (GGSN))**

The text in this clause is based on the text in references [2] – [6], clause A.5.10.

In the network with the GLR when receiving a PDP PDU from the external network the GGSN sends a notification to the IM-GSN by the routing information from the HLR. The GGSN regards the IM-GSN as the SGSN via this interface.

#### **8.19 GLk Interface (Intermediate GPRS Serving Node (IM-GSN) – Serving GPRS Support Node (SGSN))**

The text in this clause is based on the text in references [2] – [6], clause A.5.11.

In the network with the GLR when receiving a PDP notification from the GGSN, the IM-GSN relays the notification to the SGSN by the routing information from the GLR. The SGSN regards the IM-GSN as the GGSN via this interface.

## **8.20 Gn Interface (Gateway GPRS Support Node (GGSN) – Serving GPRS Support Node (SGSN))**

The text in this clause is based on the text in references [2] – [6], clause 6.4.2.2.

This interface is used to support mobility between the SGSN and GGSN. The Gn interface is used when GGSN and SGSN are located inside one PLMN. The Gn interface also includes a part which allows SGSNs to communicate subscriber and user data, when changing SGSN.

Signalling on this interface uses the User Datagram Protocol, UDP/IP.

## **8.21 Gp Interface (Serving GPRS Support Node (SGSN) – External Data Network)**

The text in this clause is based on the text in references [2] – [6], clause 6.4.2.2.

The Gp interface is used if GGSN and SGSN are located in different PLMNs. The Gp interface also includes a part that allows SGSNs to communicate subscriber and user data, when changing SGSN.

Signalling on this interface uses the User Datagram Protocol, UDP/IP.

## **8.22 Gr Interface (Home Location Register (HLR) – Serving GPRS Support Node (SGSN))**

The text in this clause is based on the text in references [2] – [6], clause 6.4.2.1.

This interface is used to exchange the data related to the location of the mobile station and to the management of the subscriber. The main service provided to the mobile subscriber is the capability to transfer packet data within the whole service area. The SGSN informs the HLR of the location of a mobile station managed by the latter. The HLR sends to the SGSN all the data needed to support the service to the mobile subscriber. Exchanges of data may occur when the mobile subscriber requires a particular service, when he wants to change some data attached to his subscription or when some parameters of the subscription are modified by administrative means.

Signalling on this interface uses the Mobile Application Part (MAP), which in turn uses the services of Transaction Capabilities (TCAP).

## **8.23 Gs Interface (Mobile Switching Centre (MSC)/Visitor Location Register (VLR) – Serving GPRS Support Node (SGSN))**

The text in this clause is based on the text in references [2] – [6], clause 6.4.3.1.

The SGSN may send location information to the MSC/VLR via the optional Gs interface. The SGSN may receive paging requests from the MSC/VLR via the Gs interface. The MSC/VLR may indicate to an SGSN, via the Gs interface, that an MS is engaged in a service handled by the MSC.

Signalling on this interface uses connectionless SCCP (without TCAP). SCCP Global Title (GT) is used for addressing.

## **8.24 gsmSCF – HLR Interface**

The text in this clause is based on the text in references [2] – [6], clause 6a.4.4.

This interface is used by the gsmSCF to request information from the HLR. As a network operator option the HLR may refuse to provide the information requested by the gsmSCF.

This interface is also used for USSD operations, both for gsmSCF-initiated dialogues and MS-initiated dialogues (relayed via HLR). It is a network operator option whether to support or not USSD operations on this interface.

### **8.25 gsmSCF – gsmSRF Interface**

The text in this clause is based on the text in references [2] – [6], clause 6a.4.5.

This interface is used by the gsmSCF to instruct the gsmSRF to play tones/announcements to the users.

### **8.26 gsmSSF – gsmSCF Interface**

The text in this clause is based on the text in references [2] – [6], clause 6a.4.2.

This interface is used by the gsmSCF to control a call in a certain gsmSSF and to request the gsmSSF to establish a connection with a gsmSRF. Relationships on this interface are opened as a result of the gsmSSF sending a request for instructions to the gsmSCF.

### **8.27 gprsSSF – gsmSCF Interface**

The text in this clause is based on the text in references [2] – [6], clause 6a.4.8.

This interface is used by the gsmSCF to control a GPRS session or individual PDP context in a certain gprsSSF. Relationships between the gprsSSF and the gsmSCF (GPRS dialogues) on this interface are opened as a result of the gprsSSF sending a request for instructions to the gsmSCF.

### **8.28 H Interface (Home Location Register (HLR) – Authentication Centre (AuC))**

The text in this clause is based on the text in references [2] – [6], clause 6.4.3.2.

When an HLR receives a request for authentication and ciphering data for a Mobile Subscriber and it does not hold the requested data, the HLR requests the data from the AuC. The protocol used to transfer the data over this interface is not standardized.

### **8.29 IuBC Interface (Cell Broadcast Centre (CBC) – Radio Network Subsystem (RNS))**

The text in this clause is based on the text in references [2] – [6], clause 6a.5.1.

The IuBC interface between the CBC and the RNS is specified in the 25.41x-series of 3G Technical Specifications.

The CBC-RNS interface is used to carry information concerning:

- the CBS messages itself; and
- CBS delivery parameter.

### **8.30 IuCS Interface (Mobile Switching Centre (MSC) – RNS or BSS)**

The text in this clause is based on the text in references [2] – [6], clauses 6.2.1.2 and 6.2.1.3.

The IuCS interface between the MSC and its RNS or BSS is specified in the 25.41x-series of UMTS Technical Specifications.

The RNS-MSC interface is used to carry information concerning:

- RNS management;
- call handling;
- mobility management.

### **8.31 IuPS Interface (Serving GPRS Support Node (SGSN) – RNS or BSS)**

The text in this clause is based on the text in references [2] – [6], clauses 6.2.2.2 and 6.2.2.3.

The IuPS interface between SGSN and RNS/BSS is used to carry information concerning:

- packet data transmission;
- mobility management.

The IuPS interface is defined in the 25.41x-series of 3G Technical Specifications.

### **8.32 A Interface (Mobile Switching Centre (MSC) – Base Station System (BSS))**

The text in this clause is based on the text in references [2] – [6], clause 6.2.1.1.

The A interface between the MSC and its BSS is specified in the 48-series of Technical Specifications.

The BSS-MSC interface is used to carry information concerning:

- BSS management;
- call handling;
- mobility management.

### **8.33 Gb Interface (Serving GPRS Support Node (SGSN) – Base Station System (BSS))**

The text in this clause is based on the text in references [2] – [6], clause 6.2.2.1.

The BSS-SGSN interface is used to carry information concerning:

- packet data transmission;
- mobility management.

The Gb interface is defined in 3G TS 48.014, 3G TS 48.016 and 3G TS 48.018.

### **8.34 Reference point GMLC – external LCS Client (Le reference point)**

The text in this clause is based on the text in references [2] – [6], clause 7.3.

At this reference point, external LCS clients request services from the PLMN.

### **8.35 LCS interfaces using MAP**

The text in this clause is based on the text in references [2] – [6], clause 6a.3.1.

The following interfaces are based on MAP in LCS.

#### **8.35.1 Lh Interface (interface between GMLC and HLR)**

The text in this clause is based on the text in references [2] – [6], clause 6a.3.1.

This interface is used by the GMLC to request the address of the visited MSC or SGSN for a particular target UE whose location has been requested (see 3G TS 29.002).

#### **8.35.2 Lg Interface (interface between GMLC – MSC and GMLC – SGSN)**

The text in this clause is based on the text in references [2] – [6], clause 6a.3.1.

This interface is used by the GMLC to convey a location request to the MSC or SGSN currently serving a particular target UE whose location was requested. The interface is used by the MSC or SGSN to return location results to the GMLC (see 3G TS 29.002).

### **8.35.3 Lc Interface (between GMLC and gsmSCF, CAMEL)**

The text in this clause is based on the text in references [2] – [6], clause 6a.3.1.

This interface is used to get location information for CAMEL based services GMLC (see 3G TS 29.002).

### **8.36 Mc Reference Point (Mobile Switching Centre Server (MSC Server) – Circuit Switched Media Gateway (CS-MGW))**

The text in this clause is based on the text in references [2] – [6], clause 6.4.1.7.

The Mc reference point describes the interfaces between the MGCF and IMS-MGW, between the MSC Server and CS-MGW, and between the GMSC Server and CS-MGW. It has the following properties:

- Full compliance with ITU-T Rec. H.248 [22].
- Flexible connection handling that allows support of different call models and different media processing purposes not restricted to H.323 [23] usage.
- Open architecture where extensions/Packages definition work on the interface may be carried out.
- Dynamic sharing of MGW physical node resources. A physical MGW can be partitioned into logically separate virtual MGWs/domains consisting of a set of statically allocated Terminations.
- Dynamic sharing of transmission resources between the domains as the MGW controls bearers and manage resources according to the H.248 [22] protocols.

The functionality across the Mc reference point will need to support mobile specific functions such as SRNS relocation/handover and anchoring. It is expected that current H.248 [22]/IETF Megaco standard mechanisms can be applied to enable this.

### **8.37 Mobile Switching Centre (MSC) – gsmSCF Interface**

The text in this clause is based on the text in references [2] – [6], clause 6a.4.6.

This interface is used by the MSC to send supplementary service invocation notifications to the gsmSCF.

### **8.38 Nb Reference Point (Circuit Switched Media Gateway (CS-MGW) – Circuit Switched Media Gateway (CS-MGW))**

The text in this clause is based on the text in references [2] – [6], clause 6.4.1.9.

Over the Nb reference point, the bearer control and transport are performed. The transport may be RTP/UDP/IP [69], [70] or AAL2 (ITU-T Rec. I.363.2) [68] for transport of user data. In the R00 architecture different options for user data transport and bearer control shall be possible on Nb, for example: AAL2/Q.AAL2, STM/none, RTP/H.245 [21], IPBC.

### **8.39 Nc Reference Point (Mobile Switching Centre Server (MSC Server) – Gateway Mobile Switching Centre Server (GMSC Server))**

The text in this clause is based on the text in references [2] – [6], clause 6.4.1.8.

Over the Nc reference point, the Network-Network based call control is performed. Examples of this are ISUP or an evolution of ISUP for bearer independent call control (BICC). Different options for signalling transport on Nc shall be possible including IP.

## **8.40 Reference point fixed networks – MSC**

The text in this clause is based on the text in references [2] – [6], clause 7.1.

The MSC is based on a normal ISDN exchange. It has, for call control, the same reference points as the fixed network exchanges. The signalling reference point considered in the Technical Specifications is related to the signalling system No. 7 User Parts TUP and ISUP associated to the circuits used for incoming and outgoing calls.

## **8.41 IM Subsystem Reference Points**

The text in this clause is based on the text in references [2] – [6], clause 6a.7.

### **8.41.1 Reference Point HSS – CSCF (Cx Reference Point)**

The text in this clause is based on the text in references [2] – [6], clause 6a.7.1.

The Cx reference point supports information transfer between CSCF and HSS.

The main procedures that require information transfer between CSCF and HSS are:

- 1) procedures related to Serving CSCF assignment;
- 2) procedures related to routing information retrieval from HSS to CSCF;
- 3) procedures related to authorization (e.g., checking of roaming agreement);
- 4) procedures related to authentication: transfer of security parameters of the subscriber between HSS and CSCF;
- 5) procedures related to filter control: transfer of filter parameters of the subscriber from HSS to CSCF.

Further information on the Cx reference point is provided in 3G TS 23.228.

### **8.41.2 Reference Point CSCF – UE (Gm Reference Point)**

The text in this clause is based on the text in references [2] – [6], clause 6a.7.2.

The Gm reference point supports the communication between UE and IM CN subsystem, e.g., related to registration and session control.

The protocol used for the Gm reference point is SIP (as defined by RFC 3261 [66], other relevant RFCs, and additional enhancements introduced to support 3GPP's needs).

### **8.41.3 Reference Point MGCF – IMS-MGW (Mn Reference Point)**

The text in this clause is based on the text in references [2] – [6], clause 6a.7.3.

The Mn reference point describes the interfaces between the MGCF and IMS-MGW in the IMS. It has the following properties:

- full compliance with H.248 [22] standard functions for IMS-PSTN/PLMN interworking;
- flexible connection handling which allows support of different call models and different media processing purposes not restricted to H.323 [23] usage;
- open architecture where extensions/Packages definition work on the interface may be carried out;
- dynamic sharing of IMS-MGW physical node resources. A physical IMS-MGW can be partitioned into logically separate virtual MGWs/domains consisting of a set of statically allocated terminations;
- dynamic sharing of transmission resources between the domains as the IMS-MGW controls bearers and manage resources according to the H.248 [22] protocols and functions for IMS.

#### **8.41.4 Reference Point MGCF – CSCF (Mg Reference Point)**

The text in this clause is based on the text in references [2] – [6], clause 6a.7.4.

The Mg reference point allows the MGCF to forward incoming session signalling (from the PSTN) to the CSCF for the purpose of interworking with PSTN networks.

The protocol used for the Mg reference point is SIP (as defined by RFC 3261 [66], other relevant RFCs, and additional enhancements introduced to support 3GPP's needs.)

#### **8.41.5 Reference Point CSCF – MRFC (Mr Reference Point)**

The text in this clause is based on the text in references [2] – [6], clause 6a.7.6.

The Mr reference point allows interaction between an S-CSCF and an MRFC.

The protocol used for the Mr reference point is SIP (as defined by RFC 3261 [66], other relevant RFCs, and additional enhancements introduced to support 3GPP's needs).

#### **8.41.6 Reference Point MRFC – MRFP (Mp Reference Point)**

The text in this clause is based on the text in references [2] – [6], clause 6a.7.6a.

The Mp reference point has the following properties:

- Full compliance with ITU-T Rec. H.248 [22].
- Open architecture where extensions (packages) definition work on the interface may be carried out.

#### **8.41.7 Reference Point CSCF – CSCF (Mw Reference Point)**

The text in this clause is based on the text in references [2] – [6], clause 6a.7.7.

The Mw reference point allows the communication and forwarding of signalling messaging between CSCFs, e.g., during registration and session control.

#### **8.41.8 Reference Point GGSN – PDF (Go Reference Point)**

The text in this clause is based on the text in references [2] – [6], clause 6a.7.9.

This interface allows the Policy Decision Function (PDF) to apply policy to the bearer usage in the GGSN.

The Policy Decision Function (PDF) is a logical entity of the P-CSCF. If the PDF is implemented in a separate physical node, the interface between the PDF and the P-CSCF is not standardized.

#### **8.41.9 Reference Point CSCF – BGCF (Mi Reference Point)**

The text in this clause is based on the text in references [2] – [6], clause 6a.7.10.

This reference point allows the Serving CSCF to forward the session signalling to the Breakout Gateway Control Function for the purpose of interworking to the PSTN networks.

The Mi reference point is based on external specifications, i.e., SIP: RFC 3261 [66].

#### **8.41.10 Reference Point BGCF – MGCF (Mj Reference Point)**

The text in this clause is based on the text in references [2] – [6], clause 6a.7.11.

This reference point allows the Breakout Gateway Control Function to forward the session signalling to the Media Gateway Control Function for the purpose of interworking to the PSTN networks.

The Mj reference point is based on external specifications, i.e., SIP: RFC 3261 [66].

#### **8.41.11 Reference Point BGCF – BGCF (Mk Reference Point)**

The text in this clause is based on the text in references [2] – [6], clause 6a.7.12.

This reference point allows the Breakout Gateway Control Function to forward the session signalling to another Breakout Gateway Control Function.

The Mk reference point is based on external specifications, i.e., SIP: RFC 3261 [66].

#### **8.41.12 Reference Point CSCF – SLF (Dx Reference Point)**

The text in this clause is based on the text in references [2] – [6], clause 6a.7.13.

This interface between CSCF and SLF is used to retrieve the address of the HSS which holds the subscription for a given user.

This interface is not required in a single HSS environment. An example for a single HSS environment is a server farm architecture.

Details are described in 3G TS 23.228, subclause 5.8.1.

#### **8.41.13 Reference Point to IPv6 network services (Mb reference point)**

The text in this clause is based on the text in references [2] – [6], clause 6a.7.14.

IPv6 network services are accessed via the Mb reference point. These IPv6 network services are used for user data transport. Note that GPRS provides IPv6 network services to the UE, i.e., the GPRS Gi reference point and the IMS Mb reference point may be the same.

#### **8.41.14 Reference Point CSCF – AS (ISC Reference Point)**

The text in this clause is based on the text in references [2] – [6], clause 6a.7.15.

This interface between CSCF and the Application Servers (i.e., SIP Application Server, OSA Service Capability Server, or CAMEL IM-SSF) is used to provide services for the IMS.

Details are described in 3G TS 23.228, subclause 4.2.4.

#### **8.41.15 Reference Point HSS – SIP AS or OSA SCS (Sh Reference Point)**

The text in this clause is based on the text in references [2] – [6], clause 6a.7.16.

The Application Server (SIP Application Server and/or the OSA Service Capability Server) may communicate to the HSS. The Sh interface is used for this purpose. Details are described in 3G TS 23.228, subclause 4.2.4.

#### **8.41.16 Reference Point HSS – CAMEL IM-SSF (Si Reference Point)**

The text in this clause is based on the text in references [2] – [6], clause 6a.7.17.

The CAMEL Application Server (IM-SSF) may communicate to the HSS. The Si interface is used for this purpose. Details are described in 3G TS 23.228, subclause 4.2.4.

#### **8.42 Reference Point CSCF – Multimedia IP networks (Mm Reference Point)**

The text in this clause is based on the text in references [2] – [6], clause 7.4.

This is an IP interface between CSCF and IP networks. This interface is used, for example, to receive a session request from another SIP server or terminal.



## 9 Technical specifications structure

This clause provides an overview of the specifications for this IMT-2000 family member based on GSM evolved UMTS core Network. Details for these specifications may be found in clause 10.

The following text describes the numbering scheme for the specifications and reports for the 3GPP 3rd Generation Mobile System.

Specifications for Release 5 of the 3rd Generation mobile system are identified by the "ab.cde" numbering scheme.

The following series titles and descriptions are used for guidance only and may be further developed with experience.

The specification series are:

21-series	Requirements specifications
22-series	Service aspects
23-series	Technical realization
24-series	Signalling protocols (UE-CN network)
25-series	UTRA aspects (Note 1)
26-series	Codecs (speech, video, etc.)
27-series	Data
28-series	Signalling protocols (RSS-CN)
29-series	Signalling protocols
30-series	Programme management (Note 2)
31-series	User Identity Module (UIM)
32-series	Operation and maintenance
33-series	Security aspects
34-series	Test specifications (Note 2)
35-series	Algorithm specifications
48-series	GERAN aspects (Note 1)

NOTE 1 – Technical specifications in this series are not included in the scope of this Recommendation. They are described in reference [1].

NOTE 2 – Technical specifications in these series are not included in the scope of this Recommendation.

## 10 Technical specifications

The working procedures within the 3GPP allow a continuous improvement of their specifications by means of a change request procedure. The Change Requests are reviewed by each 3GPP Working Group and provided for approval to the quarterly 3GPP TSG Plenary Meetings. Therefore, the SDO standards/specifications can be updated after each 3GPP TSG Plenary meetings. In this context, it is recommended to the reader to retrieve the latest version of the SDO Standards/Specifications from the location indicated within the template.

NOTE – The format of the "issued date" column in the whole clause 10 is **dd-mm-yy** (for day-month-year); in case the day of month has not been specified, the format is **-mm-yy**.

## 10.1 21-series, requirements specifications

### 10.1.1 TS 21.103 3rd Generation mobile system Release 5 Specifications

The document identifies the 3rd generation mobile system specifications for Release 5. The specifications and reports of 3G Release 5 have a major version number 5 (e.g., 5.x.y).

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-21.103V5.2.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A21103-520.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A21103-520.pdf</a>
CWTS	CWTS-TSD-CN 21.103 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 121 103	5.2.0	Published	09-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18064">http://pda.etsi.org/pda/home.asp?wki_id=18064</a>
T1	T1.3GPP.21.103V52 0-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-21.103 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-21.103(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-21.103(R5-5.2.0).zip</a>
TTC	TS-3GA-21.103 (Rel5)v5.2.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts21103rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts21103rel5v520.pdf</a>

### 10.1.2 TS 21.111 USIM and IC card requirements

This document defines the requirements of the USIM (Universal Subscriber Identity Module) and the IC card for 3G (UICC). These are derived from the service and security requirements defined in 3G TS 22.100 and 3G TS 22.101. The USIM is a 3G application on an IC card. It inter-operates with a 3G terminal and provides access to 3G services. This document is intended to serve as a basis for the detailed specification of the USIM and the UICC, and the interface to the 3G terminals.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-21.111V5.1.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A21111-510.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A21111-510.pdf</a>
CWTS	CWTS-TSD-CN 21.111 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 121 111	5.1.0	Published	02-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17360">http://pda.etsi.org/pda/home.asp?wki_id=17360</a>
T1	T1.3GPP.21.111V51 0-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-21.111 (R5-5.1.0)	5.1.0	Approved	21-03-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-21.111(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-21.111(R5-5.1.0).zip</a>

## 10.2 22-series, service aspects

### 10.2.1 TS 22.001 Principles of circuit telecommunication services supported by a Public Land Mobile Network (PLMN)

The document covers the definition of the circuit telecommunication services supported by a PLMN. The purpose of the document is to provide a method for the characterization and the description of these telecommunication services.

TS 22.101 describes overall service principles of a PLMN.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-22.001V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22001-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22001-500.pdf</a>
CWTS	CWTS-TSD-CN 22.001 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 001	5.0.0	Published	25-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16427">http://pda.etsi.org/pda/home.asp?wki_id=16427</a>
T1	T1.3GPP.22.001V50 0-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.001 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.001(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.001(R5-5.0.0).zip</a>

### 10.2.2 TS 22.002 Circuit Bearer Services (BS) supported by a Public Land Mobile Network (PLMN)

The document defines a set of Circuit Bearer Services to be provided to PLMN subscribers by a PLMN itself and in connection with other networks. This Technical Specification should also be used as a reference for defining the corresponding required mobile network capabilities.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-22.002V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22002-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22002-500.pdf</a>
CWTS	CWTS-TSD-CN 22.002 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 002	5.0.0	Published	16-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16428">http://pda.etsi.org/pda/home.asp?wki_id=16428</a>
T1	T1.3GPP.22.002V50 0-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.002 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.002(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.002(R5-5.0.0).zip</a>

### 10.2.3 TS 22.003 Circuit Teleservices supported by a Public Land Mobile Network (PLMN)

This Technical Specification (TS) describes and defines a recommended set of Circuit Teleservices to be supported by a PLMN in connection with other networks as a basis for defining the network capabilities required.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-22.003V5.2.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22003-520.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22003-520.pdf</a>
CWTS	CWTS-TSD-CN 22.003 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 003	5.2.0	Published	16-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16429">http://pda.etsi.org/pda/home.asp?wki_id=16429</a>
T1	T1.3GPP.22.003V52 0-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.003 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.003(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.003(R5-5.2.0).zip</a>

#### 10.2.4 TS 22.004 General on supplementary services

The purpose of the document is to define a recommended set of supplementary services to the Teleservices and Bearer services, which will be supported by a PLMN in connection with other networks as a basis for the definition of the network capabilities, required.

Supplementary services not covered in TS 22.004 cannot be introduced unilaterally in any PLMN if they require modification of the signalling specifications.

Technical realization of supplementary services is described in TS 23.011 and 24.010.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 22.004 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 004	5.0.0	Published	25-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16908">http://pda.etsi.org/pda/home.asp?wki_id=16908</a>
T1	T1.3GPP.22.004V50 0-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.004 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.004(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.004(R5-5.0.0).zip</a>
TTC	TS-3GA-22.004 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22004rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts22004rel5v500.pdf</a>

#### 10.2.5 TS 22.011 Service accessibility

The purpose of this Technical Specification is to describe the service access procedures as presented to the user.

Definitions and procedures are provided in this Technical Specification for international roaming, national roaming and regionally provided service. These are mandatory in relation to the technical realization of the Mobile Station (UE).

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 22.011 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 011	5.1.0	Published	20-09-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17365">http://pda.etsi.org/pda/home.asp?wki_id=17365</a>
T1	T1.3GPP.22.011V51 0-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.011(R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.011(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.011(R5-5.1.0).zip</a>
TTC	TS-3GA-22.011 (Rel5)v5.1.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22011rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts22011rel5v510.pdf</a>

### 10.2.6 TS 22.016 International Mobile Equipment Identities (IMEI)

The document defines the principal purpose and use of International Mobile station Equipment Identities (IMEI).

TS 23.003 describes the technical manner of numbering, addressing and identification.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-22.016V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22016-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22016-500.pdf</a>
CWTS	CWTS-TSD-CN 22.016 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 016	5.0.0	Published	25-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16909">http://pda.etsi.org/pda/home.asp?wki_id=16909</a>
T1	T1.3GPP.22.016V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.016 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.016(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.016(R5-5.0.0).zip</a>

### 10.2.7 TS 22.022 Personalization of Mobile Equipment (ME); Mobile functionality specification

The document provides functional specifications of five features to personalize Mobile Equipment (ME) for GSM and 3G systems. These features are called:

- network personalization;
- network subset personalization;
- service Provider (SP) personalization;
- corporate personalization;
- USIM personalization.

The document specifies requirements for MEs that provide these personalization features.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-22.022V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22022-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22022-500.pdf</a>
CWTS	CWTS-TSD-CN 22.022 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 022	5.0.0	Published	02-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17366">http://pda.etsi.org/pda/home.asp?wki_id=17366</a>
T1	T1.3GPP.22.022V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.022 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.022(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.022(R5-5.0.0).zip</a>

### 10.2.8 TS 22.024 Description of Charge Advice Information (CAI)

The charging supplementary service is described in TS 22.086. These services are designed to supply to mobile user sufficient information to allow a real-time estimate to be made of the bill that will eventually be levied in the home PLMN on the Mobile Station (MS) subscriber.

In the case of certain MS uses, for example a mobile payphone, this estimate could be subject to further processing (e.g., to present the charges in currency, rather than units, this may include an additional mark-up). This additional processing is not described in this document in order to avoid constraining the evolution of the MS product in this area.

This document gives an overall view of how this supplementary service shall operate both in the PLMN and within the MS. Text given in this document is required to define functionality and is not intended to constrain implementation.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 22.024 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 024	5.0.0	Published	25-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16438">http://pda.etsi.org/pda/home.asp?wki_id=16438</a>
T1	T1.3GPP.22.024V50 0-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.024 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.024(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.024(R5-5.0.0).zip</a>
TTC	TS-3GA-22.024(Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22024rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts22024rel5v500.pdf</a>

### 10.2.9 TS 22.030 Man-Machine Interface (MMI) of the User Equipment (UE)

The document defines the requirements for and gives guidelines on the MMI on the User Equipment (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.

This document includes requirements only to UE connected to CS Domain. See TS 22.101 for overall service principles and TS 22.001 for Circuit telecommunication services.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-22.030V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22030-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22030-500.pdf</a>
CWTS	CWTS-TSD-CN 22.030 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 030	5.0.0	Published	25-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16439">http://pda.etsi.org/pda/home.asp?wki_id=16439</a>
T1	T1.3GPP.22.030V50 0-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.030 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.030(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.030(R5-5.0.0).zip</a>

### 10.2.10 TS 22.031 Fraud Information Gathering System (FIGS); Service description; Stage 1

This Technical Specification specifies the Stage 1 description of the Fraud Information Gathering System (FIGS) feature which provides the means for the HPLMN to monitor the activities of its subscribers in a VPLMN.

The purpose of this network feature is to enable the HPLMN to monitor the activities of its subscribers while they are roaming. The VPLMN collects information about a defined set of activities on monitored subscribers and sends this information back to the HPLMN. This enables the HPLMN to clear certain types of calls and so stop fraudulent use of the GSM system.

This Specification enables service providers/network operators to use FIGS, and service limitation controls such as Operator Determined Barring (ODB) and Immediate Service Termination (IST), to limit their financial exposure to subscribers producing large unpaid bills.

HPLMNs may also choose to monitor the activities of its subscribers within the HPLMN.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 22.031 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 031	5.0.0	Published	09-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17859">http://pda.etsi.org/pda/home.asp?wki_id=17859</a>
T1	T1.3GPP.22.031V50 0-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.031 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.031(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.031(R5-5.0.0).zip</a>

#### 10.2.11 TS 22.032 Immediate Service Termination (IST); Service description; Stage 1

The document specifies the Stage 1 description of the Immediate Service Termination (IST) service which provides the means for the HPLMN to terminate all the activities of an HPLMN subscriber in a VPLMN.

The purpose of this network feature is to enable the HPLMN to control the activities of its subscribers, particularly while they are roaming. If the HPLMN decides (based upon information received via Fraud Information Gathering System (FIGS) or other systems) that a roaming subscriber is behaving in a fraudulent or suspicious manner, the HPLMN can terminate all activities of the subscriber, including calls (including transferred and diverted calls) that are in progress.

This procedure can also be used to terminate all the activities of a subscriber when the subscription has ended.

The primary aim is to enable service providers/network operators to use IST to reduce the amount of money that they lose because of roaming fraud.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-22.032V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22032-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22032-500.pdf</a>
CWTS	CWTS-TSD-CN 22.032 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 032	5.0.0	Published	27-06-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16442">http://pda.etsi.org/pda/home.asp?wki_id=16442</a>
T1	T1.3GPP.22.032V50 0-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.032 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.032(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.032(R5-5.0.0).zip</a>



### 10.2.12 TS 22.034 High-Speed Circuit-Switched Data (HSCSD); Stage 1

The document specifies the Stage 1 description of High-Speed Circuit-Switched Data (HSCSD). HSCSD is a feature that introduces General Bearer Services and a multislot mechanism is used for user rates that can be achieved with one or more TCH/F. Multislot also defines a flexible use of air interface resources that makes efficient and flexible use of higher user rates feasible.

The Multislot mechanism is only applicable to GERAN.

At UTRAN radio access parameters used for GBS user data are specified at TS 23.107.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-22.034V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22034-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22034-500.pdf</a>
CWTS	CWTS-TSD-CN 22.034 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 034	5.0.0	Published	25-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16444">http://pda.etsi.org/pda/home.asp?wki_id=16444</a>
T1	T1.3GPP.22.034V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.034(R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.034(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.034(R5-5.0.0).zip</a>

### 10.2.13 TS 22.038 USIM/SIM Application Toolkit (USAT/SAT); Service description; Stage 1

This Technical Specification defines the Stage 1 description of the USIM/SIM application Toolkit (SAT/USAT). Stage 1 is an overall service description, primarily from the subscriber's and serving environment's points of view, and does not deal with the details of the human interface itself.

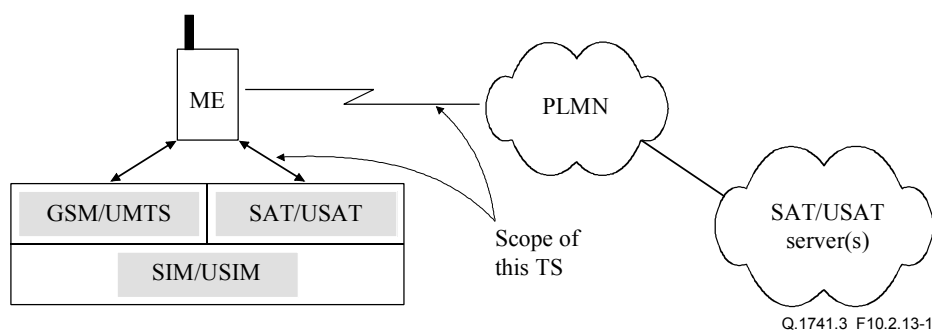
This Technical Specification includes information applicable to network operators, serving environments and terminal, switch and database manufacturers.

This Technical Specification contains the core requirements for a USIM/SIM application Toolkit (SAT/USAT) that are sufficient to provide a complete service.

It is highly desirable, however, that technical solution for a USIM/SIM application Toolkit (SAT/USAT) should be sufficiently flexible to allow for possible enhancements. Additional functionalities not documented in this Technical Specification may implement requirements that are considered outside the scope of this Technical Specification. This additional functionality may be on a network-wide basis, nationwide basis or particular to a group of users. Such additional functionality shall not compromise conformance to the core requirements of the service.

As indicated in Figure 10.2.13-1, the scope of this Technical Specification encompasses the SAT/USAT functionality in the UE/MS (comprising USIM/SIM and ME) and the interaction with the PLMN environment. The SAT/USAT Server is not necessarily a separate entity as shown in the figure; nodes providing SAT/USAT services may also exist within the PLMN. The functionalities of the SAT/USAT servers (such as charging aspects, security level classification, etc.) are not covered by this Specification.





**Figure 10.2.13-1/Q.1741.3 – Scope of this Technical Specification**

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-22.038V5.2.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22038-520.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22038-520.pdf</a>
CWTS	CWTS-TSD-CN 22.038 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 038	5.2.0	Published	05-08-02	<a href="http://pda.etsi.org/pda/home.asp?wiki_id=16199">http://pda.etsi.org/pda/home.asp?wiki_id=16199</a>
T1	T1.3GPP.22.038V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAE.3G-22.038 (R5)	5.2.0	Approved	19-12-01	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-22_038_R5_zip">http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-22_038_R5_zip</a>

#### 10.2.14 TS 22.041 Operator Determined Call Barring

The document describes the network feature Operator Determined Barring (ODB).

This allows the network operator or service provider to regulate, by means of an exceptional procedure, access by the subscribers to services (both Circuit and Packet Oriented), by the barring of certain categories of outgoing or incoming calls/ Packet Oriented Services or of roaming. ODB shall take effect immediately and shall terminate ongoing calls and bar future calls/ Packet Oriented Services.

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.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 22.041 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 041	5.0.0	Published	25-07-02	<a href="http://pda.etsi.org/pda/home.asp?wiki_id=16445">http://pda.etsi.org/pda/home.asp?wiki_id=16445</a>
T1	T1.3GPP.22.041V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.041 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.041(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.041(R5-5.0.0).zip</a>
TTC	TS-3GA-22.041 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22041rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts22041rel5v500.pdf</a>

### 10.2.15 TS 22.042 Network Identity and Time Zone (NITZ); Service description; Stage 1

The document describes the feature Network Identity and Time Zone (NITZ) for CS Domain.

This feature provides the means for serving PLMNs to transfer current identity, time, Daylight Saving Time and the local time zone to Mobile Stations (MS)s, and for the MSs to store and use this information. This enhances roaming by permitting accurate indication of PLMN identities that are either newer than the Mobile Equipment (ME) or has changed their name since the ME was sold. Additionally time, Daylight Saving Time and time zone information can be utilized by MEs as desired.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 22.042 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 042	5.0.0	Published	25-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16446">http://pda.etsi.org/pda/home.asp?wki_id=16446</a>
T1	T1.3GPP.22.042V50 0-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.042 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.042(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.042 (R5-5.0.0).zip</a>
TTC	TS-3GA-22.042 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22042rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts22042rel5v500.pdf</a>

### 10.2.16 TS 22.053 Tandem Free Operation (TFO); Service description; Stage 1

The document specifies the Stage 1 description for the Tandem Free Operation (TFO) feature that provides the capability to avoid tandeming speech codecs in mobile to mobile speech calls. The primary aim is to realize improvements in speech quality. The TFO mode of operation could also be used to reduce inter-Mobile services Switching Centre (MSC) transmission bandwidth requirements.

In analogy with ITU-T Rec. I.130 [27], Stage 1 is an overall service description, from the service subscriber's and user's standpoints, that views the network as a single entity which provides services to the user.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-22.053V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22053-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22053-500.pdf</a>
CWTS	CWTS-TSD-CN 22.053 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 053	5.0.0	Published	04-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16910">http://pda.etsi.org/pda/home.asp?wki_id=16910</a>
T1	T1.3GPP.22.053V50 0-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.053 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.053(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.053 (R5-5.0.0).zip</a>

### 10.2.17 TS 22.057 Mobile Execution Environment (MExE); Service description; Stage 1

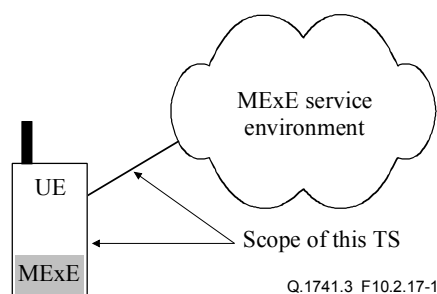
This Technical Specification defines the Stage 1 description of the Mobile Execution Environment (MExE). Stage 1 is an overall service description, primarily from the subscriber's and service providers' points of view, and does not deal with the details of the human interface itself.

This Technical Specification includes information applicable to network operators, service providers and terminal, switch and database manufacturers.

This Technical Specification contains the core requirements for a Mobile Execution Environment (MExE) that is sufficient to provide a complete service.

It is highly desirable, however, that technical solutions for a Mobile Execution Environment (MExE) should be sufficiently flexible to allow for possible enhancements. Additional functionalities not documented in this Technical Specification may implement requirements that are considered outside the scope of this Technical Specification. This additional functionality may be on a network-wide basis, nationwide basis or particular to a group of users. Such additional functionality shall not compromise conformance to the core requirements of the service.

As indicated in Figure 10.2.17-1, the scope of this Technical Specification encompasses the MExE functionality in the UE, interaction with the MExE service environment. The MExE service environment is not necessarily restricted to the PLMN, and nodes providing MExE services (i.e., MExE servers) may also exist outside the PLMN. Aspects of the support provided by MExE servers within the MExE service environment (such as charging aspects, security level classification, etc.) are covered by this Specification, but not the MExE servers themselves.



**Figure 10.2.17-1/Q.1741.3 – Scope of this Technical Specification**

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-22.057V5.4.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22057-540.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22057-540.pdf</a>
CWTS	CWTS-TSD-CN 22.057 (R5)	5.4.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 057	5.4.0	Published	16-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16447">http://pda.etsi.org/pda/home.asp?wki_id=16447</a>
T1	T1.3GPP.22.057V540-2003	5.4.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.057 (R5-5.4.0)	5.4.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.057(R5-5.4.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.057(R5-5.4.0).zip</a>

### 10.2.18 TS 22.060 General Packet Radio Service (GPRS); Service description; Stage 1

This Technical Specification defines the Stage 1 description of the General Packet Radio Service (GPRS). Stage 1 is an overall service description, primarily from the service subscriber's and user's points of view, but does not deal with the details of the human interface itself. This Technical Specification includes information applicable to network operators, service providers and terminal, switch and data base manufacturers.

This Technical Specification contains the core requirements for the packet switched 3G networks that are sufficient to provide a complete service. It defines a set of bearer services that provide packet mode transmission within the PLMN and interwork with external networks.

The term GPRS shall be used in this document to refer the GPRS service offered via GERAN and UTRAN and the PS Domain of the 3G PLMN.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 22.060 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 060	5.2.0	Published	16-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16449">http://pda.etsi.org/pda/home.asp?wki_id=16449</a>
T1	T1.3GPP.22.060V52 0-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.060 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.060(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.060(R5-5.2.0).zip</a>
TTC	TS-3GA-22.060 (Rel5)v5.2.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22060rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts22060rel5v520.pdf</a>

### 10.2.19 TS 22.066 Support of Mobile Number Portability (MNP); Stage 1

This Technical Specification defines the Stage 1 description of the Support of Mobile Number Portability between networks in the same country as well as North America cross-sector portability (i.e., number portability between fixed and GSM mobile networks). Stage 1 is an overall service description, primarily from the service subscriber's and user's points of view, but does not deal with the details of the human interface itself.

Mobile Number Portability (MNP) is applicable only to those telecommunication services identified by an MSISDN.

This Specification includes information applicable to network operators, service providers and terminal, switch and database manufacturers.

This Specification contains the core requirements for the Support of Mobile Number Portability between network operators in the same country as well as North America cross-sector portability that are sufficient to provide a complete service.

Other cross-sector portability options (e.g., number portability between fixed and mobile networks outside the North American Region) are outside the scope of this Technical Specification. It is highly desirable, however, that technical solutions for MNP should be sufficiently flexible to allow for possible enhancements, e.g., cross-sector number portability, and MNP between analogue and digital mobile networks. Additional functionalities not documented in this Specification may implement requirements that are considered outside the scope of this Specification. This additional functionality may be on a network-wide basis, nationwide basis or particular to a group of users. Such additional functionality shall not compromise conformance to the core requirements of the service.

Porting between Service Providers (i.e., service provider portability) that does not involve a change of Network Operator is outside the scope of this Specification.

The relationship between Service Providers and Network Operators is outside the scope of this Specification.

The relationship between a Service Provider and subscriber is outside the scope of this Specification. The interface between the Mobile Station (MS) and any external applications are

outside the scope of this Specification. Charging principles are outside the scope of this Specification except where explicitly stated in the text.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 22.066 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 066	5.0.0	Published	25-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16450">http://pda.etsi.org/pda/home.asp?wki_id=16450</a>
T1	T1.3GPP.22.066V50 0-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G- 22.066(R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.066(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.066(R5-5.0.0).zip</a>
TTC	TS-3GA- 22.066(Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22066rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts22066rel5v500.pdf</a>

### 10.2.20 TS 22.067 enhanced Multi-Level Precedence and Pre-emption service (eMLPP); Stage 1

The document specifies the Stage 1 description of the enhanced Multi-Level Precedence and Pre-emption Service (eMLPP). 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 ongoing call of lower precedence to accept an incoming call of higher precedence.

The eMLPP service is provided as a network operator's option to a domain of a network. The domain can be the whole network or a subset of the network. The eMLPP service applies to all network resources in the domain that is in common use. The eMLPP service is applicable to all mobile stations in the domain with all or some mobile stations having a respective subscription assigning precedence according to the eMLPP service.

eMLPP is a supplementary service and shall be provided to a subscriber for all basic services subscribed to and for which eMLPP applies.

NOTE – It is under study whether normal GSM Phase 2 Mobile Stations will be able to be used for this service.

The service is described from the service subscriber's and user's point of view, in particular:

- the procedure for normal operation with successful outcome;
- the action to be taken in exceptional circumstances;
- the interaction with other services and features.

The document does not deal with the Man-Machine Interface (MMI) requirements, but makes reference to the appropriate specifications.

The document is applicable to teleservices 1x and 6x and to all bearer services used in a mobile network if eMLPP is provided.

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ARIB	ARIB STD-T63-22.067V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22067-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22067-500.pdf</a>
CWTS	CWTS-TSD-CN 22.067 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 067	5.0.0	Published	30-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16451">http://pda.etsi.org/pda/home.asp?wki_id=16451</a>
T1	T1.3GPP.22.067V50 0-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.067 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.067(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.067(R5-5.0.0).zip</a>

### 10.2.21 TS 22.071 Location Services (LCS); Stage 1

This document provides the Stage 1 description of Location Services (LCS). A Stage 1 description provides an overall service description, primarily from the service subscriber's and user's points of view, but not dealing with the details of the Man-Machine Interface (MMI). This Technical Specification includes information applicable to network operators, service providers and terminal, base station system, switch, and database manufacturers.

NOTE – Location Services may be considered as a network provided enabling technology consisting of standardized service capabilities that enable the provision of location based applications. These applications 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 location services is included in various clauses of the Specification.

This document provides core requirements to an extent sufficient to derive a complete definition of location services at the service level. However, this document also provides additional requirements that may suggest in a non-normative manner certain ways the system may be implemented to support location services.

LCS can be offered without subscription to basic telecommunication services. LCS is available to the following categories of LCS clients:

- Value Added Services LCS Clients: use LCS to support various value added services. These clients can include UE subscribers as well as non-subscribers to other services.
- PLMN Operator LCS Clients: use LCS to enhance or support certain O&M related tasks, supplementary services, IN related services and bearer services and teleservices.
- Emergency Services LCS Clients: use LCS to enhance support for emergency calls from subscribers.
- Lawful Intercept LCS Clients: use LCS to support various legally required or sanctioned services.

LCS is applicable to any target UE whether or not the UE supports LCS, but with restrictions on the choice of positioning method or notification of a location request to the UE user when LCS or individual positioning methods, respectively, are not supported by the UE.



LCS is being developed in phases with enhancements added in yearly releases:

- 1) UMTS Release 99: LCS is supported in the circuit-switched domain of the 3G core network (GMLC connected to MSC). UTRAN R99 specifications support cell coverage (i.e., cell identity) based LCS. (The radio interface RRC specification also support IPDL-OTDOA and network assisted GPS (assistance data broadcasting), but the UTRAN internal interfaces do not yet support these two methods in R99.)
- 2) GSM/UMTS Release 5: LCS shall be supported in the circuit-switched domain and in the packet-switched domain including GPRS. LCS shall be supported in GERAN and in UTRAN FDD and UTRAN TDD. The positioning methods in UTRAN will be at least the 3 methods identified earlier: cell coverage based, IPDL-OTDOA and assisted GPS. LCS support is to be included in the Open Service Architecture (OSA) including enhancements for the support of value added services, and support for the velocity parameter in the position request/response. The objective is to have common service descriptions for all Access Networks in this Stage 1 specification. Possible deviations shall be noted in the text.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-22.071V5.1.1	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22071-511.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22071-511.pdf</a>
CWTS	CWTS-TSD-CN 22.071 (R5)	5.1.1	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 071	5.1.1	Published	08-04-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=15666">http://pda.etsi.org/pda/home.asp?wki_id=15666</a>
T1	T1.3GPP.22.071V511-2003	5.1.1	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.071 (R5-5.1.1)	5.1.1	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.071(R5-5.1.1).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.071(R5-5.1.1).zip</a>

### 10.2.22 TS 22.072 Call Deflection (CD); Stage 1

Call Deflection (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.

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CWTS	CWTS-TSD-CN 22.072 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 072	5.0.0	Published	25-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16452">http://pda.etsi.org/pda/home.asp?wki_id=16452</a>
T1	T1.3GPP.22.072V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.072(R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.072(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.072(R5-5.0.0).zip</a>
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### 10.2.23 TS 22.076 Noise Suppression for the AMR Codec; Service description; Stage 1

The document specifies the Stage 1 description for the Noise Suppression feature for the AMR codec that enhances the input speech signal corrupted by acoustic noise. In analogy with ITU-T Rec. I.130 [27], Stage 1 is an overall service description, from the service subscriber's and user's standpoints, that views the network as a single entity which provides services to the user.

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ARIB	ARIB STD-T63-22.076V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22076-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22076-500.pdf</a>
CWTS	CWTS-TSD-CN 22.076 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 076	5.0.0	Published	04-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16453">http://pda.etsi.org/pda/home.asp?wki_id=16453</a>
T1	T1.3GPP.22.076V50 0-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.076(R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.076(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.076(R5-5.0.0).zip</a>

### 10.2.24 TS 22.078 Customized Applications for Mobile network Enhanced Logic (CAMEL); Service description; Stage 1

This Standard specifies the Stage 1 description for the CAMEL feature (Customized Applications for Mobile network Enhanced Logic) that 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 PLMN. 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 HPLMN.

CAMEL is developed in phases. The following phases exist:

- CAMEL phase 1.
- CAMEL phase 2.
- CAMEL phase 3.

A VPLMN or IPLMN supporting CAMEL phase 2 shall also support CAMEL phase 1, so far as it is applicable to the network entities concerned.

A VPLMN or IPLMN supporting CAMEL phase 3 shall also support CAMEL phase 2 and CAMEL phase 1, so far as it is applicable to the network entities concerned. For instance, an SGSN has no capability defined for CAMEL phase 2 or CAMEL phase 1.

The CAMEL feature is applicable

- to mobile originated and mobile terminated call-related activities;
- as a CAMEL phase 2 function, to supplementary service invocations;
- as a CAMEL Phase 3 function, to SMS MO, to GPRS sessions and PDP contexts, to the control of HLR subscriber data, to the control of network signalling load.

The mechanism described addresses especially the need for information exchange among the VPLMN, HPLMN and the CAMEL Service Environment (CSE) for support of such operator specific services. Any user procedures for operator specific services are outside the scope of this standard.



This Specification describes the interactions between the functions of the VPLMN, HPLMN, IPLMN and the CSE.

The second phase of CAMEL enhances the capabilities of phase 1. The following capabilities are added:

- additional event detection points;
- interaction between a user and a service using announcements, voice prompting and information collection via in-band interaction or USSD interaction;
- control of call duration and transfer of Advice of Charge Information to the mobile station;
- the CSE can be informed about the invocation of the supplementary services ECT, CD and MPTY;
- for easier post-processing, charging information from a serving node can be integrated in normal call records.

The third phase of CAMEL enhances the capabilities of Phase 2. The following capabilities are added:

- support of facilities to avoid overload;
- capabilities to support Dialed Services;
- capabilities to handle mobility events, such as (Not-) reachability and roaming;
- control of GPRS sessions and PDP contexts;
- control of mobile originating SMS through both circuit-switched and packet-switched serving network entities;
- the CSE can be informed about the invocation of the GSM supplementary service CCBS.

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CWTS	CWTS-TSD-CN 22.078 (R5)	5.9.1	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 078	5.9.0	Published	19-12-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17860">http://pda.etsi.org/pda/home.asp?wki_id=17860</a>
T1	T1.3GPP.22.078V59 1-2003	5.9.1	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G- 22.078(R5-5.9.1)	5.9.1	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.078(R5-5.9.1).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.078(R5-5.9.1).zip</a>
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### 10.2.25 TS 22.079 Support of Optimal Routing; Stage 1

This Stage 1 description of the first phase of Support of Optimal Routing (SOR):

- compiles the basic service requirements for SOR;
- describes the interactions for Supplementary Services (SS) in order to cater for SOR;
- refers to modifications to network features required by SOR.

This Specification does not address the following:

- There is no need for optimization of the routing of calls originally directed to a fixed network subscriber, because the physical address of a fixed network terminating line cannot differ from its logical address.
- SOR in non-PLMNs is not a subject of this Technical Specification, but might be possible by bilateral arrangement between PLMN operators and those non-PLMN operators.

The purpose of SOR is to reduce the number of unnecessary inter-PLMN call legs.

The first phase of SOR applies to:

- Optimal Routing for the benefit of the B party, i.e., Mobile terminated calls with late call forwarding to the home or visited country (scenarios 1 and 2),

and optionally;

- Optimal Routing for the benefit of the A party, e.g., Mobile to mobile calls where both mobile subscribers are in the same country (scenarios 3 to 10).

The complete set of scenarios included in the Phase 1 of Optimal Routing is presented in the paragraph for normal procedures. All other scenarios are excluded from Phase 1 of Optimal Routing.

Note that Optimal Routing is applicable to national roaming situations that are to calls directed to a mobile subscriber roaming in her home country, but registered in a PLMN different from her HPLMN.

All further call scenarios, including multiple call forwarding, are left to subsequent phases of SOR. Subsequent phases of SOR shall be backwards compatible with this first phase.

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CWTS	CWTS-TSD-CN 22.079 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 079	5.0.0	Published	26-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16455">http://pda.etsi.org/pda/home.asp?wki_id=16455</a>
T1	T1.3GPP.22.079 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.079 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.079(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.079(R5-5.0.0).zip</a>
TTC	TS-3GA-22.079 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22079rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts22079rel5v500.pdf</a>

### 10.2.26 TS 22.081 Line Identification Supplementary Services; Stage 1

The document describes the Supplementary Services belonging to the group Line Identification Supplementary Services.

The general aspects, including definitions and recommended provision, of the description of the Supplementary Services are given in TS 22.004.

The group of Line Identification Supplementary Services is divided into the following four Supplementary Services:

- CLIP – Calling line identification presentation.
- CLIR – Calling line identification restriction.
- COLP – Connected line identification presentation.
- COLR – Connected line identification restriction.

**Definition of line identity:** The line identity is made up of a number of information units:

- the subscriber's national ISDN/MSISDN number (MSISDN number is the number stored in the VLR);
- the country code;

- optionally, subaddress information. The PLMN cannot be responsible for the content of this subaddress. (For definition of the subaddress, see E.164 [19].)

In a full ISDN environment, the line identity shall include all the address information necessary to unambiguously identify a subscriber.

The calling line identity is the line identity of the calling party.

The connected line identity is the line identity of the connected party.

If for the line identity of the calling party or the connected party additional line identification is received (additional calling party/connected party number) in a PLMN, this additional line identification shall be used for the presentation purpose of the line identification presentation services.

**Definition of Presentation and Screening Indicators:** In addition to or instead of the line identity, the network may give a Presentation Indicator (PI) and/or a Screening Indicator (SI) to the served subscriber. The following information may be given:

- Presentation Indicator showing:
  - a) presentation allowed; or
  - b) presentation restricted; or
  - c) number not available due to interworking.

If Presentation Indicator is set to "Presentation Restricted", then the MS can get additional information on the Cause of no CLI, if provided by the network.

The Cause of no CLI value may be one of the following:

- unavailable;
- reject by user;
- interaction with other services;
- coin line/payphone;
- Screening Indicator showing:
  - a) user provided, verified and passed; or
  - b) user provided, not screened; or
  - c) network provided.

If the line identity is that of a PLMN subscriber, then:

- the national number and the country code shall always be provided by the network;
- the subaddress shall only be included if it is provided by the user (or user equipment);
- the screening indicator shall indicate "network provided".

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CWTS	CWTS-TSD-CN 22.081 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 081	5.0.0	Published	25-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16456">http://pda.etsi.org/pda/home.asp?wki_id=16456</a>
T1	T1.3GPP.22.081 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.081 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.081(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.081(R5-5.0.0).zip</a>
TTC	TS-3GA-22.081 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22081rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts22081rel5v500.pdf</a>

### **10.2.27 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 general aspects, including definitions and recommended provision, of the description of the supplementary services are given in Specification TS 22.004.

The group of supplementary services CALL OFFERING SUPPLEMENTARY SERVICES is divided into four different supplementary services:

- call forwarding unconditional;
- call forwarding on mobile subscriber busy;
- call forwarding on no reply;
- call forwarding on mobile subscriber not reachable.

#### **Indication of active Call forwarding supplementary service**

An indication that a Call forwarding service is currently active and operative on a number will be given to the forwarding party each time an outgoing call is made. There will be one indication for Unconditional call forwarding and another common indication for the Conditional call forwarding services.

#### **Note on the use of the forwarded-to number at registration**

If the forwarded-to number is a number in the HPLMN country, it may be entered by the served mobile subscriber in three different formats, independent of her actual location, according to the schemes:

- 1) National (significant) number.
- 2) National (trunk) prefix plus national (significant) number.
- 3) International prefix\*, country code, national (significant) number.

Scheme 3) Storage of numbers in this format is mandatory for all PLMN operators.

If the forwarded-to number is a number in a country other than the HPLMN country, it shall be entered by the served mobile subscriber, independent of her actual location, according to the following scheme:

- International prefix (Note), country code, national (significant) number.

NOTE – The MMI for entering of international prefix is defined in TS 22.030.

The maximum forwarded-to number length is 28 digits.

#### **Principles for interaction with the Barring of Outgoing Calls supplementary services**

Numbers allowed to call according to the Barring of Outgoing call service condition are allowed as forwarded-to numbers for the served mobile subscriber.

Numbers not allowed to call according to the Barring of Outgoing call service condition are not allowed as forwarded-to numbers for the served mobile subscriber.

For Unconditional Call Forwarding, the forwarded leg is treated as an outgoing call from the HPLMN country.

For the Conditional Call Forwarding services, the forwarded leg is treated as an outgoing call from the LPLMN (HPLMN or VPLMN) country.

## Principles for interaction with the Barring of Incoming Calls supplementary services

When Barring of all incoming calls is active for the served mobile subscriber – no Call forwarding services are allowed for her.

When Barring of all incoming calls when roaming outside the HPLMN country is active and operative – i.e., the served mobile subscriber is roaming outside the HPLMN country, the Conditional Call Forwarding services are not allowed.

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CWTS	CWTS-TSD-CN 22.082 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 082	5.0.0	Published	30-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16457">http://pda.etsi.org/pda/home.asp?wki_id=16457</a>
T1	T1.3GPP.22.082 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.082 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.082(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.082(R5-5.0.0).zip</a>
TTC	TS-3GA-22.082 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22082rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts22082rel5v500.pdf</a>

### 10.2.28 TS 22.083 Call Waiting (CW) and Call Hold (HOLD) supplementary services; Stage 1

The document describes the Supplementary Services belonging to the group Call Completion Supplementary Services.

The general aspects, including definitions and recommended provision, of the description of Supplementary Services are given in TS 22.004.

The group of Call Completion Supplementary Services is divided into the following two Supplementary Services:

- Call waiting;
- Call hold.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 22.083 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 083	5.0.0	Published	25-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16458">http://pda.etsi.org/pda/home.asp?wki_id=16458</a>
T1	T1.3GPP.22.083 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.083 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.083(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.083(R5-5.0.0).zip</a>
TTC	TS-3GA-22.083 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22083rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts22083rel5v500.pdf</a>

### 10.2.29 TS 22.084 MultiParty (MPY) supplementary service; Stage 1

The document describes the Supplementary Services belonging to the group MultiParty Supplementary Services.

The general aspects, including definitions and recommended provision, of the description of the Supplementary Services are given in TS 22.004.

The group of Supplementary Services MultiParty Supplementary Services consists of one Supplementary Service:

- MultiParty service.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 22.084 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 084	5.0.0	Published	26-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16459">http://pda.etsi.org/pda/home.asp?wki_id=16459</a>
T1	T1.3GPP.22.084 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.084 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.084(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.084(R5-5.0.0).zip</a>
TTC	TS-3GA-22.084 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22084rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts22084rel5v500.pdf</a>

### 10.2.30 TS 22.085 Closed User Group (CUG) supplementary services; Stage 1

The document describes the Supplementary Services belonging to the group Community Of Interest Supplementary Services.

The general aspects, including definitions and recommended provision, of the description of the Supplementary Services are given in TS 22.004.

The group of Community Of Interest Supplementary Services includes one Supplementary Service:

- Closed user group.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 22.085 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 085	5.0.0	Published	26-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16460">http://pda.etsi.org/pda/home.asp?wki_id=16460</a>
T1	T1.3GPP.22.085 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.085 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.085(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.085(R5-5.0.0).zip</a>
TTC	TS-3GA-22.085 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22085rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts22085rel5v500.pdf</a>

### 10.2.31 TS 22.086 Advice of Charge (AoC) supplementary services; Stage 1

The document describes the supplementary services belonging to the group Charging Supplementary Services.

The general aspects, including definitions and recommended provision, of the description of the supplementary services are given in TS 22.004.

Charging services are the supplementary services associated with charging aspects. The group of supplementary services Charging Supplementary Services comprises two services:

- Advice of Charge (Information);
- Advice of Charge (Charging).

Advice of Charge (AoC) supplementary services will use the Charge Advice Information described in TS 22.024.

In principle, the same type of Mobile Station (MS) can be used for both services of Advice of Charge (AoC), except where the application demands special features – e.g., the payment mechanism in a payphone.

Only one of these services may be subscribed to at any one time.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 22.086 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 086	5.0.0	Published	26-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16461">http://pda.etsi.org/pda/home.asp?wki_id=16461</a>
T1	T1.3GPP.22.086 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.086 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.086(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.086(R5-5.0.0).zip</a>
TTC	TS-3GA-22.086 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22086rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts22086rel5v500.pdf</a>

### 10.2.32 TS 22.087 User-to-User Signalling (UUS); Stage 1

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

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 22.087 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 087	5.0.0	Published	26-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16462">http://pda.etsi.org/pda/home.asp?wki_id=16462</a>
T1	T1.3GPP.22.087 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.087 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.087(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.087(R5-5.0.0).zip</a>
TTC	TS-3GA-22.087 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22087rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts22087rel5v500.pdf</a>

### 10.2.33 TS 22.088 Call Barring (CB) supplementary services; Stage 1

The document describes the supplementary services belonging to the group Call Restriction Supplementary Services.

The general aspects – including definitions and recommended provision – of the description of the supplementary services are given in TS 22.004.

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.

NOTE 1 – Each category (barring program) is handled as a single supplementary service.

NOTE 2 – The call barring program "incoming calls when roaming outside the home PLMN country" is only relevant if as a general rule the called mobile subscriber pays the charges for the forwarded part of the call from his home PLMN country to any other country.

The barring services can be offered to a mobile subscriber with a password option allowing the activation and deactivation by the subscriber. One password per mobile subscriber is supported by the network for all barring services. For the definition of the password, the description of its use and its management, see TS 22.004.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 22.088 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 088	5.0.0	Published	26-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16463">http://pda.etsi.org/pda/home.asp?wki_id=16463</a>
T1	T1.3GPP.22.088V50 0-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.088(R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.088(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.088(R5-5.0.0).zip</a>
TTC	TS-3GA-22.088(Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22088rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts22088rel5v500.pdf</a>

#### 10.2.34 TS 22.090 Unstructured Supplementary Service Data (USSD); Stage 1

The document defines the Stage 1 description of Unstructured Supplementary Service Data (USSD) for use in one or a number of Public Land Mobile Networks (PLMNs).

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 22.090 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 090	5.0.0	Published	30-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16464">http://pda.etsi.org/pda/home.asp?wki_id=16464</a>
T1	T1.3GPP.22.090 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.090 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.090(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.090(R5-5.0.0).zip</a>
TTC	TS-3GA-22.090 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22090rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts22090rel5v500.pdf</a>



### 10.2.35 TS 22.091 Explicit Call Transfer (ECT) supplementary service; Stage 1

The document specifies the Stage 1 description of Explicit Call Transfer (ECT) from the service subscriber's and user's points of view, in particular:

- the procedures for normal operation with successful outcome;
- the action to be taken in exceptional circumstances;
- the interaction with other supplementary services.

The document does not deal with the Man-Machine Interface (MMI) requirements, but makes reference to the appropriate Technical Specifications.

The charging principles applied to ECT are established in the document in terms of the charging information required to be collected. Any subsequent charging implications are outside of the scope of the document.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 22.091 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 091	5.0.0	Published	30-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16465">http://pda.etsi.org/pda/home.asp?wki_id=16465</a>
T1	T1.3GPP.22.091V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.091(R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.091(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.091(R5-5.0.0).zip</a>
TTC	TS-3GA-22.091(Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22091rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts22091rel5v500.pdf</a>

### 10.2.36 TS 22.093 Completion of Calls to Busy Subscriber (CCBS); Service description; Stage 1

The document specifies the Stage 1 description of Completion of Calls to Busy Subscriber (CCBS) from the subscriber's and user's points of view; in particular:

- the procedures for normal operation with successful outcome;
- the action to be taken in exceptional circumstances;
- the interaction with other supplementary services.

The document does not deal with the Man-Machine Interface (MMI) requirements, but makes reference to the appropriate specifications.

The charging principles applied to CCBS are outside of the scope of this Specification.

Any interactions with other networks not dealt with in the document is outside the scope of the document.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 22.093 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 093	5.0.0	Published	30-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16466">http://pda.etsi.org/pda/home.asp?wki_id=16466</a>
T1	T1.3GPP.22.093 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.093 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.093(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.093(R5-5.0.0).zip</a>
TTC	TS-3GA-22.093 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22093rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts22093rel5v500.pdf</a>

### 10.2.37 TS 22.094 Follow Me Service description; Stage 1

The document specifies the Stage 1 description for the Follow Me feature.

The Follow Me feature enables a mobile subscriber A to manipulate the Follow Me data of a party B in such a way that – under certain conditions – subsequent calls directed to party B will be forwarded to subscriber A.

The feature is described from the service subscriber's and user's point of view, in particular:

- the procedure for normal operation with successful outcome;
- the action to be taken in exceptional circumstances;
- the interaction with other GSM services and features.

This Technical Specification does not deal with the Man-Machine Interface (MMI) requirements, but makes reference to the appropriate specifications.

Any interaction with other services and/or networks not dealt with in this Specification is outside the scope of this Technical Specification.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 22.094 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 094	5.0.0	Published	30-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16467">http://pda.etsi.org/pda/home.asp?wki_id=16467</a>
T1	T1.3GPP.22.094 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.094 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.094(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.094(R5-5.0.0).zip</a>
TTC	TS-3GA-22.094 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22094rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts22094rel5v500.pdf</a>

### 10.2.38 TS 22.096 Name identification supplementary service; Stage 1

The document describes the supplementary services belonging to the group Name Identification supplementary services.

The general aspects, including definitions and recommended provision, of the description of the supplementary services are given in TS 22.004.

The group of Name Identification supplementary services contains the following supplementary service:

- CNAP Calling Name Presentation.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 22.096 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 096	5.0.0	Published	30-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16468">http://pda.etsi.org/pda/home.asp?wki_id=16468</a>
T1	T1.3GPP.22.096 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.096 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.096(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.096(R5-5.0.0).zip</a>
TTC	TS-3GA-22.096 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22096rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts22096rel5v500.pdf</a>

### 10.2.39 TS 22.097 Multiple Subscriber Profile (MSP) Phase 1; Service description; Stage 1

The document gives an overall view of how this service shall operate both in the PLMN and within the Mobile Station (MS). This Technical Specification defines functionality and is not intended to constrain implementation.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 22.097 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 097	5.0.0	Published	25-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16322">http://pda.etsi.org/pda/home.asp?wki_id=16322</a>
T1	T1.3GPP.22.097 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.097 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.097(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.097(R5-5.0.0).zip</a>
TTC	TS-3GA-22.097 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22097rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts22097rel5v500.pdf</a>

### 10.2.40 TS 22.101 Service aspects; Service principles

This Technical Specification (TS) describes the Service Principles for PLMNs.

3G specifications define integrated personal communication services. The system will support different applications ranging from narrow-band to wideband communications capability with integrated personal and terminal mobility to meet the user and service requirements of the 21st century.

The Specifications allow the realization of a new generation of mobile communications technology for a world in which personal communication services should allow person-to-person calling, independent of location, the terminal used, the means of transmission (wired or wireless) and the choice of technology. Personal communication services should be based on a combination of fixed and wireless/mobile services to form a seamless end-to-end service for the user.

The Specifications should be in compliance with the following objectives:

- To provide a single integrated system in which the user can access services in an easy to use and uniform way in all environments.

- To allow differentiation between service offerings of various serving networks and home environments.
- To provide a wide range of telecommunication services including those provided by fixed networks and requiring user bit rates of up to 2 Mbit/s as well as services special to mobile communications. These services should be supported in residential, public and office environments and in areas of diverse population densities. These services are provided with a quality comparable with that provided by fixed networks such as ISDN.
- To provide services via hand held, portable, vehicular mounted, movable and fixed terminals (including those which normally operate connected to fixed networks), in all environments (in different service environments – residential, private domestic and different radio environments) provided that the terminal has the necessary capabilities.
- To provide support of roaming users by enabling users to access services provided by their home environment in the same way even when roaming.
- To provide audio, data, video and particularly multimedia services.
- To provide for the flexible introduction of telecommunication services.
- To provide within the residential environment the capability to enable a pedestrian user to access all services normally provided by fixed networks.
- To provide within the office environment the capability to enable a pedestrian user to access all services normally provided by PBXs and LANs.
- To provide a substitute for fixed networks in areas of diverse population densities, under conditions approved by the appropriate national or regional regulatory authority.
- To provide support for interfaces, which allow the use of terminals normally connected to fixed networks.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-22.101V5.8.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22101-580.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22101-580.pdf</a>
CWTS	CWTS-TSD-CN 22.101 (R5)	5.8.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 101	5.8.0	Published	19-12-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17861">http://pda.etsi.org/pda/home.asp?wki_id=17861</a>
T1	T1.3GPP.22.101 V580-2003	5.8.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.101 (R5-5.8.0)	5.8.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.101(R5-5.8.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.101(R5-5.8.0).zip</a>

#### 10.2.41 TS 22.105 Services and service capabilities

Existing systems have largely standardized the complete sets of bearer services, teleservices and supplementary services that they provide. 3G specifications specify service capabilities rather than services, allowing service differentiation and system continuity. This Technical Specification (TS) describes how and what kind of services the user has access to.

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ARIB	ARIB STD-T63-22.105V5.2.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22105-520.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22105-520.pdf</a>
CWTS	CWTS-TSD-CN 22.105 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 105	5.2.0	Published	16-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16324">http://pda.etsi.org/pda/home.asp?wki_id=16324</a>
T1	T1.3GPP.22.105 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.105 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.105(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.105(R5-5.2.0).zip</a>

#### 10.2.42 TS 22.112 USAT interpreter; Stage 1

This document specifies a system to make Mobile Operator services, based on USIM Application Toolkit (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. The actual application could be developed using the application language of choice. Two types of application interfaces are used as examples, i.e., mark-up language based on XML and Remote Procedure Call (RPC).

The interpreter and the secure narrow-band channel form a core platform to enable services like:

- advanced security functionality, e.g., digital signatures in m-commerce applications;
- value added services based on position and roaming;
- controlled activation and management of other applications, e.g., multimedia and payment type of applications;
- the secure narrow-band channel is achieved by specifying the following:
  - specific application and content related functionalities of the interface between the application system and the USAT Gateway;
  - specific functionalities and protocols of the interface between the USAT Gateway and the USAT Interpreter associated with a USIM, achieved by defining a low level command set for interpretation by the USAT Interpreter;
  - defined level of functionality available to the application server for the implementation of USIM based services such as PKI, location services, push and broadcast services, event based services, etc.

This document does not specify any elements of the protocol stack between the application server and the USAT Gateway, the mark-up language definition, and the transport protocols between the USAT Gateway and the USAT Interpreter.

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ARIB	ARIB STD-T63-22.112V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22112-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22112-500.pdf</a>
CWTS	CWTS-TSD-CN 22.112 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 112	5.0.0	Published	05-08-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16200">http://pda.etsi.org/pda/home.asp?wki_id=16200</a>
T1	T1.3GPP.22.112 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.112 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.112(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.112(R5-5.0.0).zip</a>

### 10.2.43 TS 22.115 Service aspects of charging and billing

The document describes the Service Aspects of charging and billing of the Universal Mobile Telecommunications System (UMTS).

The document is not intended to duplicate existing standards or standards being developed by other groups on these topics, and will reference these where appropriate. The document will elaborate on the charging requirements described in the Charging Principles in TS 22.001 Service Principles. It will allow the generation of accurate charging information to be used in the commercial and contractual relationships between the parties concerned.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 22.115 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 115	5.2.0	Published	09-04-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=15691">http://pda.etsi.org/pda/home.asp?wki_id=15691</a>
T1	T1.3GPP.22.115 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.115 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.115(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.115(R5-5.2.0).zip</a>
TTC	TS-3GA-22.115 (Rel5)v5.2.0	1	TTC published	28-05-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22115rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts22115rel5v520.pdf</a>

### 10.2.44 TS 22.121 Service aspects; The Virtual Home Environment; Stage 1

The document specifies the content of the Stage 1 requirement for realization of VHE.

Virtual Home Environment (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.

The OSA requirements in release 99 TS 22.121 have been extracted into separate TS 22.127.

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CWTS	CWTS-TSD-CN 22.121 (R5)	5.3.1	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 121	5.3.1	Published	30-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16327">http://pda.etsi.org/pda/home.asp?wki_id=16327</a>
T1	T1.3GPP.22.121 V531-2003	5.3.1	Approved	08-08-03	<a href="https://www.atiss.org/atis/docstore/search.asp?committee=S24">https://www.atiss.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.121 (R5-5.3.1)	5.3.1	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.121(R5-5.3.1).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.121(R5-5.3.1).zip</a>
TTC	TR-3GA-22.121 (Rel5)v5.3.1	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/tr/tr22121rel5v531.pdf">http://www.ttc.or.jp/imt2000/tr/tr22121rel5v531.pdf</a>

#### 10.2.45 TS 22.127 Service requirement for the Open Services Access (OSA); Stage 1

This document specifies the Stage 1 requirements for realization of an Open Service Access (OSA).

OSA enables applications to make use of network functionality through an open standardized interface (the OSA API). OSA provides the glue between applications and network functionality. In this way, applications implementing the services become independent from the underlying network technology.

Applications that make use of network functionality offered through the OSA interface are not standardized.

OSA is one toolkit, amongst others, that enables certain aspects of the requirements of the Virtual Home Environment (VHE) concept to be realized.

This document is only applicable to OSA Release 5. In Release 99 Service requirements are described in the VHE Stage 1 description TS 22.121.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 22.127 (R5)	5.5.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 127	5.5.0	Published	19-12-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17862">http://pda.etsi.org/pda/home.asp?wki_id=17862</a>
T1	T1.3GPP.22.127 V550-2003	5.5.0	Approved	08-08-03	<a href="https://www.atiss.org/atis/docstore/search.asp?committee=S24">https://www.atiss.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.127 (R5-5.5.0)	5.5.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.127(R5-5.5.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.127(R5-5.5.0).zip</a>
TTC	TS-3GA-22.127 (Rel5)v5.5.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts22127rel5v550.pdf">http://www.ttc.or.jp/imt2000/ts/ts22127rel5v550.pdf</a>

#### 10.2.46 TS 22.129 Handover requirements between UTRAN and GERAN or other radio systems

The scope of this document includes service requirements for handover maintaining continuity of service to a wireless terminal as it moves between the radio coverage area, or "cells", associated with different base station sites. This functionality is called "handover". Handover can also occur due to change of radio resource providing a service without necessarily any change of the base stations involved. In particular, when the radio resources providing a service change from one of the UTRA radio access modes to the other (UTRA-FDD and UTRA-TDD), this is regarded as handover. Particular emphasis has been placed on the description of requirements for service



continuity within UTRAN and between UTRAN and GERAN but requirements specific to other systems are incorporated as required.

It is a key requirement to allow for dual or multi-mode terminals to hand over traffic from UTRAN to other radio systems such as GERAN and vice versa. This document describes the service requirements for intra- and inter-system handover.

The following subject areas are within the scope of these service requirements:

- user perceived performance that may be influenced by handover;
- operational requirements relating to handover;
- security requirements.

The requirements set forth in this document are service requirements, in that they fulfil the following:

- the requirements are independent of the implementation of the UTRAN;
- the extent to which the requirements are met are in principle verifiable using observable elements that are not internal to the UTRAN.

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CWTS	CWTS-TSD-CN 22.129 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 129	5.2.0	Published	16-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16329">http://pda.etsi.org/pda/home.asp?wki_id=16329</a>
T1	T1.3GPP.22.129 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.129 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.129(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.129(R5-5.2.0).zip</a>
TTC	TS-3GA-22.129 (Rel5)v5.2.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22129rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts22129rel5v520.pdf</a>

#### 10.2.47 TS 22.135 Multicall; Service description; Stage 1

The document describes Multicall supplementary service.

The general aspects, including definitions and recommended provision, of the description of Supplementary Services are given in TS 22.004.

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CWTS	CWTS-TSD-CN 22.135 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 135	5.0.0	Published	25-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16331">http://pda.etsi.org/pda/home.asp?wki_id=16331</a>
T1	T1.3GPP.22.135 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.135 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.135(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.135(R5-5.0.0).zip</a>
TTC	TS-3GA-22.135 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22135rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts22135rel5v500.pdf</a>



#### 10.2.48 TS 22.140 Multimedia Messaging Service (MMS); Stage 1

This Technical Specification defines the Stage 1 description of the non real-time Multimedia Messaging Service (MMS). Stage 1 is the set of requirements which shall be supported for the provision of non real-time multimedia messaging service, seen primarily from the subscriber's and service providers' points of view.

This Technical Specification includes information applicable to network operators, service providers, terminal and network manufacturers.

This Technical Specification contains the core requirements for the Multimedia Messaging Service, which is sufficient to provide a complete service.

Additional functionalities not documented in this Technical Specification may implement requirements that are considered outside the scope of this Technical Specification. Such additional functionality may be on a network-wide basis, nationwide basis or particular to a group of users. Such additional functionality shall not compromise conformance to the core requirements of the service.

This TS defines the requirements for MMS to be understood as a framework to enable non real-time transmissions for different types of media including such functionality as:

- multiple media elements per single message;
- individual handling of message elements;
- different delivery methods for each message element;
- negotiate different terminal and network MM capabilities;
- notification and acknowledgement of MM related events (e.g. delivery, deletion, etc.);
- handling of undeliverable MM;
- personalized MMS configuration;
- flexible charging.

The above list is not exhaustive.

Thus the MMS enables a unified application that integrates the composition, storage, access, and delivery of different kinds of media, e.g., text, voice, image or video in combination with additional mobile requirements.

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ARIB	ARIB STD-T63-22.140V5.4.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22140-540.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22140-540.pdf</a>
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ETSI	TS 122 140	5.4.0	Published	03-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17864">http://pda.etsi.org/pda/home.asp?wki_id=17864</a>
T1	T1.3GPP.22.140V54 0-2003	5.4.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.140(R5-5.4.0)	5.4.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.140(R5-5.4.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.140(R5-5.4.0).zip</a>

#### 10.2.49 TS 22.226 Global Text Telephony (GTT); Stage 1: Service description

This Technical Specification defines the Stage 1 description of the Global Text Telephony Feature, GTT. Stage 1 is the set of requirements which shall be supported for the provision of the real-time text conversation feature, seen primarily from the subscriber's and service providers' points of view.

This TS includes information applicable to network operators, service providers, terminal and network manufacturers.

This TS contains the core requirements for the Global Text Telephony feature, which are sufficient to provide a complete feature to incorporate in conversational services.

This TS defines the requirements for GTT to be understood as a framework to enable real-time transmission of text, for the purpose of a text based or text supported conversation between users. Text may be transported alone or in combination with other media in the session, especially video and voice.

Thus the GTT enables text conversation to be included in any mobile conversational service.

Interworking with existing text telephony in PSTN as well as emerging forms of standardized text conversation in all networks is within the scope of this document. Interoperation with Multimedia Messaging Services is also within scope of this feature.

NOTE – The Global Text Telephony feature may be enhanced due to e.g. operator's or regulator's requirements; however, such additional functionality shall not compromise conformance to the core requirements documented in this TS.

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CWTS	CWTS-TSD-CN 22.226 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 226	5.2.0	Published	12-04-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=15705">http://pda.etsi.org/pda/home.asp?wki_id=15705</a>
T1	T1.3GPP.22.226V52 0-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.226(R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.226(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.226(R5-5.2.0).zip</a>
TTC	TS-3GA-22.226(Rel5)v5.2.0	1	TTC published	28-05-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22226rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts22226rel5v520.pdf</a>

#### 10.2.50 TS 22.228 Service requirements for the Internet Protocol (IP) multimedia core network subsystem; Stage 1

This TS defines the service requirements from users' and operators' perspective for the support of IP multimedia applications.

IP multimedia applications are supported by IP multimedia sessions in the IM CN Subsystem. IP multimedia sessions use IP connectivity bearers (e.g., GPRS as a bearer). Examples of IP multimedia applications include speech communication, real time multimedia applications, shared online whiteboards, etc.

This TS, in general, does not standardize usage of IP multimedia applications, but instead identifies the requirements to enable their support.

In order to align IP multimedia applications wherever possible with non-3GPP IP applications, the general approach is to adopt non-3GPP IP based solutions.

The existing legacy tele- and supplementary services shall not be re-standardized as IP multimedia applications, and multimedia equivalent applications may be created with toolkits.

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ARIB	ARIB STD-T63-22.228V5.6.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22228-560.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22228-560.pdf</a>
CWTS	CWTS-TSD-CN 22.228 (R5)	5.6.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 228	5.6.0	Published	25-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16333">http://pda.etsi.org/pda/home.asp?wki_id=16333</a>
T1	T1.3GPP.22.228V560-2003	5.6.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.228(R5-5.6.0)	5.6.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.228(R5-5.6.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.228(R5-5.6.0).zip</a>
TTC	TS-3GA-22.228(Rel5)v5.6.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts22228rel5v560.pdf">http://www.ttc.or.jp/imt2000/ts/ts22228rel5v560.pdf</a>

### 10.2.51 TS 22.233 Transparent end-to-end packet-switched streaming service; Stage 1

This Technical Specification defines the Stage 1 description of the Packet-switched Streaming Service (PSS). Stage 1 is the set of requirements that shall be supported for the provision of a streaming service, seen primarily from the user's and service providers' points of view but also includes the service capabilities of the PSS itself.

This TS includes information applicable to network operators, service providers, terminal and network manufacturers.

This TS contains the core requirements for the Packet-switched Streaming Service (PSS), which are sufficient to enable a range of services.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-22.233V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22233-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A22233-500.pdf</a>
CWTS	CWTS-TSD-CN 22.233 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 122 233	5.0.0	Published	09-04-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16069">http://pda.etsi.org/pda/home.asp?wki_id=16069</a>
T1	T1.3GPP.22.233V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.233(R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.233(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.233(R5-5.0.0).zip</a>

### 10.2.52 TR 22.944 Report on service requirements for UE functionality split

This report identifies scenarios and requirements for UEs with functionality split over multiple devices. Scenarios that are required to be supported in the standard are defined in detail. The requirements in this report should enable interoperability between user equipment components from different vendors. This report is not intended to identify all possible or permitted functionality splits. Certain splits of functionality may be prohibited for security or other reasons. This report does not identify all prohibited scenarios.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 22.944 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TR 122 944	5.1.0	Published	16-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16335">http://pda.etsi.org/pda/home.asp?wki_id=16335</a>
T1	T1.3GPP.22.944V51 0-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-22.944(R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.944(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-22.944(R5-5.1.0).zip</a>

### 10.3 23-series, Technical realization

#### 10.3.1 TS 23.002 Network architecture

This document offers an overview of the PLMN and its architectures and configuration. The configuration and the functional entities of the PLMN and the interfaces between them are described on a general level in order to cope with possible implementations. These descriptions include interfaces between and within the core networks, the access networks, the user equipment, different service platforms, different domains and subsystems, and functional entities within domains and subsystems.

This document covers different architectural aspects with varying level of detail. In general, other specifications shall be referred to for further details; these specifications enable the reader to acquire the full understanding of a system or service feature.

Note that this document does not cover, or even list, all features of PLMNs.

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CWTS	CWTS-TSD-CN 23.002 (R5)	5.9.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 002	5.9.0	Published	09-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17872">http://pda.etsi.org/pda/home.asp?wki_id=17872</a>
T1	T1.3GPP.23.002 V590-2003	5.9.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.002 (R5-5.9.0)	5.9.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.002(R5-5.9.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.002(R5-5.9.0).zip</a>
TTC	TS-3GA-23.002 (Rel5)v5.9.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts23002rel5v590.pdf">http://www.ttc.or.jp/imt2000/ts/ts23002rel5v590.pdf</a>

#### 10.3.2 TS 23.003 Numbering, Addressing and Identification

The document defines the principal purpose and use of International Mobile station Equipment Identities (IMEIs) within the digital cellular telecommunications system and the 3G system.

The document defines:

- an identification plan for mobile subscribers in the GSM system;
- principles of assigning telephone and ISDN numbers to MSs in the country of registration of the MS;
- principles of assigning Mobile Station (MS) roaming numbers to visiting MSs;
- an identification plan for location areas, routing areas, and base stations in the GSM system;

- e) an identification plan for MSCs, SGSNs, GGSNs, and location registers in the GSM system;
- f) principles of assigning international mobile equipment identities;
- g) principles of assigning zones for regional subscription;
- h) an identification plan for groups of subscribers to the Voice Group Call Service (VGCS) and to the Voice Broadcast Service (VBS); and identification plan for voice group calls and voice broadcast calls; an identification plan for group call areas;
- i) principles for assigning Packet Data Protocol (PDP) addresses to mobile stations;
- j) an identification plan for point-to-multipoint data transmission groups;
- k) an identification plan for CN domain, RNC and service area in the UTRAN system.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.003 (R5)	5.5.1	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 003	5.5.1	Published	16-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17873">http://pda.etsi.org/pda/home.asp?wki_id=17873</a>
T1	T1.3GPP.23.003V55 1-2003	5.5.1	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.003(R5-5.5.1)	5.5.1	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.003(R5-5.5.1).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.003(R5-5.5.1).zip</a>
TTC	TS-3GA-23.003(Rel5)v5.5.1	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts23003rel5v551.pdf">http://www.ttc.or.jp/imt2000/ts/ts23003rel5v551.pdf</a>

### 10.3.3 TS 23.007 Restoration procedures

The data stored in location registers are automatically updated in normal operation; the main information stored in a location register defines the location of each mobile station and the subscriber data required to handle traffic for each mobile subscriber. The loss or corruption of these data will seriously degrade the service offered to mobile subscribers; it is therefore necessary to define procedures to limit the effects of failure of a location register, and to restore the location register data automatically. This document defines the necessary procedures.

The basic principle is that restoration should be based on radio contact to avoid faulty data being spread in the system.

Subscriber data for supplementary services must also be correctly restored, although the impact on service of corruption of supplementary service data is less severe.

Procedures for supporting these functions are defined in 3G Technical Specifications 29.002 and 29.060.

The MAP operation "IMSI Attach" is used only in MAP version 1; in MAP version 2 the same function is performed by the MAP operation "Update Location Area". References in this specification to IMSI Attach apply only to MAP version 1 network entities.

If the restoration of subscriber data in the VLR is triggered by Location Updating or IMSI Attach, the VLR retrieves subscriber data from the HLR by sending an "Update Location" request, which triggers one or more "Insert Subscriber Data" operations from the HLR. The "Update Location" request may also be used to send the LMSI to the HLR.

If the restoration of subscriber data in the VLR is triggered by a "Provide Roaming Number" request, the behaviour of the VLR depends on whether it is implemented according to MAP version 1 or MAP version 2. For MAP version 2, the VLR retrieves subscriber data from the HLR

by sending a "Restore Data" request, which triggers one or more "Insert Subscriber Data" operations from the HLR. The "Restore Data" request is also used to send the LMSI to the HLR. For MAP version 1, the VLR retrieves subscriber data from the HLR by sending a "Send Parameters" request with parameter type "Subscriber Data", which cannot be used to send the LMSI to the HLR.

The VLR number and MSC number in the subscriber data in the HLR are updated by the "Update Location" procedure.

The GGSN (Gateway GPRS Support Node) is the point of PDN interconnection with the GSM PLMN supporting GPRS. The GGSN contains routing information for GPRS users with a PDP context active. The necessary procedures needed to restore GGSN data information after a restart is described in this document.

The SGSN (Serving GPRS Support Node) is the node that is serving the MS. The SGSN stores information regarding, e.g., mobility management, routing and security. The necessary procedures needed to restore this SGSN information after a restart is described in this document.

A Type A LMU (Location Measurement Unit) is a network node, accessed over the GSM air interface that is functionally similar to an MS. All requirements associated with a non-GPRS MS in this Specification apply also to a Type A LMU except where specified otherwise.

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CWTS	CWTS-TSD-CN 23.007 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 007	5.0.0	Published	27-06-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16342">http://pda.etsi.org/pda/home.asp?wki_id=16342</a>
T1	T1.3GPP.23.007 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.007 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.007(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.007(R5-5.0.0).zip</a>
TTC	TS-3GA-23.007 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23007rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts23007rel5v500.pdf</a>

#### 10.3.4 TS 23.008 Organization of subscriber data

The document provides details concerning information to be stored in home location registers, visitor location registers and GPRS Support Nodes concerning mobile subscriber.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.008 (R5)	5.3.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 008	5.3.0	Published	13-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17874">http://pda.etsi.org/pda/home.asp?wki_id=17874</a>
T1	T1.3GPP.23.008 V530-2003	5.3.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.008 (R5-5.3.0)	5.3.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.008(R5-5.3.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.008(R5-5.3.0).zip</a>
TTC	TS-3GA-23.008 (Rel5)v5.3.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts23008rel5v530.pdf">http://www.ttc.or.jp/imt2000/ts/ts23008rel5v530.pdf</a>

#### 10.3.5 TS 23.009 Handover procedures

The document contains a detailed description of the handover procedures to be used in PLMNs. The purpose of the handover procedures, as described in the document, are to ensure that the connection

to the Mobile Station (MS) or User Equipment (UE) is maintained as it moves from one cell or radio network to another. The document defines the circuit switched handover functionality based on the service requirements in TS 22.129.

The document considers the following four cases:

- i) Handover between Base Stations connected to the same MSC, this is termed an Intra-MSC handover.
- ii) Handover between Radio Network Subsystems connected to the same 3G\_MSC, this is termed an Intra-3G\_MSC handover/relocation. This case also includes inter-system handover between RNS and BSS if the 3G\_MSC supports the A-interface.
- iii) Handover between Base Stations connected to different MSCs, this is termed an Inter-MSC handover. This category can be subdivided into three further procedures:
  - a) the Basic Inter-MSC Handover procedure, where the MS is handed over from a controlling MSC (MSC-A) to another MSC (MSC-B);
  - b) the Subsequent Inter-MSC Handover procedure, where the MS is handed over from MSC-B to a third MSC (MSC-B');
  - c) the Subsequent Inter-MSC hand back, where the MS is handed back from MSC-B to MSC-A.
- iv) Handover between Radio Network Subsystems connected to different 3G\_MSCs, this is termed an Inter-3G\_MSC handover/relocation. This category can be divided into three further sub-procedures:
  - a) the Inter-3G\_MSC Handover procedure from UMTS to GSM, where the UE/MS is handed over from a controlling 3G\_MSC (3G\_MSC-A) to an MSC (MSC-B);
  - b) the Inter-3G\_MSC Handover procedure from GSM to UMTS, where the UE/MS is handed over from a controlling MSC (MSC-A) to a 3G\_MSC (3G\_MSC-B);
  - c) the Inter-3G\_MSC Relocation procedure, where the UE is relocated from 3G\_MSC-A to 3G\_MSC-B. This procedure can also be combined with a hard change of radio resources (Hard Handover with switch in the core network).

The MSC in this category can optionally be a 3G\_MSC supporting the A-interface. The three sub-procedures do also cover subsequent handover/relocation to a third MSC-B' or 3G\_MSC-B' and subsequent handover/relocation back to MSC-A or 3G\_MSC-A.

In both cases i) and iii), the same procedures as defined in TS 08.08 and TS 24.008 shall be used on the A-interface and on the Radio Interface, respectively.

In case ii), the same procedures as defined in TS 25.413 and TS 24.008 shall be used on the Iu-interface. If the 3G\_MSC in case ii) also supports the A-interface, TS 08.08 and TS 24.008 shall be used on the A-interface.

In case iii), the handover procedures shall transport the A-interface messages between MSC-A and MSC-B described in the Mobile Application Part (MAP), TS 29.002.

In case iv), the handover procedures shall transport the A-interface messages between 3G\_MSC and MSC described in the Mobile Application Part (MAP), TS 29.002.

In case iv), the relocation procedure shall transport the Iu-interface messages between 3G\_MSC-A and 3G\_MSC-B described in the Mobile Application Part (MAP), TS 29.002.

The interworking between TS 29.002 protocol and TS 08.08 protocol is described in TS 29.010.

Handovers, which take place on the same MSC, are termed Intra-MSC handovers; this includes both Inter-BSS and Intra-BSS handovers.



Handovers, which take place on the same 3G\_MSC, are termed Intra-3G\_MSC handovers; this includes Inter-RNS handovers and optionally RNS to BSS and BSS to RNS handovers.

"Flexible Iu interface for handover/relocation" Option: Up to Release 99 an RNS can be connected only to one 3G\_MSC. From Release 4 onwards, as a network option, an RNS can have Iu interfaces to more than one MSC. Such an additional Iu interface may be selected by an MSC during an intra-PLMN relocation or intra-PLMN BSS to RNS handover procedure. This allows the MSC to use an Intra-3G\_MSC handover procedure according to case ii) instead of an Inter-3G\_MSC handover procedure according to case iv). The decision whether to use the Intra-3G\_MSC handover procedure is implementation and configuration dependent. In a network implementing this option, a global title based on the Global RNC-Id may optionally be used for the addressing of the Iu interface messages.

The document also covers the requirements for handover in ongoing GSM voice group calls, directed retry and handover without a circuit connection between (U)MSCs. This document does not consider the case of handovers between radio channels on the same BSS (Intra-BSS handover) or the handover of packet radio services. The Inter-RNS handover case that results in a relocation is covered by this document but not other Inter-RNS or Intra-RNS handover cases.

For voice broadcast calls in GSM, the speaker uses normal point-to-point handover procedures, whilst the listeners use idle mode cell reselection procedures, as for the voice group call listeners.

Voice group calls are only applicable to GSM and handover of voice group calls is therefore only possible in GSM.

Inter-MSC handover imposes a few limitations on the system. After inter-MSC handover:

- Call re-establishment is not supported.

The list of TS 08.08 features supported during and after Inter-MSC handover is given in TS 09.08.

In the Inter-MSC handover case, the interworking between a Phase 1 BSSMAP protocol possibly used by one MSC and the Phase 2 BSSMAP protocol used in the Phase 2 MAP protocol on the E-interface is performed by this MSC.

NOTE – The message primitive names used in the SDL diagrams and message flows in this document do not represent the actual messages specified in the GSM or 3G Stage 3 technical specifications. The primitive names are only intended to be indicative of their use in this document.

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CWTS	CWTS-TSD-CN 23.009 (R5)	5.3.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 23 009	5.3.0	Published	08-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17877">http://pda.etsi.org/pda/home.asp?wki_id=17877</a>
T1	T1.3GPP.23.009V53 0-2003	5.3.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G- 23.009(R5-5.3.0)	5.3.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.009(R5-5.3.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.009(R5-5.3.0).zip</a>
TTC	TS-3GA- 23.009(Rel5)v5.3.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts23009rel5v530.pdf">http://www.ttc.or.jp/imt2000/ts/ts23009rel5v530.pdf</a>

### 10.3.6 TS 23.011 technical realization of supplementary services – General aspects

The document describes the general aspects on how supplementary services in the GSM system are realized from a technical point of view.

Description of technical realization for specific supplementary services can be found in 3G TS 23.08x and 23.09x-series technical specifications.



All supplementary services may require signalling on the radio path. Signalling procedures and messages used are defined in the 3G TS 24.08x and 24.09x-series of technical specifications.

For some supplementary services, information needs to be transferred between the Home Location Register (HLR), the Visitor Location Register (VLR) and the Mobile services Switching Centre (MSC). Signalling procedures for such information transfer are defined in 3G TS 29.002.

Definitions and descriptions of supplementary services are given in the 3G TS 22.08x and 22.09x-series of technical specifications.

Definitions are given in 3G TS 22.004.

NOTE – The technical specifications on the technical realization of supplementary services do not distinguish between subscriber, user and customer, since all three do not fully cover the textual needs. Generally the term "subscriber" is used, even if this person is not having the subscription.

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CWTS	CWTS-TSD-CN 23.011 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 011	5.0.0	Published	27-06-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16349">http://pda.etsi.org/pda/home.asp?wki_id=16349</a>
T1	T1.3GPP.23.011V50 0-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G- 23.011(R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.011(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.011(R5-5.0.0).zip</a>
TTC	TS-3GA- 23.011(Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23011rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts23011rel5v500.pdf</a>

### 10.3.7 TS 23.012 Location management procedures

The document describes the location management procedures for the circuit switched domain, with respect to the application level functional behaviour. This is to be distinguished from the corresponding protocol handling behaviour, which is specified in 3G TS 29.002. The following location management procedures are included:

- location updating;
- location cancellation;
- MS purging;
- IMSI attach/detach.

The procedures in the Mobile Station (MS) are described in GSM 03.22. The procedures between MSC, VLR and HLR utilize the Mobile Application Part (MAP) and details concerning the protocol handling are contained in 3G TS 29.002.

The document excludes location management procedures for the packet switched domain, which are covered in 3G TS 23.060.

The descriptions herein depict a logical separation between the MSC and VLR. This logical separation, as well as the messages transferred between the two logical entities, are the basis of a model used to define the externally visible behaviour of the MSC/VLR, which may be a single physical entity. They do not impose any requirement except the definition of the externally visible behaviour.

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CWTS	CWTS-TSD-CN 23.012 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 012	5.0.0	Published	12-04-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=15723">http://pda.etsi.org/pda/home.asp?wki_id=15723</a>
T1	T1.3GPP.23.012 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.012 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.012(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.012(R5-5.0.0).zip</a>
TTC	TS-3GA-23.012 (Rel5)v5.0.0	1	TTC published	28-05-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23012rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts23012rel5v500.pdf</a>

### 10.3.8 TS 23.014 Support of Dual-Tone Multiple Frequency (DTMF) signalling

The document describes how Dual-Tone Multiple Frequency (DTMF) signals are supported in the 3GPP system.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.014 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 014	5.1.0	Published	20-09-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17382">http://pda.etsi.org/pda/home.asp?wki_id=17382</a>
T1	T1.3GPP.23.014 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.014 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.014(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.014(R5-5.1.0).zip</a>
TTC	TS-3GA-23.014 (Rel5)v5.1.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23014rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts23014rel5v510.pdf</a>

### 10.3.9 TS 23.015 Technical realization of Operator Determined Barring (ODB)

The network feature Operator Determined Barring (ODB) allows a network operator or service provider to regulate access by subscribers to services (both Circuit and Packet Oriented), by the barring of certain categories of incoming or outgoing calls/ Packet Oriented Services or of roaming. Operator Determined Barring applies to all bearer services and teleservices except the Emergency Call teleservice; the teleservice Short Message Point-to-Point is therefore subject to Operator Determined Barring in the same way as circuit-switched calls.

The application of specific categories of Operator Determined Barring to a subscription is controlled by the network operator or service provider, using administrative interaction at the HLR; this interface is not standardized.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.015 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 015	5.0.0	Published	27-06-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16351">http://pda.etsi.org/pda/home.asp?wki_id=16351</a>
T1	T1.3GPP.23.015 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.015 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.015(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.015(R5-5.0.0).zip</a>
TTC	TS-3GA-23.015 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23015rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts23015rel5v500.pdf</a>

### 10.3.10 TS 23.016 Subscriber data management; Stage 2

This Specification gives the Stage 2 description of the subscriber data management handling between:

- the Home Location Register (HLR) and the Visitor Location Register (VLR);
- the Home Location Register (HLR) and the Serving GPRS Support Node (SGSN).

A number of procedures require updating of subscriber information:

- location updating;
- restoration;
- modification of data by the operator;
- modification of data by the subscriber via the Mobile Station (MS).

Updating of subscriber information from HLR to SGSN is required in the following situations:

- GPRS location updating;
- modification of data by the operator.

Only the rules for the updating of subscriber data from the HLR to the VLR and from the HLR to the SGSN are described in this Specification. Public Land Mobile Network (PLMN) specific and Unstructured Supplementary Service Data (USSD) subscriber data are out of scope of this Specification. The GPRS context update from the SGSN to the GGSN is out of scope of this Specification.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.016 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 016	5.2.0	Published	02-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17385">http://pda.etsi.org/pda/home.asp?wki_id=17385</a>
T1	T1.3GPP.23.016V52 0-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.016(R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.016(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.016(R5-5.2.0).zip</a>
TTC	TS-3GA-23.016(Rel5)v5.2.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23016rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts23016rel5v520.pdf</a>

### 10.3.11 TS 23.018 Basic call handling – Technical realization

This Technical Specification (TS) specifies the technical realization of the handling of calls originated by a UMTS or GSM mobile subscriber and calls directed to a UMTS or GSM mobile subscriber, up to the point where the call is established. Normal release of the call after establishment is also specified.

In this Specification, the term MS is used to denote a UMTS or GSM MS, as appropriate.

The handling of DTMF signalling and Off-Air Call set-up (OACSU) is not described in this Specification.

The details of the effects of UMTS or GSM supplementary services on the handling of a call are described in the relevant 23.07x, 23.08x and 23.09x series of specifications.

The specification of the handling of a request from the HLR for subscriber information is not part of basic call handling, but is required for both CAMEL (TS 23.078) and optimal routing (TS 23.079). The use of the Provide Subscriber Information message flow is shown in TS 23.078 and TS 23.079.

The specification of the handling of data calls re-routed to a SIWFS is described in TS 23.054.

The logical separation of the MSC and VLR, and the messages transferred between them, are the basis of a model used to define the externally visible behaviour of the MSC/VLR, which is a single physical entity. They do not impose any requirement except the definition of the externally visible behaviour.

If there is any conflict between this Specification and the corresponding Stage 3 specifications (TS 24.008, TS 25.413, GSM 48.008 and TS 29.002), the Stage 3 specifications shall prevail.

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CWTS	CWTS-TSD-CN 23.018 (R5)	5.5.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 018	5.5.0	Published	13-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17878">http://pda.etsi.org/pda/home.asp?wki_id=17878</a>
T1	T1.3GPP.23.018V55 0-2003	5.5.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G- 23.018(R5-5.5.0)	5.5.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.018(R5-5.5.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.018(R5-5.5.0).zip</a>
TTC	TS-3GA- 23.018(Rel5)v5.5.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts23018rel5v550.pdf">http://www.ttc.or.jp/imt2000/ts/ts23018rel5v550.pdf</a>

### 10.3.12 TS 23.031 3G security; Fraud Information Gathering System (FIGS); Technical realization; Stage 2

This Technical Specification specifies the Stage 2 description of the Fraud Information Gathering System (FIGS) feature which provides the means for the HPLMN to monitor the activities of its subscribers in a VPLMN.

Three levels of FIGS service are defined, levels 1 to 3.

Level 1 will use the facilities provided by Transferred Account Procedure (TAP).

Levels 2 and 3 will use facilities provided by Customized Applications for Mobile network Enhanced Logic (CAMEL), in particular, the information flows between the GSM Service Switching Function (gsmSSF) and GSM Service Control Function (gsmSCF). Phase 1 and Phase 2 CAMEL facilities will be used.

Connection-orientated services only are covered.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.031 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 031	5.0.0	Published	09-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17881">http://pda.etsi.org/pda/home.asp?wki_id=17881</a>
T1	T1.3GPP.23.031 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.031 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.031(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.031(R5-5.0.0).zip</a>

### 10.3.13 TS 23.034 High-Speed Circuit-Switched Data (HSCSD); Stage 2

The document contains the Stage 2 service description for a High-Speed Circuit-Switched Data (HSCSD) on GSM/GERAN. HSCSD utilizes the multislot mechanism, i.e., using multiple traffic channels (/bearers) for the communication. In Iu mode one bearer can provide all needed data rates, and the multislot mechanism is therefore not needed. The Iu mode aspects concerning HSCSD are described exclusively.

In analogy with ITU-T Rec. I.130 [27] (refer to Annex A) and with reference to ITU-T Rec. Q.65 [34] (Stage 2 of the method for characterization of services supported by an ISDN), the second stage of the HSCSD is defined as follows.

Stage 2 identifies the functional capabilities and information flows needed to support the service as described in High-Speed Circuit-Switched Data (HSCSD) – Stage 1, TS 22.034. Furthermore, it identifies various possible physical locations for the functional capabilities. The output of Stage 2, which is signalling system independent, is used as an input to Stage 3, the design of signalling system and switching Recommendations.

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CWTS	CWTS-TSD-CN 23.034 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 034	5.1.0	Published	19-12-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17884">http://pda.etsi.org/pda/home.asp?wki_id=17884</a>
T1	T1.3GPP.23.034 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.034 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.034(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.034(R5-5.1.0).zip</a>
TTC	TS-3GA-23.034 (Rel5)v5.1.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts23034rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts23034rel5v510.pdf</a>

### 10.3.14 TS 23.035 Immediate Service Termination (IST); Stage 2

This document specifies the Stage 2 description of the Immediate Service Termination (IST) service which provides the means for the HPLMN to terminate all the activities of an HPLMN subscriber in a VPLMN.

Two implementations of IST are described: an implementation based on CAMEL, and an implementation based on a new MAP command.

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ARIB	ARIB STD-T63-23.035V5.1.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A23035-510.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A23035-510.pdf</a>
CWTS	CWTS-TSD-CN 23.035 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 035	5.1.0	Published	16-05-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17389">http://pda.etsi.org/pda/home.asp?wki_id=17389</a>
T1	T1.3GPP.23.035 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.035 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.035(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.035(R5-5.1.0).zip</a>

### 10.3.15 TS 23.038 Alphabets and language-specific information

This Technical Specification defines the alphabets, languages and message handling requirements for SMS, CBS and USSD and may additionally be used for Man-Machine Interface (MMI) (TS 22.030).

The specification for the Data Circuit terminating Equipment/Data Terminal Equipment (DCE/DTE) interface (TS 27.005) will also use the codes specified herein for the transfer of SMS data to an external terminal.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-23.038V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A23038-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A23038-500.pdf</a>
CWTS	CWTS-TSD-CN 23.038 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 038	5.0.0	Published	03-04-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=15729">http://pda.etsi.org/pda/home.asp?wki_id=15729</a>
T1	T1.3GPP.23.038 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAE.3G-23.038 (R5-5.0.0)	5.0.0	Approved	29-05-02	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-23.038(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-23.038(R5-5.0.0).zip</a>

### 10.3.16 TS 23.039 Interface Protocols for the Connection of Short Message Service Centres (SMSCs) to Short Message Entities (SMEs)

This document describes a range of alternative interfaces which may be utilized by Short Message Service Centre (SMSC) and Short Message Entity (SME) developers for the connection of SMEs to SMSCs.

The purpose of this document is to provide a single document within which the various proprietary SMSC to SME interface standards may be accommodated as optional implementations.

As stated in 3GPP TS 23.040, the functionality of the SMSC is outside of the scope of the 3GPP Technical Specifications. As a result, no standardized interfaces have been specified for the connection of SMEs to the SMSC. In the absence of a prevailing standard, SC (Service Centre), developers have devised their own protocols which have not necessarily been based on any existing standards and are therefore largely incompatible with one another.

This document by referring to the various de facto protocols will limit the further proliferation of proprietary standards and will benefit new SC/SME developers who may then adopt one or more of the existing protocols outlined in this document.

This document does not provide recommendations, as to the preferred protocol implementation as all are regarded as being of equal merit. SC/SME implementors should therefore adopt the protocol most suited to their particular implementation, application or market.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-23.039V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A23039-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A23039-500.pdf</a>
CWTS	CWTS-TSD-CN 23.039 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TR 123 039	5.0.0	Published	16-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16358">http://pda.etsi.org/pda/home.asp?wki_id=16358</a>
T1	T1.3GPP.23.039 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.039(R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.039(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.039(R5-5.0.0).zip</a>

### 10.3.17 TS 23.040 Technical realization of the Short Message Service (SMS)

The document describes the Short Message Service (SMS) for GSM/UMTS networks. It defines:

- the services and service elements;
- the network architecture;
- the Service Centre functionality;
- the MSC functionality (with regard to the SMS);
- the SGSN functionality (with regard to the SMS);
- the routing requirements;
- the protocols and protocol layering;

for the Teleservice Short Message Service, as specified in GSM TS 02.03 and 3G TS 22.105.

The use of radio resources for the transfer of short messages between the MS and the MSC or the SGSN is described in 3G TS 24.011 "Short Message Service Support on Mobile Radio Interface", and is dealt with in that specification.

The network aspects of Short Message Service provision are outside the scope of the document (i.e., the provision of network connectivity between the PLMN subsystems). There is no technical restriction within the document for the transfer of short messages between different PLMNs. Any such restriction is likely to be subject to commercial arrangements and PLMN operators must make their own provision for interworking or for preventing interworking with other PLMNs as they see fit.

The required and assumed network service offered to the higher layers is defined in this document.



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ARIB	ARIB STD-T63-23.040V5.5.1	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A23040-551.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A23040-551.pdf</a>
CWTS	CWTS-TSD-CN 23.040 (R5)	5.5.1	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 040	5.5.1	Published	02-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17390">http://pda.etsi.org/pda/home.asp?wki_id=17390</a>
T1	T1.3GPP.23.040V551-2003	5.5.1	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.040(R5-5.5.1)	5.5.1	Approved	21-03-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.040(R5-5.5.1).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.040(R5-5.5.1).zip</a>

### 10.3.18 TS 23.041 Technical realization of Cell Broadcast Service (CBS)

The document describes the Cell Broadcast short message service (CBS) for GSM and UMTS.

For UMTS it defines the interface requirements for the Cell Broadcast Centre – UMTS Radio Network System (RNS) interface and the radio interface requirements for UMTS Radio Access Networks to support CBS as specified in TS 22.003.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-23.041V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A23041-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A23041-500.pdf</a>
CWTS	CWTS-TSD-CN 23.041 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 041	5.0.0	Published	04-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16364">http://pda.etsi.org/pda/home.asp?wki_id=16364</a>
T1	T1.3GPP.23.041V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.041(R5-5.0.0)	5.0.0	Approved	21-03-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.041(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.041(R5-5.0.0).zip</a>

### 10.3.19 TS 23.042 Compression algorithm for SMS

The document introduces the concepts and mechanisms involved in the compression and decompression of a stream of data.

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ARIB	ARIB STD-T63-23.042V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A23042-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A23042-500.pdf</a>
CWTS	CWTS-TSD-CN 23.042 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 042	5.0.0	Published	04-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16365">http://pda.etsi.org/pda/home.asp?wki_id=16365</a>
T1	T1.3GPP.23.042 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.042 (R5-5.0.0)	5.0.0	Approved	21-03-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.042(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.042(R5-5.0.0).zip</a>



### 10.3.20 TS 23.048 Security mechanisms for the (U)SIM application toolkit; Stage 2

The 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).

Furthermore, the coding is specified for a set of common application commands within the secured packets. This set is a subset of commands specified in TS 51.011 and allows remote management of files on the UICC in conjunction with SMS and the Data Download to UICC feature of TS 31.111.

For UICCs based on TS 43.019, the set of commands used in the remote applet management is defined in this document. This is based on the Open Platform card management specification. For UICCs based on other technologies, other loading mechanisms may be used.

The document is applicable to the exchange of secured packets between an entity in a 3G or GSM PLMN and an entity in the UICC.

Secured Packets contain application messages to which certain mechanisms according to TS 22.048 have been applied. Application messages are commands or data exchanged between an application resident in or behind the 3G or GSM PLMN and on the UICC. The Sending/Receiving Entity in the 3G or GSM PLMN and the UICC are responsible for applying the security mechanisms to the application messages and thus turning them into Secured Packets.

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ARIB	ARIB STD-T63-23.048V5.5.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A23048-550.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A23048-550.pdf</a>
CWTS	CWTS-TSD-CN 23.048 (R5)	5.5.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 048	5.5.0	Published	08-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17885">http://pda.etsi.org/pda/home.asp?wki_id=17885</a>
T1	T1.3GPP.23.048V55 0-2003	5.5.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.048(R5-5.5.0)	5.5.0	Approved	21-03-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.048(R5-5.5.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.048(R5-5.5.0).zip</a>

### 10.3.21 TS 23.053 Tandem Free Operation (TFO); Service description; Stage 2

The document defines the Stage 2 service description for Tandem Free Operation (TFO) in and between GSM and UMTS. Tandem Free Operation applies only to speech calls.

NOTE – The TFO principles are built so that they could be used as well by other systems other than GSM and UMTS.

In analogy with ITU-T Rec. I.130 [27] and with reference to ITU-T Rec. Q.65 [34] (Stage 2 of the method for the characterization of services supported by an ISDN), the second stage of the following three-level structure is derived from a Stage 1 service description.

- Stage 1 is an overall service description, from the service subscriber's and user's standpoints, that views the network as a single entity which provides services to the user.
- Stage 2 identifies the functional capabilities and information flows needed to support the service described in Stage 1. Furthermore, it identifies various possible physical locations for the functional capabilities. The output of Stage 2, which is signalling system independent, is used as an input to Stage 3, the design of signalling system and switching Recommendations.

- Stage 3 defines the signalling system protocols and switching functions needed to implement the service described in Stage 2.

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ARIB	ARIB STD-T63-23.053V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A23053-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A23053-500.pdf</a>
CWTS	CWTS-TSD-CN 23.053 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 053	5.0.0	Published	04-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16914">http://pda.etsi.org/pda/home.asp?wki_id=16914</a>
T1	T1.3GPP.23.053 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.053 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.053(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.053(R5-5.0.0).zip</a>

### 10.3.22 TS 23.057 Mobile Execution Environment (MExE); Functional description; Stage 2

The document defines the Stage 2 and Stage 3 description of the Mobile Execution Environment (MExE). Stage 2 identifies the functional capabilities and information flows needed to support the service described in Stage 1.

The document includes information applicable to network operators, service providers and terminal, switch and database manufacturers.

The document contains the core functions for a Mobile Execution Environment (MExE) that are sufficient to provide a complete service.

MExE uses a number of technologies to realize the requirements of the Stage 1 description (TS 22.057). The document describes how the service requirements are realized with the selected technologies. The TS is devised into sections each covering the aspects relating to particular MExE technologies, it is intended that this Specification will evolve along with the MExE technologies. A generic section of the specification covers areas of MExE common to all technologies.

Implementation of this Specification outside the UE (User Equipment) is outside the scope of this Specification.

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ARIB	ARIB STD-T63-23.057V5.1.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A23057-510.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A23057-510.pdf</a>
CWTS	CWTS-TSD-CN 23.057 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 057	5.1.0	Published	18-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17392">http://pda.etsi.org/pda/home.asp?wki_id=17392</a>
T1	T1.3GPP.23.057 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.057 (R5-5.1.0)	5.1.0	Approved	21-03-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.057(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.057(R5-5.1.0).zip</a>

### 10.3.23 TS 23.060 General Packet Radio Service (GPRS) Service description; Stage 2

The document defines the Stage 2 service description for the packet domain, which includes the General Packet Radio Service (GPRS) in GSM and UMTS. ITU-T Rec. I.130 [27] describes a three-stage method for the characterization of telecommunication services, and ITU-T Rec. Q.65 [34] defines Stage 2 of the method.

The document does not cover the Access Network functionality. GSM 03.64 contains an overall description of the GSM GPRS Access Network. 3G TS 25.301 contains an overall description of the UMTS Terrestrial Radio Access Network.

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CWTS	CWTS-TSD-CN 23.060 (R5)	5.4.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 060	5.4.0	Published	13-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17888">http://pda.etsi.org/pda/home.asp?wki_id=17888</a>
T1	T1.3GPP.23.060V54 0-2003	5.4.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.060(R5-5.4.0)	5.4.0	Approved	21-03-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.060(R5-5.4.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.060(R5-5.4.0).zip</a>
TTC	TS-3GA-23.060(Rel5)v5.4.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts23060rel5v540.pdf">http://www.ttc.or.jp/imt2000/ts/ts23060rel5v540.pdf</a>

### 10.3.24 TS 23.066 Support of GSM Mobile Number Portability (MNP) Stage 2

The document describes several alternatives for the realization of Mobile Number Portability.

The document includes information applicable to network operators, service providers, switch and database manufacturers and national regulators.

It is left to operator and implementation decisions which option, or combination of options, is used, taking into account the regulatory and architectural constraints that may prevail. The possible implications of these options on internal node functions and on signalling performance are not covered in the document.

Normative Annex A of the document describes the technical realization of the handling of calls to ported UMTS or GSM mobile subscribers using IN technology.

Normative Annex C of the document describes the technical realization of the handling of calls to ported UMTS or GSM mobile subscribers using Signalling Relay technology.

Normative Annexes A and C describe alternative solutions. The network operator may choose the solution to be used in his network.

Normative Annex B of the document describes the technical realization of the handling of non-call related SCCP signalling for ported UMTS or GSM mobile subscribers using Signalling Relay technology.

The document does not specify the porting process.

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CWTS	CWTS-TSD-CN 23.066 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 066	5.0.0	Published	01-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16369">http://pda.etsi.org/pda/home.asp?wki_id=16369</a>
T1	T1.3GPP.23.066 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.066 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.066(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.066(R5-5.0.0).zip</a>
TTC	TS-3GA-23.066 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23066rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts23066rel5v500.pdf</a>

### 10.3.25 TS 23.067 Enhanced Multi-Level Precedence and Pre-emption service (eMLPP); Stage 2

The document specifies the Stage 2 description of the enhanced Multi-Level Precedence and Pre-emption Service (eMLPP) which provides different call priorities in combination with fast call set-up and pre-emption for different applications according to 3G TS 22.067.

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CWTS	CWTS-TSD-CN 23.067 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 067	5.0.0	Published	01-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16370">http://pda.etsi.org/pda/home.asp?wki_id=16370</a>
T1	T1.3GPP.23.067 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.067 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.067(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.067(R5-5.0.0).zip</a>
TTC	TS-3GA-23.067 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23067rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts23067rel5v500.pdf</a>

### 10.3.26 TS 23.072 Call Deflection supplementary service; Stage 2

This Technical Specification gives the Stage 2 description of the Call Deflection supplementary service.

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CWTS	CWTS-TSD-CN 23.072 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 072	5.0.0	Published	01-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16371">http://pda.etsi.org/pda/home.asp?wki_id=16371</a>
T1	T1.3GPP.23.072V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.072(R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.072(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.072(R5-5.0.0).zip</a>
TTC	TS-3GA-23.072(Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23072rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts23072rel5v500.pdf</a>

### **10.3.27 TS 23.078 Customized Applications for Mobile network Enhanced Logic (CAMEL) Phase 4; Stage 2**

The document specifies the Stage 2 description for the fourth phase (see TS 22.078) of the Customized Applications for Mobile network Enhanced Logic (CAMEL) feature which provides the mechanisms to support services of operators which are not covered by standardized services even when roaming outside the HPLMN.

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 HPLMN.

In this document, the GSM Service Control Function (gsmSCF) is treated as being part of the HPLMN. The regulatory environment in some countries may require the possibility that the gsmSCF and the HPLMN are controlled by different operators, and the gsmSCF and the HPLMN are therefore distinct entities.

The fourth phase of the CAMEL feature supports, in addition to the third phase of the CAMEL:

- interactions with Optimal Routing;
- Call Party Handling;
- DTMF Mid call procedure for Mobile Originated and Mobile Terminating calls;
- inclusion of flexible tone injection;
- provision of location information of called subscriber;
- provision of location information during ongoing call;
- CAMEL control over MT SMS;
- notification of GPRS mobility management to CSE;
- inclusion of ODB data in Any Time Modification;
- enhancement of Any Time Interrogation and Provide Subscriber Information for PS Domain.

CAMEL applicability to IP-based multimedia services is introduced in the fourth phase of the CAMEL. It is specified in TS 23.278.

CAMEL is not applicable to Emergency Setup (TS 12), i.e., if an Emergency call is requested, then the gsmSSF shall not be invoked.

The mechanism described in this document addresses especially the need for information exchange between the VPLMN or IPLMN and the HPLMN for support of operator specific services. Any user procedures for the control of operator specific services are outside the scope of this document. Subscribers who have subscribed to operator specific services and therefore need the functional support of the CAMEL feature shall be marked in the HPLMN and VPLMN. In case a subscriber is marked to need CAMEL support, the appropriate procedures which provide the necessary information to the VPLMN or the HPLMN are invoked. It is possible for the HPLMN to instruct the VPLMN or IPLMN to interact with a gsmSCF which is controlled by the HPLMN.

The specification of operator specific services is outside the scope of this document.

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CWTS	CWTS-TSD-CN 23.078 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 078	5.2.0	Published	19-12-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17891">http://pda.etsi.org/pda/home.asp?wki_id=17891</a>
T1	T1.3GPP.23.078 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.078 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.078(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.078(R5-5.2.0).zip</a>
TTC	TS-3GA-23.078 (Rel5)v5.2.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts23078rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts23078rel5v520.pdf</a>

### 10.3.28 TS 23.079 Support of Optimal Routing (SOR); Technical realization; Stage 2

The document specifies the technical realization of the first phase of the network feature Support of Optimal Routing (SOR). The first phase of SOR provides:

- As a network operator option, a method to route a call from one mobile subscriber directly to another mobile subscriber who is in the same country as the calling mobile subscriber or in the called mobile subscriber's home country, without needing to connect the call via the HPLMN of the called subscriber, even though the called mobile subscriber has roamed outside his HPLMN.
- A method to forward calls when a called mobile subscriber who has roamed outside his home country is busy, or is not reachable, or does not reply, to a forwarded-to destination in the HPLMN country of the called subscriber or the VPLMN country of the called subscriber, without needing to connect the forwarded call via the VPLMN of the called subscriber.
- A method to combine the optimal routing described in the first bullet point above with the optimal routing described in the second bullet point above.

Optimal Routing of a call is permitted only if all entities involved in handling the call support Optimal Routing.

Other cases of optimal routing (e.g., calls where the calling and called subscribers are in different countries, forwarding to a mobile subscriber or multiple forwarding) will be considered for inclusion in later phases.

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CWTS	CWTS-TSD-CN 23.079 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 079	5.2.0	Published	13-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17894">http://pda.etsi.org/pda/home.asp?wki_id=17894</a>
T1	T1.3GPP.23.079 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.079 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.079(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.079(R5-5.2.0).zip</a>
TTC	TS-3GA-23.079 (Rel5)v5.2.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts23079rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts23079rel5v520.pdf</a>

### 10.3.29 TS 23.081 Line Identification supplementary services; Stage 2

This document gives the Stage 2 description of the call identification supplementary services.

The group line identification supplementary services are divided into the following four supplementary services:

- Calling line identification presentation CLIP;
- Calling line identification restriction CLIR;
- Connected line identification presentation COLP;
- Connected line identification restriction COLR.

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CWTS	CWTS-TSD-CN 23.081 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 081	5.1.0	Published	18-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17401">http://pda.etsi.org/pda/home.asp?wki_id=17401</a>
T1	T1.3GPP.23.081 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.081 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.081(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.081(R5-5.1.0).zip</a>
TTC	TS-3GA-23.081 (Rel5)v5.1.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23081rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts23081rel5v510.pdf</a>

### 10.3.30 TS 23.082 Call Forwarding (CF) supplementary services; Stage 2

The document gives the Stage 2 description of the call forwarding supplementary services.

The group of supplementary services call offering supplementary services is divided into 4 different supplementary services:

- Call forwarding unconditional (CFU);
- Call forwarding on mobile subscriber busy (CFB);
- Call forwarding on no reply (CFNRy);
- Call forwarding on mobile subscriber not reachable (CFNRc).

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.082 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 082	5.0.0	Published	01-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16381">http://pda.etsi.org/pda/home.asp?wki_id=16381</a>
T1	T1.3GPP.23.082 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.082 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.082(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.082(R5-5.0.0).zip</a>
TTC	TS-3GA-23.082 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23082rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts23082rel5v500.pdf</a>



### 10.3.31 TS 23.083 Call Waiting (CW) and Call Hold (HOLD) supplementary service; Stage 2

This document gives the Stage 2 description of the call completion supplementary services.

The group of call completion supplementary services is divided into the following two supplementary services:

- Call waiting (CW);
- Call hold (HOLD).

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.083 (R5)	5.1.1	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 083	5.1.0	Published	18-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17402">http://pda.etsi.org/pda/home.asp?wki_id=17402</a>
T1	T1.3GPP.23.083 V511-2003	5.1.1	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.083 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.083(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.083(R5-5.1.0).zip</a>
TTC	TS-3GA-23.083 (Rel5)v5.1.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23083rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts23083rel5v510.pdf</a>

### 10.3.32 TS 23.084 MultiParty (MPTY) supplementary service; Stage 2

The document gives the Stage 2 description of the multiparty supplementary service.

Only one multiparty supplementary service has been defined, this is the MultiParty (MPTY) service.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.084 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 084	5.0.0	Published	11-06-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=14333">http://pda.etsi.org/pda/home.asp?wki_id=14333</a>
T1	T1.3GPP.23.084 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAE.3G-23.084 (R5)	5.0.0	Approved	19-12-01	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-23_084_R5_zip">http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-23_084_R5_zip</a>
TTC	TS-3GA-23.084 (Rel5)v5.0.0	1	TTC published	28-05-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23084rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts23084rel5v500.pdf</a>



### 10.3.33 TS 23.085 Closed User Group (CUG) supplementary service; Stage 2

The document gives the Stage 2 description of the closed user group supplementary service.

The community of interest supplementary service defined is:

- Closed User Group (CUG).

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.085 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 085	5.0.0	Published	01-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16382">http://pda.etsi.org/pda/home.asp?wki_id=16382</a>
T1	T1.3GPP.23.085 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.085 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.085(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.085(R5-5.0.0).zip</a>
TTC	TS-3GA-23.085 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23085rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts23085rel5v500.pdf</a>

### 10.3.34 TS 23.086 Advice of Charge (AoC) supplementary service; Stage 2

The document gives the Stage 2 description of the Advice of Charge (AoC) supplementary services.

The charging supplementary services currently defined are:

- Advice of Charge (Information) (AoCI);
- Advice of Charge (Charging) (AoCC).

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.086 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 086	5.0.0	Published	01-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16383">http://pda.etsi.org/pda/home.asp?wki_id=16383</a>
T1	T1.3GPP.23.086 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.086 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.086(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.086(R5-5.0.0).zip</a>
TTC	TS-3GA-23.086 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23086rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts23086rel5v500.pdf</a>

### 10.3.35 TS 23.087 User-to-User Signalling (UUS) supplementary service; Stage 2

The document gives the Stage 2 description of the User-to-User Signalling supplementary services.

The User-to-User supplementary service is divided into 3 different services:

- Service 1 (UUS1).
- Service 2 (UUS2).
- Service 3 (UUS3).

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.087 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 087	5.0.0	Published	27-06-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16384">http://pda.etsi.org/pda/home.asp?wki_id=16384</a>
T1	T1.3GPP.23.087 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.087 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.087(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.087(R5-5.0.0).zip</a>
TTC	TS-3GA-23.087 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23087rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts23087rel5v500.pdf</a>

### 10.3.36 TS 23.088 Call Barring (CB) supplementary service; Stage 2

The document gives the Stage 2 description of the call barring services.

The possibility for a mobile subscriber to have certain categories of calls barred originated from or terminated at his access:

Barring of outgoing calls:

- Barring of all outgoing calls (BAOC) (Barring program 1);
- Barring of outgoing international calls (BOIC) (Barring program 2);
- Barring of outgoing international calls EXCEPT those directed to the home PLMN country (BOIC-exHC) (Barring program 3).

Barring of incoming calls:

- Barring of all incoming calls (BAIC) (Barring program 1);
- Barring of incoming calls when roaming outside the home PLMN country (BIC-Roam) (Barring program 2).

NOTE – The call barring program "incoming calls when roaming outside the home PLMN country" is only relevant if as a general rule the called mobile subscriber pays the charges for the forwarded part of the call from his home PLMN country to any other country.

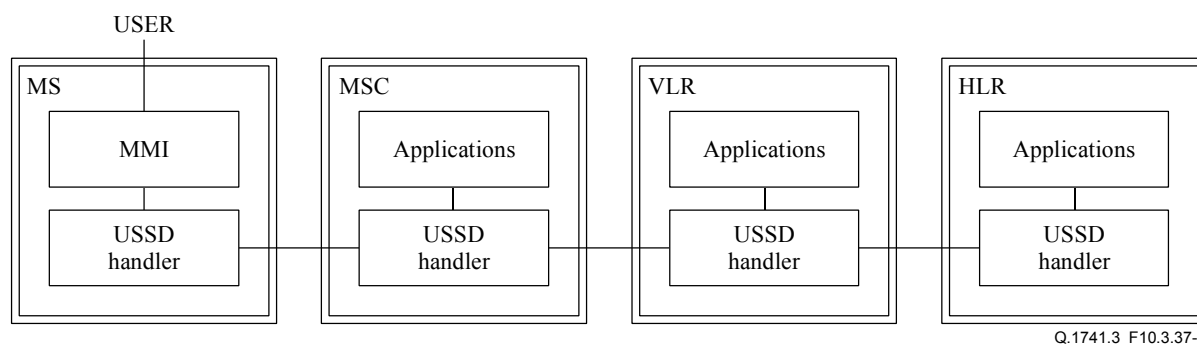
	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.088 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 088	5.0.0	Published	01-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16385">http://pda.etsi.org/pda/home.asp?wki_id=16385</a>
T1	T1.3GPP.23.088 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.088 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.088(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.088(R5-5.0.0).zip</a>
TTC	TS-3GA-23.088 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23088rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts23088rel5v500.pdf</a>

### 10.3.37 TS 23.090 Unstructured Supplementary Service Data (USSD); Stage 2

The document gives the Stage 2 description of Unstructured Supplementary Service Data (USSD).

The unstructured supplementary service data (USSD) mechanism allows the Mobile Station (MS) user and a PLMN operator defined application to communicate in a way which is transparent to the MS and to intermediate network entities. The mechanism allows development of PLMN specific

supplementary services. Figure 10.3.37-1 shows how handling of USSD is carried out, independently of the applications.



**Figure 10.3.37-1/Q.1741.3 – Handling of USSD**

The document defines the requirements for handling USSD at the MS and network entities. It does not include specification of particular applications, nor does it specify how a particular application is selected. Where more than one application exists at a network entity, routing of messages to the correct application is carried out by the USSD handler. The MMI for USSD is specified in TS 22.030 and TS 22.090. The alphabet indicator and the data-coding scheme are defined in TS 23.038.

USSD may be initiated by the MS user, or by the network in the following ways:

- Network initiated USSD;
- Mobile initiated USSD.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.090 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 090	5.0.0	Published	01-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16386">http://pda.etsi.org/pda/home.asp?wki_id=16386</a>
T1	T1.3GPP.23.090 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.090 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.090(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.090(R5-5.0.0).zip</a>
TTC	TS-3GA-23.090 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23090rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts23090rel5v500.pdf</a>

### 10.3.38 TS 23.091 Explicit Call Transfer (ECT) supplementary service; Stage 2

The document gives the Stage 2 description of the call transfer supplementary services.

Only one call transfer supplementary service has been defined, this is the Explicit Call Transfer (ECT) supplementary service, and is described in this document.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.091 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 091	5.1.0	Published	18-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17404">http://pda.etsi.org/pda/home.asp?wki_id=17404</a>
T1	T1.3GPP.23.091 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.091 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.091(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.091(R5-5.1.0).zip</a>
TTC	TS-3GA-23.091 (Rel5)v5.1.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23091rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts23091rel5v510.pdf</a>

### 10.3.39 TS 23.093 Technical realization of Completion of Calls to Busy Subscriber (CCBS); Stage 2

This Technical Specification gives the Stage 2 description of the Completion of Calls to Busy Subscriber (CCBS) supplementary service.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.093 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 093	5.0.0	Published	01-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16388">http://pda.etsi.org/pda/home.asp?wki_id=16388</a>
T1	T1.3GPP.23.093 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.093 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.093(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.093(R5-5.0.0).zip</a>
TTC	TS-3GA-23.093 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23093rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts23093rel5v500.pdf</a>

#### 10.3.40 TS 23.094 Follow Me; Stage 2

The document specifies the Stage 2 description for the Follow Me feature.

The Follow Me feature enables a mobile subscriber A to manipulate the Follow Me data of a remote party B in such a way that subsequent calls directed to remote party B will be forwarded to subscriber A.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.094 (R5)	5.0.1	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 094	5.0.1	Published	04-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16389">http://pda.etsi.org/pda/home.asp?wki_id=16389</a>
T1	T1.3GPP.23.094V501-2003	5.0.1	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.094(R5-5.0.1)	5.0.1	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.094(R5-5.0.1).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.094(R5-5.0.1).zip</a>
TTC	TS-3GA-23.094(Rel5)v5.0.1	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23094rel5v501.pdf">http://www.ttc.or.jp/imt2000/ts/ts23094rel5v501.pdf</a>

#### 10.3.41 TS 23.096 Name Identification supplementary service; Stage 2

The document gives the Stage 2 description of the Name Identification Supplementary Services.

The group of Name Identification Supplementary Services contains the following Supplementary Service:

CNAP – Calling name presentation.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.096 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 096	5.0.0	Published	01-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16390">http://pda.etsi.org/pda/home.asp?wki_id=16390</a>
T1	T1.3GPP.23.096 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.096 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.096(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.096(R5-5.0.0).zip</a>
TTC	TS-3GA-23.096 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23096rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts23096rel5v500.pdf</a>

### 10.3.42 TS 23.097 Multiple Subscriber Profile (MSP) Phase 2; Stage 2

The document specifies the Stage 2 description of the Multiple Subscriber Profile (MSP) Supplementary Service Phase 2. MSP Phase 2 is implemented using CAMEL Phase 3.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.097 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/ Q1741/R5.htm</a>
ETSI	TS 123 097	5.0.0	Published	01-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16391">http://pda.etsi.org/pda/home.asp? wki_id=16391</a>
T1	T1.3GPP.23.097 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/ search.asp?committee=S24</a>
TTA	TTAT.3G-23.097 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.097(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/ stnfile/TTAT.3G-23.097 (R5-5.0.0).zip</a>
TTC	TS-3GA-23.097 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23097rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ ts23097rel5v500.pdf</a>

### 10.3.43 TS 23.107 Quality of Service (QoS) concept and architecture

The document provides the framework for Quality of Service within UMTS. The main purpose is to specify the list of attributes applicable to UMTS Bearer Service and Radio Access Bearer Service, as well as describe the Quality of Service architecture to be used in UMTS networks.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63- 23.107V5.7.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A23107-570.pdf">http://www.arib.or.jp/IMT-2000/ ARIB-STD/ITU-T/Rel5T/ A23107-570.pdf</a>
CWTS	CWTS-TSD-CN 23.107 (R5)	5.7.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/ Q1741/R5.htm</a>
ETSI	TS 123 107	5.7.0	Published	13-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17896">http://pda.etsi.org/pda/home.asp? wki_id=17896</a>
T1	T1.3GPP.23.107 V570-2003	5.7.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/ search.asp?committee=S24</a>
TTA	TTAT.3G-23.107 (R5-5.7.0)	5.7.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.107(R5-5.7.0).zip">http://www.tta.or.kr/standardDB/ stnfile/TTAT.3G-23.107 (R5-5.7.0).zip</a>

### 10.3.44 TS 23.108 Mobile radio interface layer 3 specification, core network protocols; Stage 2 (structured procedures)

This document specifies the procedures used at the radio interface (Reference Point Um, see TS 24.002) for Call Control (CC), Mobility Management (MM), and Session Management (SM).

When the notations for "further study" or "FS" or "FFS" are present in this document, they mean that the indicated text is not a normative portion of this standard.

These procedures are defined in terms of messages exchanged over the control channels of the radio interface. The control channels are described in TS 44.003.

The structured functions and procedures of this protocol and the relationship with other layers and entities are described in general terms in TS 24.007.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.108 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 108	5.0.0	Published	04-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16393">http://pda.etsi.org/pda/home.asp?wki_id=16393</a>
T1	T1.3GPP.23.108 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.108 (R5-5.0.0)	5.0.0	Approved	21-03-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.108(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.108(R5-5.0.0).zip</a>
TTC	TS-3GA-23.108 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23108rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts23108rel5v500.pdf</a>

### 10.3.45 TS 23.116 Super-Charger technical realization; Stage 2

The document specifies the Stage 2 description of the Super-Charger that provides a mechanism to reduce the signalling traffic associated with mobility.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.116 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 116	5.0.0	Published	01-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16394">http://pda.etsi.org/pda/home.asp?wki_id=16394</a>
T1	T1.3GPP.23.116 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.116 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.116(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.116(R5-5.0.0).zip</a>
TTC	TS-3GA-23.116 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23116rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts23116rel5v500.pdf</a>

### 10.3.46 TS 23.119 Gateway Location Register (GLR); Stage2

The document gives the Stage 2 description of the Gateway Location Register (GLR) within the UMTS Core Network as a means of reducing the amount of MAP signalling traffic associated with location management carried over inter-PLMN links for roaming users.

The document will be restricted to the case where the GLR supports one VPLMN only.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.119 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 119	5.0.0	Published	04-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16395">http://pda.etsi.org/pda/home.asp?wki_id=16395</a>
T1	T1.3GPP.23.119 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.119 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.119(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.119(R5-5.0.0).zip</a>
TTC	TS-3GA-23.119 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23119rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts23119rel5v500.pdf</a>

### 10.3.47 TS 23.122 Non-access-stratum functions related to Mobile Station (MS) in idle mode

This Technical Specification gives an overview of the tasks undertaken by the Core network protocols of a Mobile Station (MS) when in idle mode, that is, switched on but not having a dedicated channel allocated. It also describes the corresponding network functions. The idle mode functions are also performed by a GPRS MS as long as no dedicated channel is allocated to the MS.

This Technical Specification outlines how the requirements of the 22-series Technical Specifications (especially GSM 22.011) on idle mode operation shall be implemented. Further details are given in 3G TS 24.008.

This Technical Specification gives a general description of the idle mode process. The main requirements and technical solutions of those requirements are included. The processes used in idle mode are described.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.122 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 122	5.2.0	Published	03-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17899">http://pda.etsi.org/pda/home.asp?wki_id=17899</a>
T1	T1.3GPP.23.122 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.122 (R5-5.2.0)	5.2.0	Approved	21-03-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.122(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.122(R5-5.2.0).zip</a>
TTC	TS-3GA-23.122 (Rel5)v5.2.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts23122rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts23122rel5v520.pdf</a>

### 10.3.48 TS 23.127 Virtual Home Environment (VHE)/Open Service Access (OSA)

The document specifies the Stage 2 of the Virtual Home Environment.

Virtual Home Environment (VHE) is defined as a concept for Personal Service Environment (PSE) portability across network boundaries and between terminals. The concept of 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.

For Release 5, e.g., CAMEL, MExE, OSA and USAT, the mechanisms supporting the VHE concept are considered.

Stage 2 specifications for CAMEL, MExE and USAT are addressed in other TS documents. However, there is no separate Stage 2 specification document for OSA. Therefore, the specification addresses Stage 2 aspects for OSA.



	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.127 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 127	5.2.0	Published	19-06-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16398">http://pda.etsi.org/pda/home.asp?wki_id=16398</a>
T1	T1.3GPP.23.127 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.127 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.127(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.127(R5-5.2.0).zip</a>
TTC	TS-3GA-23.127 (Rel5)v5.2.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23127rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts23127rel5v520.pdf</a>

### 10.3.49 TS 23.135 Multicall supplementary service; Stage 2

The document gives the Stage 2 description of the Multicall supplementary service.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.135 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 135	5.0.0	Published	01-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16399">http://pda.etsi.org/pda/home.asp?wki_id=16399</a>
T1	T1.3GPP.23.135 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.135 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.135(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.135(R5-5.0.0).zip</a>
TTC	TS-3GA-23.135 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23135rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts23135rel5v500.pdf</a>

### 10.3.50 TS 23.140 Multimedia Messaging Service (MMS); Functional description; Stage 2

The document defines the Stage 2 and Stage 3 description of the non-real time Multimedia Messaging Service, MMS. Stage 2 identifies the functional capabilities and information flows needed to support the service described in Stage 1.

The document includes information applicable to network operators, service providers and terminal, switch and database manufacturers.

The document contains the core functions for a non-real time Multimedia Messaging Service, MMS, which are sufficient to provide a basic service.

MMS uses a number of technologies to realize the requirements of the Stage 1 description (3G TS 22.140). The document describes how the service requirements are realized with the selected technologies. As far as possible, existing protocols (e.g., WAP, SMTP, ESMTP as transfer protocols; lower layers to provide push, pull, notification) and existing message formats (e.g., SMIL, MIME) shall be used for the realization of the Multimedia Messaging Service.

This Specification serves as a foundation for the development of MMS.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-23.140V5.5.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A23140-550.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A23140-550.pdf</a>
CWTS	CWTS-TSD-CN 23.140 (R5)	5.5.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 140	5.5.0	Published	03-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17900">http://pda.etsi.org/pda/home.asp?wki_id=17900</a>
T1	T1.3GPP.23.140 V550-2003	5.5.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.140 (R5-5.5.0)	5.5.0	Approved	21-03-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.140(R5-5.5.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.140(R5-5.5.0).zip</a>

### 10.3.51 TS 23.146 Technical realization of facsimile Group 3 service – non-transparent

The document describes the procedures allowing the technical realization of the real-time end-to-end facsimile Group 3 service within the UMTS PLMN using non-transparent network support according to the definition of the Teleservices 61 and 62 specified in TS 22.003. Within the document, particular attention is given to Teleservice "Alternate speech/facsimile group 3" (Teleservice 61). However, the definitions apply also to Teleservice "Automatic facsimile group 3" (Teleservice 62) with the exception of all actions concerned with the speech phase. Consequently, in the following descriptions the term "Teleservice" denotes both Teleservice 61 and Teleservice 62 as appropriate.

NOTE – ITU-T Rec. V.25 *bis* [54] is outdated. References to V.25 *bis* procedures need to be replaced by corresponding procedures based on V.250 and TS 27.007.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.146 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 146	5.0.0	Published	04-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16403">http://pda.etsi.org/pda/home.asp?wki_id=16403</a>
T1	T1.3GPP.23.146 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.146 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.146(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.146(R5-5.0.0).zip</a>
TTC	TS-3GA-23.146 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23146rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts23146rel5v500.pdf</a>

### 10.3.52 TS 23.153 Out-of-Band Transcoder Control; Stage 2

This Technical Specification specifies the Stage 2 description of the Out-of-Band Transcoder Control for speech services. It describes the principles and procedures to support Transcoder Free Operation, Tandem Free Operation and the interworking between TrFO and TFO. Transcoder at the edge is also part of this Specification.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.153 (R5)	5.3.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 153	5.3.0	Published	14-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17902">http://pda.etsi.org/pda/home.asp?wki_id=17902</a>
T1	T1.3GPP.23.153 V530-2003	5.3.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.153 (R5-5.3.0)	5.3.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.153(R5-5.3.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.153(R5-5.3.0).zip</a>
TTC	TS-3GA-23.153 (Rel5)v5.3.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts23153rel5v530.pdf">http://www.ttc.or.jp/imt2000/ts/ts23153rel5v530.pdf</a>

### 10.3.53 TS 23.172 Technical realization of Circuit Switched (CS) multimedia service; UDI/RDI fallback and service modification; Stage 2

This specification describes the Service Change and UDI Fallback (SCUDIF) feature. This service is available to UDI/RDI multimedia calls and allows users to achieve successful call establishment when end-to-end circuit-switched (CS) multimedia is not possible (fallback to speech) or when signalling of the feature is not possible in the network (fallback to preferred service or speech). Furthermore, it allows the users to swap between a multimedia service and basic speech during an established call.

NOTE – In this document, the term "multimedia" refers to UDI/RDI multimedia unless specifically stated.

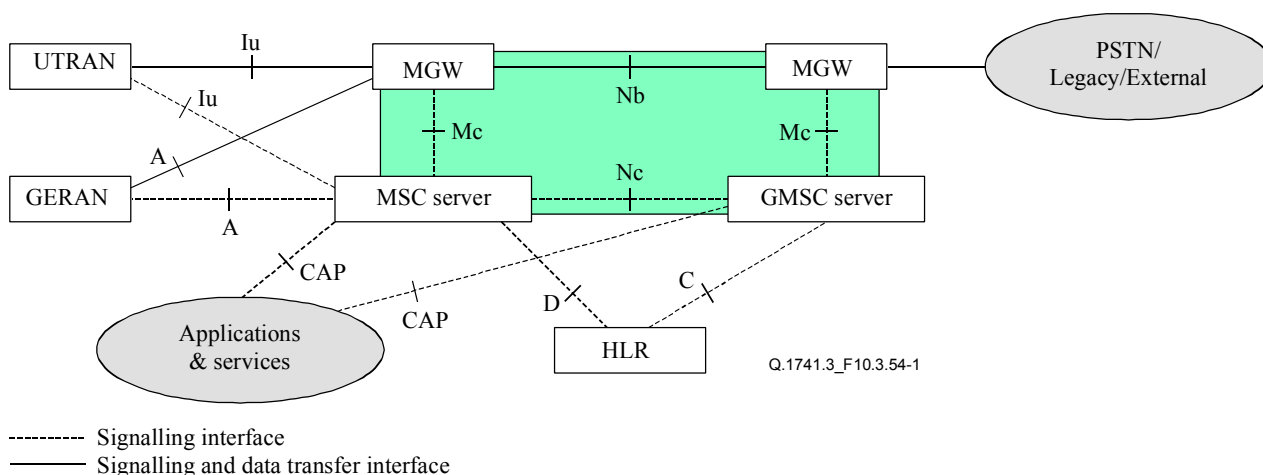
	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.172 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 172	5.1.0	Published	14-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17903">http://pda.etsi.org/pda/home.asp?wki_id=17903</a>
T1	T1.3GPP.23.172 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.172 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.172(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.172(R5-5.1.0).zip</a>
TTC	TS-3GA-23.172 (Rel5)v5.1.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts23172rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts23172rel5v510.pdf</a>

### 10.3.54 TS 23.205 Bearer-independent circuit-switched core network; Stage 2

The document defines the Stage 2 description for the bearer independent CS core network. The Stage 2 shall cover the information flow between the GMSC server, MSC server and media gateways. Note that nothing in this document shall preclude an implementation of a combined MSC Server and MGW. This document shall show the CS core network termination of the Iu interface in order to cover the information flow stimulus to the core network and describe the interaction with the supplementary and value added services and capabilities.

For the purposes of this Specification, the protocol used over the Nc interface is an enhanced call control protocol supporting call bearer separation such as BICC (which is specified in 3G TS 29.205). The protocol used over the Mc interface is H.248 [22] (which is specified in ITU-T Rec. H.248 [22]). Existing specifications and recommendations shall not be repeated, as such the relevant specification shall be referred to.

This Technical Specification is applicable only for ATM or IP transport in the CS core network.



**Figure 10.3.54-1/Q.1741.3 – CS core network logical architecture**

The CAP interfaces and the interfaces towards the HLR are outside the scope of this Technical Specification.

Details of Transcoder-Free Operation are outside the scope of this Technical Specification. Please see TS 23.153 for more information.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.205 (R5)	5.4.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 205	5.4.0	Published	13-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17904">http://pda.etsi.org/pda/home.asp?wki_id=17904</a>
T1	T1.3GPP.23.205 V540-2003	5.4.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.205 (R5-5.4.0)	5.4.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.205(R5-5.4.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.205(R5-5.4.0).zip</a>
TTC	TS-3GA-23.205 (Rel5)v5.4.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts23205rel5v540.pdf">http://www.ttc.or.jp/imt2000/ts/ts23205rel5v540.pdf</a>

### 10.3.55 TS 23.207 End-to-end Quality of Service (QoS) concept and architecture

This document provides the framework for end-to-end Quality of Service involving GPRS and complements TS 23.107 which describes the framework for Quality of Service within UMTS. The end-to-end QoS architecture is provided in Figure 10.3.55-1. The document describes the interaction between the TE/MT Local Bearer Service, the GPRS Bearer Service, and the External Bearer Service, and how these together provide Quality of Service for the End-to-End Service. The document also describes IP level mechanisms necessary in providing end-to-end Quality of Service involving GPRS networks, including possible interaction between the IP level and the GPRS level, as well as the application level and the IP level.

In contrast to the TS 23.107, this Specification is only applicable to GPRS packet switched access services, and includes aspects of interworking to the IM subsystem as well as PSTN and other networks. The document does not cover the circuit switched access services.

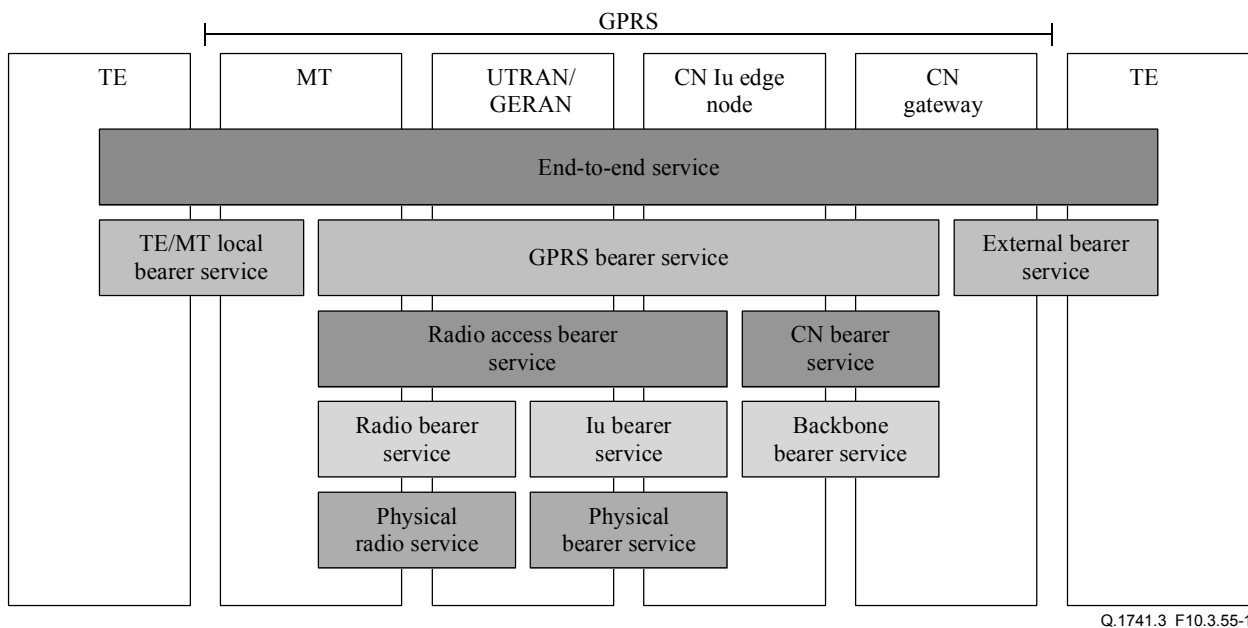


Figure 10.3.55-1/Q.1741.3 – End-to-end QoS architecture

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-23.207V5.6.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-/Rel5T/A23207-560.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-/Rel5T/A23207-560.pdf</a>
CWTS	CWTS-TSD-CN 23.207 (R5)	5.6.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 207	5.6.0	Published	13-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17905">http://pda.etsi.org/pda/home.asp?wki_id=17905</a>
T1	T1.3GPP.23.207 V560-2003	5.6.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.207 (R5-5.6.0)	5.6.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.207(R5-5.6.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.207(R5-5.6.0).zip</a>

### 10.3.56 TS 23.218 IP Multimedia (IM) session handling; IM call model; Stage 2

This document specifies the IP Multimedia (IM) Call Model for handling of an IP multimedia session origination and termination for an IP Multimedia subscriber.

This document includes interactions between an Application Server and IP multimedia sessions.

The IP Multimedia (IM) Subsystem Stage 2 is specified in TS 23.228 and the signalling flows for the IP multimedia call control based on SIP and SDP are specified in TS 24.228.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.218 (R5)	5.3.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 23.218	5.3.0	Published	03-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17906">http://pda.etsi.org/pda/home.asp?wki_id=17906</a>
T1	T1.3GPP.23.218 V530-2003	5.3.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.218 (R5-5.3.0)	5.3.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.218(R5-5.3.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.218(R5-5.3.0).zip</a>
TTC	TS-3GA-23.218 (Rel5)v5.3.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts23218rel5v530.pdf">http://www.ttc.or.jp/imt2000/ts/ts23218rel5v530.pdf</a>

### 10.3.57 TS 23.221 Architectural requirements

This document details the architectural requirements for the GSM in Iu mode and UMTS systems. In particular, it details the high-level requirements for the Circuit-Switched (CS) Domain and the Stage 2 procedures that span more than one domain/subsystem within UMTS and GSM. The reference model to which these procedures apply can be found within 3G TS 23.002. In addition, A mode to Iu mode handover for CS services is addressed. Detailed architectural requirements within the subsystems are contained within the remainder of the 23 series of specifications, e.g., the requirements for the Packet-Switched (PS) domain are contained within 3G TS 23.060 and the requirements for the Bearer Independent CS Core Network are contained in 3G TS 23.205.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.221 (R5)	5.7.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 221	5.7.0	Published	13-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17907">http://pda.etsi.org/pda/home.asp?wki_id=17907</a>
T1	T1.3GPP.23.221 V570-2003	5.7.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.221 (R5-5.7.0)	5.7.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.221(R5-5.7.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.221(R5-5.7.0).zip</a>
TTC	TS-3GA-23.221 (Rel5)v5.7.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts23221rel5v570.pdf">http://www.ttc.or.jp/imt2000/ts/ts23221rel5v570.pdf</a>

### 10.3.58 TS 23.226 Global Text Telephony (GTT); Stage 2

This Technical Specification defines the Stage 2 description of the real time Text Conversation Feature called Global Text Telephony, GTT. GTT Stage 2 identifies the functional capabilities needed to support the service described in GTT Stage 1.

This document contains the core functions for a real time Text Conversation Feature GTT, to be used in combination with other media in conversational services.

GTT offers real time conversation in text, to be used alone or in combination with other conversational media, and interworking with current and emerging text conversation features in the fixed networks and other mobile networks.

GTT uses a number of functional entities to realize the requirements of the Stage 1 description (TS 22.226). This document describes how the service requirements are realized with these functional entities. As far as possible, existing protocols shall be used for the realization of the Global Text Telephony Feature. This may include, e.g., SIP, 3G.324, or Circuit Switched Voice service as protocol environments, and CTM, AL1 and RTP/text as transmission protocols. It also

means usage of existing text presentation format ITU-T Rec. T.140, common to all GTT text conversation environments.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.226 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123.226	5.2.0	Published	18-04-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16048">http://pda.etsi.org/pda/home.asp?wki_id=16048</a>
T1	T1.3GPP.23.226V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.226(R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.226(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.226(R5-5.2.0).zip</a>
TTC	TS-3GA-23.226(Rel5)v5.2.0	1	TTC published	28-05-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23226rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts23226rel5v520.pdf</a>

### 10.3.59 TS 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.).

This Specification is divided in to two parts: Definitions of a framework for event handling and some specific issues.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-23.227V5.1.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A23227-510.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A23227-510.pdf</a>
CWTS	CWTS-TSD-CN 23.227 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 227	5.1.0	Published	09-04-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=15684">http://pda.etsi.org/pda/home.asp?wki_id=15684</a>
T1	T1.3GPP.23.227V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAE.3G-23.227(R5-5.1.0)	5.1.0	Approved	29-05-02	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-23.227(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-23.227(R5-5.1.0).zip</a>

### 10.3.60 TS 23.228 IP Multimedia Subsystem (IMS); Stage 2

This document defines the Stage 2 service description for the IP Multimedia Core Network Subsystem (IMS), which includes the elements necessary to support IP Multimedia (IM) services in UMTS. ITU-T Rec. I.130 describes a three-stage method for characterization of telecommunication services, and ITU-T Rec. Q.65 defines Stage 2 of the method.

This document does not cover the Access Network functionality or GPRS aspects except as they relate to provision of IM services. TS 23.060 contains GPRS Access Network description and GSM 03.64 contains an overall description of the GSM GPRS radio interface. TS 25.301 contains an overall description of the UMTS Terrestrial Radio Access Network.

This document identifies the mechanisms to enable support for IP multimedia applications. In order to align IP multimedia applications wherever possible with non-3GPP IP applications, the general approach is to adopt non-3GPP specific IP based solutions.



	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.228 (R5)	5.7.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 228	5.7.0	Published	13-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17908">http://pda.etsi.org/pda/home.asp?wki_id=17908</a>
T1	T1.3GPP.23.228 V570-2003	5.7.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.228 (R5-5.7.0)	5.7.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.228(R5-5.7.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.228(R5-5.7.0).zip</a>
TTC	TS-3GA-23.228 (Rel5)v5.7.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts23228rel5v570.pdf">http://www.ttc.or.jp/imt2000/ts/ts23228rel5v570.pdf</a>

### 10.3.61 TS 23.236 Intra-domain connection of Radio Access Network (RAN) nodes to multiple Core Network (CN) nodes

This document covers the details for the Intra-Domain Connection of RAN Nodes to Multiple CN Nodes for GSM and UMTS systems. In particular, it details the impacts to GSM and UMTS systems and the Stage 2 procedures for the support of connecting a RNC or BSC to multiple MSC servers or SGSNs. The overall solution is described, and the detailed impacts on the existing specifications are identified.

The reference model to which these procedures apply can be found within TS 23.002. Detailed architectural requirements within the subsystems are contained within the remainder of the 23 series of specifications, e.g., the requirements for the Packet-Switched (PS) domain are contained within TS 23.060 and the requirements for the Bearer Independent CS Core Network are contained in TS 23.205.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.236 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 236	5.2.0	Published	17-04-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=15736">http://pda.etsi.org/pda/home.asp?wki_id=15736</a>
T1	T1.3GPP.23.236 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.236 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.236(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.236(R5-5.2.0).zip</a>
TTC	TS-3GA-23.236 (Rel5)v5.2.0	1	TTC published	28-05-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts23236rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts23236rel5v520.pdf</a>

### 10.3.62 TS 23.271 Functional Stage 2 description of LCS

The document specifies the Stage 2 of the Location Services (LCS) feature in UMTS and GSM, which provides the mechanisms to support mobile location services for operators, subscribers and third-party service providers.

Location Services may be considered as a network-provided enabling technology consisting of standardized service capabilities, which enable the provision of location applications. The application(s) 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 document. However, clarifying examples of how the functionality being described may be used to provide specific location services may be included.



This Stage 2 service description covers the LCS system functional model for the whole system, the LCS system architecture, state descriptions, message flows, etc.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.271 (R5)	5.5.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 271	5.5.0	Published	14-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17910">http://pda.etsi.org/pda/home.asp?wki_id=17910</a>
T1	T1.3GPP.23.271V55 0-2003	5.5.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G- 23.271(R5-5.5.0)	5.5.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.271(R5-5.5.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.271(R5-5.5.0).zip</a>
TTC	TS-3GA- 23.271(Rel5)v5.5.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts23271rel5v550.pdf">http://www.ttc.or.jp/imt2000/ts/ts23271rel5v550.pdf</a>

### 10.3.63 TS 23.278 Customized Applications for Mobile network Enhanced Logic (CAMEL) Phase 4; Stage 2; IM CN interworking

This document specifies the Stage 2 description for the Customized Applications for Mobile network Enhanced Logic (CAMEL) feature which provides the mechanisms to support services for the IP Multimedia Core Network (IM CN) Subsystem.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.278 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 123 278	5.1.0	Published	16-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17911">http://pda.etsi.org/pda/home.asp?wki_id=17911</a>
T1	T1.3GPP.23.278V51 0-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G- 23.278(R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.278(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.278(R5-5.1.0).zip</a>
TTC	TS-3GA- 23.278(Rel5)v5.1.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts23278rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts23278rel5v510.pdf</a>

### 10.3.64 TR 23.910 Circuit-switched data bearer services

This document provides an overview of the architecture and issues related to the provision of Circuit-Switched Bearer Services in a 3G mobile network (UMTS) operating in UTRAN or GERAN Iu mode. Handover to GERAN A/Gb mode is also considered.

NOTE – Please note that the Gb interface does not play any role in the scope of this Technical Specification although the term "A/Gb mode" is used.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 23.910 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TR 123 910	5.2.0	Published	09-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17913">http://pda.etsi.org/pda/home.asp?wki_id=17913</a>
T1	T1.3GPP.23.910V52 0-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-23.910(R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.910(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-23.910(R5-5.2.0).zip</a>
TTC	TR-3GA-23.910(Rel5)v5.2.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/tr/tr23910rel5v520.pdf">http://www.ttc.or.jp/imt2000/tr/tr23910rel5v520.pdf</a>

## 10.4 24-series, Signalling protocols (User Equipment-Core Network)

### 10.4.1 TS 24.002 GSM-UMTS Public Land Mobile Network (PLMN) access reference configuration

The document describes the reference configuration for access to a PLMN.

A user accesses a PLMN via a number of interfaces, including the MS-BS (in A/Gb mode) and UE-UTRAN (in Iu mode) interface. The purpose of this Technical Specification is to indicate the possible access arrangements that may be used in conjunction with the MS-BS (in A/Gb mode) and UE-UTRAN (in Iu mode) interface.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 24.002 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 124 002	5.0.0	Published	04-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16469">http://pda.etsi.org/pda/home.asp?wki_id=16469</a>
T1	T1.3GPP.24.002 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-24.002 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.002(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.002(R5-5.0.0).zip</a>
TTC	TS-3GA-24.002 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts24002rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts24002rel5v500.pdf</a>

### 10.4.2 TS 24.007 Mobile radio interface signalling layer 3 – General aspects

The document defines the principal architecture of layer 3 and its sublayers on the GSM Um interface, i.e., the interface between Mobile Station (MS) and network; for the CM sublayer, the description is restricted to paradigmatic examples, call control, supplementary services, and short message services for non-GPRS services. It also defines the basic message format and error handling applied by the layer 3 protocols.

For non-GPRS services, the communication between sublayers and adjacent layers and the services provided by the sublayers are distributed by use of abstract service primitives. But only externally observable behaviour resulting from the description is normatively prescribed by this document.

For GPRS services in addition, the local information transfer and stimuli sent between sublayers is informatively included within Annex C of the document.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 24.007 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 124 007	5.1.0	Published	20-09-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17427">http://pda.etsi.org/pda/home.asp?wki_id=17427</a>
T1	T1.3GPP.24.007 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-24.007 (R5-5.1.0)	5.1.0	Approved	21-03-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.007(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.007(R5-5.1.0).zip</a>
TTC	TS-3GA-24.007 (Rel5)v5.1.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts24007rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts24007rel5v510.pdf</a>

### 10.4.3 TS 24.008 Mobile radio interface layer 3 specification; Core network protocols; Stage 3

The document specifies the procedures used at the radio interface core network protocols within the 3rd generation mobile telecommunications system and the digital cellular telecommunications system.

It specifies the procedures used at the radio interface (Reference Point Um or Uu, see TS 24.002 or TS 23.002) for Call Control (CC), Mobility Management (MM), and Session Management (SM).

These procedures are defined in terms of messages exchanged over the control channels of the radio interface. The control channels are described in TS 44.003 and TS 25.301.

The structured functions and procedures of this protocol and the relationship with other layers and entities are described in general terms in TS 24.007.

The procedures currently described in this TS are for the call control of circuit-switched connections, session management for GPRS services, mobility management and radio resource management for circuit-switched and GPRS services.

TS 24.010 contains functional procedures for support of supplementary services.

TS 24.011 contains functional procedures for support of point-to-point short message services.

TS 24.012 contains functional description of short message – cell broadcast.

TS 44.060 contains procedures for radio link control and medium access control (RLC/MAC) of packet data physical channels.

TS 24.071 contains functional descriptions and procedures for support of location services.

NOTE – "layer 3" includes the functions and protocols described in this Technical Specification. The terms "data link layer" and "layer 2" are used interchangeably to refer to the layer immediately below layer 3.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 24.008 (R5)	5.6.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 124 008	5.6.0	Published	03-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17916">http://pda.etsi.org/pda/home.asp?wki_id=17916</a>
T1	T1.3GPP.24.008 V560-2003	5.6.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-24.008 (R5-5.6.0)	5.6.0	Approved	21-03-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.008(R5-5.6.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.008(R5-5.6.0).zip</a>
TTC	TS-3GA-24.008 (Rel5)v5.6.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts24008rel5v560.pdf">http://www.ttc.or.jp/imt2000/ts/ts24008rel5v560.pdf</a>

#### 10.4.4 TS 24.010 Mobile radio interface layer 3 – Supplementary services specification – General aspects

The document gives the general aspects of the specification of supplementary services at the layer 3 radio interface.

TS 24.08x and 24.09x-series specify the procedures used at the radio interface (reference point Um as defined in TS 24.002) for normal operation, registration, erasure, activation, deactivation, invocation and interrogation of supplementary services. Provision and withdrawal of supplementary services is an administrative matter between the mobile subscriber and the service provider and cause no signalling on the radio interface.

TS 24.080 specifies the formats and coding for the supplementary services.

Definitions and descriptions of supplementary services are given in TS 22.004 and TS 22.08x and 22.09x-series.

Technical realization of supplementary services is described in TS 23.011 and GSM 23.08x and 23.09x-series.

The procedures for Call Control, Mobility Management and Radio Resource management at the layer 3 radio interface are defined in TS 24.007.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 24.010 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 124 010	5.0.0	Published	02-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16476">http://pda.etsi.org/pda/home.asp?wki_id=16476</a>
T1	T1.3GPP.24.010 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-24.010 (R5-5.0.0)	5.0.0	Approved	21-03-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.010(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.010(R5-5.0.0).zip</a>
TTC	TS-3GA-24.010 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts24010rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts24010rel5v500.pdf</a>

#### 10.4.5 TS 24.011 Point-to-Point (PP) Short Message Service (SMS) support on mobile radio interface

The document specifies the procedures used across the mobile radio interface by the signalling layer 3 function Short Message Control (SMC) and Short Message Relay function (SM-RL) for both circuit switched in A/Gb mode and GPRS.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 24.011 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 124 011	5.1.0	Published	03-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17917">http://pda.etsi.org/pda/home.asp?wki_id=17917</a>
T1	T1.3GPP.24.011 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-24.011 (R5-5.1.0)	5.1.0	Approved	21-03-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.011(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.011(R5-5.1.0).zip</a>
TTC	TS-3GA-24.011 (Rel5)v5.1.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts24011rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts24011rel5v510.pdf</a>

#### 10.4.6 TS 24.022 Radio Link Protocol (RLP) for circuit-switched bearer and teleservices

The document specifies the Radio Link Protocol (RLP) for circuit-switched data transmission within the GSM and UMTS PLMN. RLP covers the Layer 2 functionality of the ISO OSI Reference Model (IS 7498-1) [16]. It is based on ideas contained in IS 3309 [14], IS 4335 [15] and IS 7809 [17] (HDLC of ISO) as well as ITU-T Rec. X.25 [61] and Q.92x-series ITU-T Recs [35] to [38] (LAP-B and LAP-D of ITU, 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) [18].

RLP is intended for use with non-transparent data-transfer. Protocol conversion may be provided for a variety of protocol configurations. Those foreseen immediately are:

- Character-mode protocols using start-stop transmission (IA5);
- X.25 LAP-B [61].

For reasons of better presentation, material about protocol conversion has been placed within those Specifications concerned with the relevant Terminal Adapters, i.e., TS 27.002 for the asynchronous case and TS 27.003 for the synchronous case. Care must be taken that that material also applies to Interworking Functions; see TS 29.006 and TS 29.007.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 24.022 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 124 022	5.1.0	Published	09-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17918">http://pda.etsi.org/pda/home.asp?wki_id=17918</a>
T1	T1.3GPP.24.022 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-24.022 (R5-5.1.0)	5.1.0	Approved	21-03-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.022(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.022(R5-5.1.0).zip</a>
TTC	TS-3GA-24.022 (Rel5)v5.1.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts24022rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts24022rel5v510.pdf</a>

#### 10.4.7 TS 24.030 Location Services LCS; Supplementary service operations; Stage 3

The document gives the Stage 3 description of the Location Service (LCS) operations for mobile station. These operations shall apply to both CS and PS domains.

The group of location services operations is divided into two different classes:

- network initiated location services operations;
- mobile initiated location services operations.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 24.030 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 124 030	5.1.0	Published	01-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16478">http://pda.etsi.org/pda/home.asp?wki_id=16478</a>
T1	T1.3GPP.24.030 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-24.030 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.030(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.030(R5-5.1.0).zip</a>
TTC	TS-3GA-24.030 (Rel5)v5.1.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts24030rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts24030rel5v510.pdf</a>

#### 10.4.8 TS 24.067 Enhanced Multi-Level Precedence and Pre-emption service (eMLPP); Stage 3

The document specifies the procedures used at the radio interface (Reference point Um for GSM and Reference point Uu for UMTS as defined in TS 24.002) for normal operation, invocation, registration and interrogation of the enhanced Multi-Level Precedence and Pre-emption Service (eMLPP) supplementary service. Provision and withdrawal of supplementary services is an administrative matter between the mobile subscriber and the service provider and cause no signalling on the radio interface.

In TS 24.010 the general aspects of the specification of supplementary services at the layer 3 radio interface are given.

TS 24.080 specifies the formats and coding for the supplementary services.

Definitions and descriptions of supplementary services are given in TS 22.004 and TS 22.08x and 22.09x-series. TS 22.067 is related specially to eMLPP.

Technical realization of supplementary services is described in TS 23.011 and TS 23.08x and 23.09x-series.

TS 23.067 is related specially to eMLPP.

The procedures for Call Control, Mobility Management at the layer 3 radio interface are defined in TS 24.007 and TS 24.008.

The procedure for Radio Resource management at layer 3 radio interface is defined in GSM 04.18 (for GSM) and TS 25.331 (for UMTS).

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 24.067 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 124 067	5.0.0	Published	01-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16479">http://pda.etsi.org/pda/home.asp?wki_id=16479</a>
T1	T1.3GPP.24.067 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-24.067 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.067(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.067(R5-5.0.0).zip</a>
TTC	TS-3GA-24.067 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts24067rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts24067rel5v500.pdf</a>

#### 10.4.9 TS 24.072 Call Deflection supplementary service; Stage 3

This Global System for Mobile communications Technical Specification specifies the procedures used at the radio interface (reference point Um as defined in GSM 04.02) for normal operation of Call Deflection (CD) supplementary service. Provision and withdrawal of supplementary services is an administrative matter between the mobile subscriber and the service provider and cause no signalling on the radio interface.

	Document No.	Version	Status	Issued date	Location
ETSI	TS 124 072	5.0.0	Published	02-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16480">http://pda.etsi.org/pda/home.asp?wki_id=16480</a>
T1	T1.3GPP.24.072 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-24.072 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.072(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.072(R5-5.0.0).zip</a>
TTC	TS-3GA-24.072 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts24072rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts24072rel5v500.pdf</a>

#### 10.4.10 TS 24.080 Mobile radio layer 3 supplementary service specification – Formats and coding

The document contains the coding of information necessary for support of supplementary service operation on the mobile radio interface layer 3.

This document gives the functional definitions and contents of messages for call independent supplementary service operations. Messages necessary for support of call related supplementary service operations are defined in TS 24.008.

This document gives the general format and coding for messages used for call independent supplementary service and the format and coding of information elements used for both call related and call independent supplementary service operations.

This document gives the specification of the call related and call independent supplementary service operations.



	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 24.080 (R5)	5.3.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 124 080	5.3.0	Published	13-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17919">http://pda.etsi.org/pda/home.asp?wki_id=17919</a>
T1	T1.3GPP.24.080V53 0-2003	5.3.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-24.080(R5-5.3.0)	5.3.0	Approved	21-03-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.080(R5-5.3.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.080(R5-5.3.0).zip</a>
TTC	TS-3GA-24.080(Rel5)v5.3.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts24080rel5v530.pdf">http://www.ttc.or.jp/imt2000/ts/ts24080rel5v530.pdf</a>

#### 10.4.11 TS 24.081 Line identification supplementary service; Stage 3

The document specifies the procedures used at the radio interface for normal operation, registration, erasure, activation, deactivation, invocation and interrogation of line identification supplementary services. Provision and withdrawal of supplementary services is an administrative matter between the mobile subscriber and the service provider and cause no signalling on the radio interface.

In 3G TS 24.010 the general aspects of the specification of supplementary services at the layer 3 radio interface are given.

3G TS 24.080 specifies the formats and coding for the supplementary services.

Definitions and descriptions of supplementary services are given in 3G TS 22.004 and 3G TS 22.08x and 3G TS 22.09x-series. 3G TS 22.081 is related specially to line identification supplementary services.

Technical realization of supplementary services is described in 3G TS 23.011 and 3G TS 23.08x and 3G TS 23.09x-series. 3G TS 23.081 is related specially to line identification supplementary services.

The procedures for Call Control, Mobility Management and Radio Resource management at the layer 3 radio interface are defined in 3G TS 24.007 and 3G TS 24.008.

The following supplementary services belong to the line identification supplementary services and are described in this document:

- Calling line identification presentation (CLIP);
- Calling line identification restriction (CLIR);
- Connected line identification presentation (COLP);
- Connected line identification restriction (COLR).



	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 24.081 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 124 081	5.0.0	Published	02-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16484">http://pda.etsi.org/pda/home.asp?wki_id=16484</a>
T1	T1.3GPP.24.081 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-24.081 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.081(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.081(R5-5.0.0).zip</a>
TTC	TS-3GA-24.081 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts24081rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts24081rel5v500.pdf</a>

#### 10.4.12 TS 24.082 Call Forwarding supplementary service; Stage 3

This document specifies the procedures used at the radio interface (reference point Um as defined in GSM 04.02) for normal operation, registration, erasure, activation, deactivation, interrogation and network invocation of call offering supplementary services. Provision and withdrawal of supplementary services is an administrative matter between the mobile subscriber and the service provider and cause no signalling on the radio interface.

In GSM 04.10, the general aspects of the specification of supplementary services at the layer 3 radio interface are given.

GSM 04.80 specifies the formats and coding for the supplementary services.

Definitions and descriptions of supplementary services are given in GSM 02.04 and GSM 02.8x and GSM 02.9x-series. GSM 02.82 is related specially to call offering supplementary services.

Technical realization of supplementary services is described in GSM 03.11 and GSM 03.8x and GSM 03.9x-series. GSM 03.82 is related specially to call offering supplementary services.

The procedures for Call Control, Mobility Management and Radio Resource management at the layer 3 radio interface are defined in GSM 04.07 and GSM 04.08.

The following supplementary services belong to the call offering supplementary services and are described in this document:

- Call forwarding unconditional (CFU);
- Call forwarding on mobile subscriber busy (CFB);
- Call forwarding on no reply (CFNRy);
- Call forwarding on mobile subscriber not reachable (CFNRc).

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CWTS	CWTS-TSD-CN 24.082 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 124 082	5.0.0	Published	04-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16485">http://pda.etsi.org/pda/home.asp?wki_id=16485</a>
T1	T1.3GPP.24.082 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-24.082 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.082(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.082(R5-5.0.0).zip</a>
TTC	TS-3GA-24.082 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts24082rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts24082rel5v500.pdf</a>

### 10.4.13 TS 24.083 Call Waiting (CW) and Call Hold (HOLD) supplementary services; Stage 3

The document specifies the procedures used at the radio interface (Reference point Um as defined in GSM 04.02) for normal operation, registration, erasure, activation, deactivation, invocation and interrogation of call completion supplementary services. Provision and withdrawal of supplementary services is an administrative matter between the mobile subscriber and the service provider and cause no signalling on the radio interface.

In GSM 04.10 the general aspects of the specification of supplementary services at the layer 3 radio interface are given.

GSM 04.80 specifies the formats and coding for the supplementary services.

Definitions and descriptions of supplementary services are given in GSM 02.04 and GSM 02.8x and GSM 02.9x-series. GSM 02.83 is related specially to call completion supplementary services.

Technical realization of supplementary services is described in GSM 03.11 and GSM 03.8x and GSM 03.9x-series.

GSM 03.83 is related specially to call completion supplementary services.

The procedures for Call Control, Mobility Management and Radio Resource management at the layer 3 radio interface are defined in GSM 04.07 and GSM 04.08.

The following supplementary services belong to the call completion supplementary services and are described in this document:

- Call waiting (CW);
- Call hold (HOLD).

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 24.083 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 124 083	5.0.0	Published	04-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16486">http://pda.etsi.org/pda/home.asp?wki_id=16486</a>
T1	T1.3GPP.24.083 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-24.083 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.083(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.083(R5-5.0.0).zip</a>
TTC	TS-3GA-24.083 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts24083rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts24083rel5v500.pdf</a>

#### 10.4.14 TS 24.084 MultiParty (MPY) supplementary service; Stage 3

The document specifies the procedures used at the radio interface (Reference point Um as defined in GSM 04.02) for normal operation and invocation of MultiParty supplementary services.

In GSM 04.10 the general aspects of the specification of supplementary services at the layer 3 radio interface are given.

GSM 04.80 specifies the formats and coding for the supplementary services.

Definitions and descriptions of supplementary services are given in GSM 02.04 and the GSM 02.8x and GSM 02.9x-series.

GSM 02.84 is related specially to MultiParty supplementary services.

Technical realization of supplementary services is described in GSM 03.11 and the GSM 03.8x and GSM 03.9x-series.

GSM 03.84 is related specially to MultiParty supplementary services.

The procedures for Call Control, Mobility Management and Radio Resource management at the layer 3 radio interface are defined in GSM 04.07 and GSM 04.08.

The following supplementary service belongs to the MultiParty supplementary services and is described in this document:

- MultiParty service (MPY).

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 24.084 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 124 084	5.0.0	Published	04-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16487">http://pda.etsi.org/pda/home.asp?wki_id=16487</a>
T1	T1.3GPP.24.084V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-24.084 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.084(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.084(R5-5.0.0).zip</a>
TTC	TS-3GA-24.084 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts24084rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts24084rel5v500.pdf</a>

#### 10.4.15 TS 24.085 Closed User Group (CUG) supplementary service; Stage 3

This Technical Specification (TS) for Mobile communications specifies the procedures used at the radio interface (reference point Um as defined in GSM 04.02) for normal operation, registration, erasure, activation, deactivation, invocation and interrogation of community of interest supplementary services. The provision and withdrawal of supplementary services is an administrative matter between the mobile subscriber and the service provider and causes no signalling on the radio interface.

In GSM 04.10, the general aspects of the specification of supplementary services at the layer 3 radio interface are given.

GSM 04.80 specifies the formats coding for the supplementary services.

Definitions and descriptions of supplementary services are given in GSM 02.04 and GSM 02.8x and GSM 02.9x-series. GSM 02.85 is related to the community of interest supplementary services.

Technical realization of supplementary services is described in technical specifications GSM 03.11 and GSM 03.8x and 03.9x-series. GSM 03.85 is related to the community of interest supplementary services.

The procedures for Call Control, Mobility Management and Radio Resource management at the layer 3 radio interface are defined in GSM 04.07 and GSM 04.08.

Signalling interworking for supplementary services between GSM 09.02 and GSM 04.08 and between GSM 09.02 and GSM 04.80 is defined in GSM 09.11.

The following supplementary service belongs to the community of interest supplementary services and is described in this Technical Specification:

- Closed User Group (CUG).

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 24.085 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 124 085	5.0.0	Published	04-07-02	<a href="http://pda.etsi.org/pda/home.asp?wiki_id=16488">http://pda.etsi.org/pda/home.asp?wiki_id=16488</a>
T1	T1.3GPP.24.085 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-24.085(R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.085(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.085(R5-5.0.0).zip</a>
TTC	TS-3GA-24.085 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts24085rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts24085rel5v500.pdf</a>

#### 10.4.16 TS 24.086 Advice of Charge (AoC) supplementary service; Stage 3

The document specifies the procedures used at the radio interface (reference point Um as defined in GSM 04.02) for normal operation, registration, erasure, activation, deactivation, invocation and interrogation of charging supplementary services. The provision and withdrawal of supplementary services is an administrative matter between the mobile subscriber and the service provider and causes no signalling on the radio interface.

In GSM 04.10 the general aspects of the specification of supplementary services at the layer 3 radio interface are given.

GSM 04.80 specifies the formats and coding for the supplementary services.

Definitions and descriptions of supplementary services are given in GSM 02.04 and GSM 02.8x and GSM 02.9x-series. GSM 02.24 and 02.86 are related to the charging supplementary services.

Technical realization of supplementary services is described in GSM 03.11 and GSM 03.8x and GSM 03.9x-series. GSM 03.86 is related to the charging supplementary services.

The procedures for Call Control, Mobility Management and Radio Resource management at the layer 3 radio interface are defined in GSM 04.07 and GSM 04.08.

The following supplementary services belong to the charging supplementary services and are described in this document:

- Advice of Charge (Information) (AoCI);
- Advice of Charge (Charging) (AoCC).

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 24.086 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 124 086	5.0.0	Published	04-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16489">http://pda.etsi.org/pda/home.asp?wki_id=16489</a>
T1	T1.3GPP.24.086 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-24.086 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.086(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.086(R5-5.0.0).zip</a>
TTC	TS-3GA-24.086 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts24086rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts24086rel5v500.pdf</a>

#### 10.4.17 TS 24.087 User-to-User Signalling (UUS); Stage 3

This Technical Specification gives the Stage 3 description of the User-to-User signalling supplementary services.

The User-to-user supplementary service is divided into 3 different services:

- Service 1 (UUS1);
- Service 2 (UUS2);
- Service 3 (UUS3).

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 24.087 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 124 087	5.0.0	Published	04-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16490">http://pda.etsi.org/pda/home.asp?wki_id=16490</a>
T1	T1.3GPP.24.087 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-24.087 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.087(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.087(R5-5.0.0).zip</a>
TTC	TS-3GA-24.087 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts24087rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts24087rel5v500.pdf</a>

#### 10.4.18 TS 24.088 Call Barring (CB) supplementary service; Stage 3

This Technical Specification (TS) specifies the procedures used at the radio interface (reference point Um as defined in GSM 04.02) for normal operation, registration, erasure, activation, deactivation, invocation and interrogation of call barring supplementary services. Provision and withdrawal of supplementary services is an administrative matter between the mobile subscriber and the service provider and cause no signalling on the radio interface.

In GSM 04.10 the general aspects of the specification of supplementary services at the layer 3 radio interface are given.

GSM 04.80 specifies the formats and coding for the supplementary services.

Definitions and descriptions of supplementary services are given in GSM 02.04, GSM 02.8x and GSM 02.9x-series.

Technical realization of supplementary services is described in GSM 03.11, GSM 03.8x and GSM 03.9x-series.

The procedures for Call Control, Mobility Management and Radio Resource management at the layer 3 radio interface are defined in GSM 04.07 and GSM 04.08.

The following supplementary services belong to the call restriction supplementary services and are described in this specification:

- Barring of outgoing calls:
  - Barring of all outgoing calls (BAOC) (Barring program 1);
  - Barring of outgoing international calls (BOIC) (Barring program 2);
  - Barring of outgoing international calls EXCEPT those directed to the home PLMN country (BOIC-exHC) (Barring program 3).
- Barring of incoming calls:
  - Barring of all incoming calls (BAIC) (Barring program 1);
  - Barring of incoming calls when roaming outside the home PLMN country (BIC-Roam) (Barring program 2).

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 24.088 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 124 088	5.0.0	Published	30-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16491">http://pda.etsi.org/pda/home.asp?wki_id=16491</a>
T1	T1.3GPP.24.088 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-24.088 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.088(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.088(R5-5.0.0).zip</a>
TTC	TS-3GA-24.088 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts24088rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts24088rel5v500.pdf</a>

#### 10.4.19 TS 24.090 Unstructured Supplementary Service Data (USSD); Stage 3

The document gives the Stage 3 description of the Unstructured Supplementary Service Data (USSD) operations.

The group of unstructured supplementary service data operations is divided into two different classes:

- network initiated unstructured supplementary service data operations;
- mobile initiated unstructured supplementary service data operations.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 24.090 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 124 090	5.0.0	Published	04-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16492">http://pda.etsi.org/pda/home.asp?wki_id=16492</a>
T1	T1.3GPP.24.090 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-24.090 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.090(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.090(R5-5.0.0).zip</a>
TTC	TS-3GA-24.090 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts24090rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts24090rel5v500.pdf</a>

### 10.4.20 TS 24.091 Explicit Call Transfer (ECT) supplementary service; Stage 3

The document gives the Stage 3 description of the call transfer supplementary services.

The document specifies the procedures used at the radio interface (Reference point Um as defined in GSM 04.02) for normal operation, registration, erasure, activation, deactivation, invocation and interrogation of call transfer supplementary services. Provision and withdrawal of supplementary services is an administrative matter between the mobile subscriber and the service provider and cause no signalling on the radio interface.

In GSM 04.10 the general aspects of the specification of supplementary services at the layer 3 radio interface are given.

GSM 04.80 specifies the formats and coding for the supplementary services.

Definitions and descriptions of supplementary services are given in GSM 02.04, GSM 02.8x and GSM 02.9x-series. GSM 02.91 is related specifically to call transfer supplementary services.

The technical realization of supplementary services is described in GSM 03.11, GSM 03.8x and GSM 03.9x-series. GSM 03.91 is related specifically to call transfer supplementary services.

The procedures for Call Control, Mobility Management and Radio Resource management at the layer 3 radio interface are defined in GSM 04.07 and GSM 04.08.

The following supplementary service belongs to the call transfer supplementary services and is described in this document:

- Explicit Call Transfer (ECT).

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 24.091 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 124 091	5.0.0	Published	04-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16493">http://pda.etsi.org/pda/home.asp?wki_id=16493</a>
T1	T1.3GPP.24.091 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-24.091 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.091(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.091(R5-5.0.0).zip</a>
TTC	TS-3GA-24.091 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts24091rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts24091rel5v500.pdf</a>

### 10.4.21 TS 24.093 Call Completion to Busy Subscriber (CCBS); Stage 3

The document gives the Stage 3 description of the Completion of Calls to Busy Subscriber (CCBS) supplementary service. The document specifies the procedures used at the radio interface (Reference point Um as defined in GSM 04.02) for normal operation, activation, deactivation, invocation and interrogation of the completion of calls to busy subscriber supplementary services. Provision and withdrawal of supplementary services is an administrative matter between the mobile subscriber and the service provider and cause no signalling on the radio interface.

In GSM 04.10 the general aspects of the specification of supplementary services at the layer 3 radio interface are given.

GSM 04.80 specifies the formats and coding for the supplementary services.

Definitions and descriptions of supplementary services are given in GSM 02.04, GSM 02.8x and GSM 02.9x-series. Technical specification GSM 02.93 is related specifically to the Completion of Calls to Busy Subscriber supplementary service.



The technical realization of supplementary services is described in technical specifications GSM 03.11, GSM 03.8x and 03.9x-series. GSM 03.93 is related specifically to Completion of Calls to Busy Subscriber supplementary service.

The procedures for Call Control, Mobility Management and Radio Resource management at the layer 3 radio interface are defined in GSM 04.07 and GSM 04.08.

The following supplementary service belongs to the call completion supplementary services and is described in this document:

- Completion of Calls to Busy Subscriber (CCBS).

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CWTS	CWTS-TSD-CN 24.093 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 124 093	5.0.0	Published	04-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16494">http://pda.etsi.org/pda/home.asp?wki_id=16494</a>
T1	T1.3GPP.24.093 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-24.093 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.093(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.093(R5-5.0.0).zip</a>
TTC	TS-3GA-24.093 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts24093rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts24093rel5v500.pdf</a>

#### 10.4.22 TS 24.096 Name identification supplementary service; Stage 3

This Technical Specification (TS) specifies the procedures used at the radio interface for normal operation, registration, erasure, activation, deactivation, invocation and interrogation of name identification supplementary services. Provision and withdrawal of supplementary services is an administrative matter between the mobile subscriber and the service provider and cause no signalling on the radio interface.

In GSM 04.10 the general aspects of the specification of supplementary services at the layer 3 radio interface are given. GSM 04.80 specifies the formats and coding for the supplementary services.

Definitions and descriptions of supplementary services are given in GSM 02.04 and GSM 02.8x and 02.9x-series. GSM 02.96 is related specially to name identification supplementary services.

Technical realization of supplementary services is described in GSM 03.11 and GSM 03.8x and 03.9x-series. Technical specification GSM 03.96 is related specially to name identification supplementary services.

The procedures for Call Control, Mobility Management and Radio Resource management at the layer 3 radio interface are defined in GSM 04.07 and GSM 04.08.

The following supplementary service belongs to the name identification supplementary services and is described in this Technical Specification:

- Calling name presentation (CNAP).



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CWTS	CWTS-TSD-CN 24.096 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 124 096	5.0.0	Published	04-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16495">http://pda.etsi.org/pda/home.asp?wki_id=16495</a>
T1	T1.3GPP.24.096V50 0-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-24.096 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.096(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.096(R5-5.0.0).zip</a>
TTC	TS-3GA-24.096 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts24096rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts24096rel5v500.pdf</a>

### 10.4.23 TS 24.135 Multicall supplementary service – Stage 3

The document gives the Stage 3 description of the Multicall (MC) supplementary service. The document specifies the procedures used by the radio interface for normal operation, registration and interrogation of the Multicall supplementary service. Provision, withdrawal, erasure, activation and deactivation of supplementary services is an administrative matter between the mobile subscriber and the service provider and causes no signalling on the radio interface.

3G TS 24.010 describes the general aspects of the specification of supplementary services at the layer 3 radio interface.

3G TS 24.080 specifies the formats and coding for the supplementary services.

Definitions and descriptions of supplementary services are given in 3G TS 22.004, 3G TS 22.072, 3G TS 22.08x, 3G TS 22.09x-series and 3G TS 22.135. 3G TS 22.135 is related specifically to the Multicall supplementary service.

The technical realization of supplementary services are described in 3G TS 23.011, 3G TS 23.072, 3G TS 23.08x, 23.09x-series and 3G TS 23.135. 3G TS 23.135 is related specifically to the Multicall supplementary service.

The procedures for Call Control and Mobility Management at the layer 3 radio interface are defined in 3G TS 24.007 and 3G TS 24.008.

The following supplementary service is described in this document:

- Multicall (MC).

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 24.135 (R5)	5.0.0	Published	25-09-02	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 124 135	5.0.0	Published	04-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16496">http://pda.etsi.org/pda/home.asp?wki_id=16496</a>
T1	T1.3GPP.24.135 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-24.135 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.135(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.135(R5-5.0.0).zip</a>
TTC	TS-3GA-24.135 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts24135rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts24135rel5v500.pdf</a>

#### 10.4.24 TS 24.228 Signalling flows for the IP multimedia call control based on SIP and SDP; Stage 3

This document gives examples of signalling flows for the IP multimedia call control based on SIP and SDP.

These signalling flows demonstrate the interaction with the IP-connectivity network (GPRS), and with the protocol provided at the Cx interface.

These signalling flows provide detailed signalling flows, which expand on the overview information flows provided in 3G TS 23.228

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 24.228 (R5)	5.3.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 124 228	5.3.0	Published	16-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17920">http://pda.etsi.org/pda/home.asp?wki_id=17920</a>
T1	T1.3GPP.24.228V530-2003	5.3.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-24.228 (R5-5.3.0)	5.3.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.228(R5-5.3.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.228(R5-5.3.0).zip</a>
TTC	TS-3GA-24.228 (Rel5)v5.3.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts24228rel5v530.pdf">http://www.ttc.or.jp/imt2000/ts/ts24228rel5v530.pdf</a>

#### 10.4.25 TS 24.229 IP multimedia call control protocol based on SIP and SDP; Stage 3

This document defines a call control protocol for use in the IP Multimedia (IM) Core Network (CN) subsystem based on the Session Initiation Protocol (SIP), and the associated Session Description Protocol (SDP).

This document is applicable to:

- the interface between the User Equipment (UE) and the Call Session Control Function (CSCF);
- the interface between the CSCF and any other CSCF;
- the interface between the CSCF and an Application Server (AS);
- the interface between the CSCF and the Media Gateway Control Function (MGCF);
- the interface between the S-CSCF and the Multimedia Resource Function Controller (MRFC);
- the interface between the CSCF and the Breakout Gateway Control Function (BGCF);
- the interface between the BGCF and the MGCF;
- the interface between the BGCF and any other BGCF; and
- the interface between the CSCF and an external Multimedia IP network.

Where possible this document specifies the requirements for this protocol by reference to specifications produced by the IETF within the scope of SIP and SDP. Where this is not possible, extensions to SIP and SDP are defined within this document. The document has therefore been structured in order to allow both forms of specification.

NOTE – This document covers only the usage of SIP and SDP to communicate with the entities of the IM CN subsystem. It is possible, and not precluded, to use the capabilities of GPRS to allow a terminal containing a SIP UA to communicate with SIP servers or SIP UAs outside the IM CN subsystem, and therefore utilize the services provided by those SIP servers. The usage of SIP and SDP for communicating with SIP servers or SIP UAs outside the IM CN subsystem is outside the scope of this document.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 24.229 (R5)	5.3.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 124 229	5.3.0	Published	03-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17921">http://pda.etsi.org/pda/home.asp?wki_id=17921</a>
T1	T1.3GPP.24.229 V530-2003	5.3.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-24.229 (R5-5.3.0)	5.3.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.229(R5-5.3.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-24.229(R5-5.3.0).zip</a>
TTC	TS-3GA-24.229 (Rel5)v5.3.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts24229rel5v530.pdf">http://www.ttc.or.jp/imt2000/ts/ts24229rel5v530.pdf</a>

## 10.5 26-series, Codecs (speech, video, etc.)

### 10.5.1 TS 26.071 AMR speech Codec; General description

The document is an introduction to the speech processing parts of the narrow-band telephony speech service employing the Adaptive Multi-Rate (AMR) speech coder. A general overview of the speech processing functions is given, with reference to the documents where each function is specified in detail.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.071V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26071-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26071-500.pdf</a>
CWTS	CWTS-TSD-CN 26.071 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 071	5.0.0	Published	16-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16932">http://pda.etsi.org/pda/home.asp?wki_id=16932</a>
T1	T1.3GPP.26.071 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.071 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.071(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.071(R5-5.0.0).zip</a>

### 10.5.2 TS 26.073 AMR speech codec; C-source code

The document contains an electronic copy of the ANSI-C code for the Adaptive Multi-Rate codec. The ANSI-C code is necessary for a bit exact implementation of the Adaptive Multi-Rate speech transcoder (TS 26.090), Voice Activity Detection (TS 26.094), comfort noise (TS 26.092), source controlled rate operation (TS 26.093) and example solutions for substituting and muting of lost frames (TS 26.091).

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.073V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26073-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26073-500.pdf</a>
CWTS	CWTS-TSD-CN 26.073 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 073	5.0.0	Published	16-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16933">http://pda.etsi.org/pda/home.asp?wki_id=16933</a>
T1	T1.3GPP.26.073 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.073 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.073(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.073(R5-5.0.0).zip</a>

### 10.5.3 TS 26.077 Minimum performance requirements for noise suppresser application to the AMR speech encoder

The document specifies recommended minimum performance requirements for noise suppression algorithms intended for application in conjunction with the AMR speech encoder. This Specification is for guidance purposes. Noise Suppression is intended to enhance the speech signal corrupted by acoustic noise at the input to the AMR speech encoder.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.077V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26077-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26077-500.pdf</a>
CWTS	CWTS-TSD-CN 26.077 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 077	5.0.0	Published	11-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16935">http://pda.etsi.org/pda/home.asp?wki_id=16935</a>
T1	T1.3GPP.26.077V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.077(R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.077(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.077(R5-5.0.0).zip</a>

### 10.5.4 TS 26.090 AMR speech codec; Transcoding functions

The document describes the detailed mapping from input blocks of 160 speech samples in 13-bit uniform PCM format to encoded blocks of 95, 103, 118, 134, 148, 159, 204, and 244 bits and from encoded blocks of 95, 103, 118, 134, 148, 159, 204, and 244 bits to output blocks of 160 reconstructed speech samples. The sampling rate is 8 000 samples/s leading to a bit rate for the encoded bit stream of 4.75, 5.15, 5.90, 6.70, 7.40, 7.95, 10.2 or 12.2 kbit/s. The coding scheme for the multi-rate coding modes is the so-called Algebraic Code-Excited Linear Prediction Coder, hereafter referred to as ACELP. The multi-rate ACELP coder is referred to as MR-ACELP.

In the case of discrepancy between the requirements described in the document and the fixed point computational description (ANSI-C code) of these requirements contained in 3G TS 26.073, the description in 3G TS 26.073 will prevail. The ANSI-C code is not described in this document, see 3G TS 26.073 for a description of the ANSI-C code.

The transcoding procedure specified in the document is mandatory for systems using the AMR speech codec.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.090V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26090-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26090-500.pdf</a>
CWTS	CWTS-TSD-CN 26.090 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 090	5.0.0	Published	11-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16936">http://pda.etsi.org/pda/home.asp?wki_id=16936</a>
T1	T1.3GPP.26.090V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.090(R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.090(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.090(R5-5.0.0).zip</a>

### 10.5.5 TS 26.091 AMR speech codec; Error concealment of lost frames

The document defines an error concealment procedure, also termed frame substitution and muting procedure, which shall be used by the AMR speech codec receiving end when one or more lost speech or lost Silence Descriptor (SID) frames are received.

The requirements of this document are mandatory for implementation in all networks and User Equipment (UE)s capable of supporting the AMR speech codec. It is not mandatory to follow the bit exact implementation outlined in this document and the corresponding C source code.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.091V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26091-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26091-500.pdf</a>
CWTS	CWTS-TSD-CN 26.091 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 091	5.0.0	Published	11-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16937">http://pda.etsi.org/pda/home.asp?wki_id=16937</a>
T1	T1.3GPP.26.091 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.091 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.091(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.091(R5-5.0.0).zip</a>

### 10.5.6 TS 26.092 AMR speech codec; comfort noise for AMR speech traffic channels

The document gives 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.

The requirements described in this document are mandatory for implementation in all UEs capable of supporting the AMR speech codec.

The receiver requirements are mandatory for implementation in all networks capable of supporting the AMR speech codec, the transmitter requirements only for those where downlink SCR will be used.

In case of discrepancy between the requirements described in this document and the fixed point computational description of these requirements contained in 3G TS 26.073, the description in 3G TS 26.073 will prevail.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.092V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26092-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26092-500.pdf</a>
CWTS	CWTS-TSD-CN 26.092 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 092	5.0.0	Published	11-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16938">http://pda.etsi.org/pda/home.asp?wki_id=16938</a>
T1	T1.3GPP.26.092 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.092 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.092(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.092(R5-5.0.0).zip</a>

### 10.5.7 TS 26.093 AMR speech codec; Source controlled rate operation

This document describes the Source Controlled Rate (SCR) operation of the Adaptive Multi-Rate speech Codec in Codec Types UMTS\_AMR and GSM\_AMR for the UMTS system. The implementation of this SCR operation is mandatory in all UMTS equipment.

This structure of distributing the various functions between system entities is not mandatory for implementation, as long as the operation on the speech decoder output remains the same.

Annex A describes the Discontinuous Transmission (DTX) operation of the Adaptive Multi-Rate speech Codec in Codec Type GSM\_AMR for the GSM system. This annex is the former GSM 06.93 (release 98).

Annexes B to E describe the SCR operation of the Adaptive Multi-Rate speech Codec in Codec Types GSM\_EFR, TDMA\_EFR, TDMA\_US1 and PDC\_EFR for the UMTS system.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.093V5.2.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26093-520.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26093-520.pdf</a>
CWTS	CWTS-TSD-CN 26.093 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 093	5.2.0	Published	08-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18018">http://pda.etsi.org/pda/home.asp?wki_id=18018</a>
T1	T1.3GPP.26.093 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.093 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.093(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.093(R5-5.2.0).zip</a>

### 10.5.8 TS 26.094 AMR speech codec; Voice activity detector for AMR speech traffic channels

The document specifies two alternatives for the Voice Activity Detector (VAD) to be used in the Discontinuous Transmission (DTX) as described in 3G TS 26.093. Implementers of mobile station and infrastructure equipment conforming to the AMR specifications can choose which of the two VAD options to implement. There are no interoperability factors associated with this choice.

The requirements are mandatory on any VAD to be used either in User Equipment (UE) or Base Station Systems (BSS)s that utilize the AMR speech codec.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.094V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26094-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26094-500.pdf</a>
CWTS	CWTS-TSD-CN 26.094 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 094	5.0.0	Published	11-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16940">http://pda.etsi.org/pda/home.asp?wki_id=16940</a>
T1	T1.3GPP.26.094 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.094 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.094(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.094(R5-5.0.0).zip</a>

### 10.5.9 TS 26.101 Mandatory speech codec speech processing functions; Adaptive Multi-Rate (AMR) speech codec frame structure

The document describes a generic frame format for the Adaptive Multi-Rate (AMR) speech codec. This format shall be used as a common reference point when interfacing speech frames between different elements of the 3G system and between different systems. Appropriate mappings to and from this generic frame format will be used within and between each system element.

Annex A describes a second frame format, which shall be used when octet alignment of AMR frames is required.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.101V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26101-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26101-500.pdf</a>
CWTS	CWTS-TSD-CN 26.101 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 101	5.0.0	Published	11-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16941">http://pda.etsi.org/pda/home.asp?wki_id=16941</a>
T1	T1.3GPP.26.101 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.101 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.101(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.101(R5-5.0.0).zip</a>

### 10.5.10 TS 26.102 AMR speech codec; Interface to Iu and Uu

The document specifies the mapping of the AMR generic frame format (TS 26.101) to the Iu Interface (TS 25.415), the Uu Interface and the Nb Interface (TS 29.415). It further specifies the mapping of PCM 64 kbit/s (ITU-T Rec. G.711 [20]) coded speech to the Nb Interface.



	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.102V5.1.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26102-510.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26102-510.pdf</a>
CWTS	CWTS-TSD-CN 26.102 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 102	5.1.0	Published	08-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18019">http://pda.etsi.org/pda/home.asp?wki_id=18019</a>
T1	T1.3GPP.26.102 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.102 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.102(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.102(R5-5.1.0).zip</a>

### 10.5.11 TS 26.103 Speech codec list for GSM and UMTS

The Technical Specification outlines the Codec Lists in 3G including both systems, GSM and UMTS, to be used by the Out of Band Transcoder Control (OoBTC) protocol to set up a call or modify a call in **Transcoder Free Operation (TrFO)** and in "transcoder at the edge" scenarios.

The TS further specifies the coding of the Supported Codec List Information Elements for the UMTS radio access technology.

The Supported Codec List IE includes Codec\_Types from the TDMA and PDC systems, to support TFO or TrFO between UMTS and TDMA, or UMTS and PDC.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.103V5.4.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26103-540.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26103-540.pdf</a>
CWTS	CWTS-TSD-CN 26.103 (R5)	5.4.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 103	5.4.0	Published	09-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18020">http://pda.etsi.org/pda/home.asp?wki_id=18020</a>
T1	T1.3GPP.26.103 V540-2003	5.4.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.103 (R5-5.4.0)	5.4.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.103(R5-5.4.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.103(R5-5.4.0).zip</a>

### 10.5.12 TS 26.104 ANSI-C code for the floating-point Adaptive Multi-Rate (AMR) speech codec

This Technical Standard (TS) contains an electronic copy of the ANSI-C code for a floating-point implementation of the Adaptive Multi-Rate codec. This floating-point codec specification is mainly targeted to be used in multimedia applications such as the 3G-324M terminal specified in TS 26.110, or in packet-based (e.g., ITU-T Rec. H.323 [23]) applications. The bit-exact fixed-point ANSI-C code in TS 26.073 remains the preferred implementation for all applications, but the floating-point codec may be used instead of the fixed-point codec when the implementation platform is better suited for a floating-point implementation. It has been verified that the fixed-point and floating-point codecs interoperate with each other without any artifacts.



The floating-point ANSI-C code in this Specification is the only standard conforming non-bit-exact implementation of the Adaptive Multi-Rate speech transcoder (TS 26.090), Voice Activity Detection (TS 26.094), comfort noise generation (TS 26.092), and source controlled rate operation (TS 26.093). The floating-point code also contains example solutions for substituting and muting of lost frames (TS 26.091).

The fixed-point specification in 26.073 shall remain the only allowed implementation for the 3G mandatory speech services and the use of the floating-point codec is strictly limited to other services.

The floating-point encoder in this Specification is a non-bit-exact implementation of the fixed-point encoder producing quality indistinguishable from that of the fixed-point encoder. The decoder in this Specification is functionally a bit-exact implementation of the fixed-point decoder, but the code has been optimized for speed and the standard fixed-point libraries are not used as such.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.104V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26104-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26104-500.pdf</a>
CWTS	CWTS-TSD-CN 26.104 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 104	5.0.0	Published	11-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16943">http://pda.etsi.org/pda/home.asp?wki_id=16943</a>
T1	T1.3GPP.26.104 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.104 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.104(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.104(R5-5.0.0).zip</a>

### 10.5.13 TS 26.110 Codec for circuit-switched multimedia telephony service; General description

This Specification introduces the set of specifications that apply to 3G-324M multimedia terminals.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.110V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26110-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26110-500.pdf</a>
CWTS	CWTS-TSD-CN 26.110 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 110	5.0.0	Published	11-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16944">http://pda.etsi.org/pda/home.asp?wki_id=16944</a>
T1	T1.3GPP.26.110 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.110 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.110(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.110(R5-5.0.0).zip</a>

### 10.5.14 TS 26.111 Codec for circuit-switched multimedia telephony service; Modifications to ITU-T Rec. H.324

Annex C/H.324 [24] describes a generic multimedia codec for use in error-prone, wireless networks. The scope of the document is the changes, deletions, and additions to those texts necessary to fully specify a multimedia codec for use in 3G networks. Note that this implicitly excludes the network interface and call set-up procedures. Also excluded are any general introductions to the system components.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.111V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26111-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26111-500.pdf</a>
CWTS	CWTS-TSD-CN 26.111 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 111	5.0.0	Published	11-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16945">http://pda.etsi.org/pda/home.asp?wki_id=16945</a>
T1	T1.3GPP.26.111 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.111 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.111(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.111(R5-5.0.0).zip</a>

### 10.5.15 TS 26.115 Echo control for speech and multimedia services

The document specifies minimum performance requirements for the gateway echo control of 3G speech and multimedia services. The document is applicable to any narrow-band speech telephony or multimedia service.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.115V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26115-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26115-500.pdf</a>
CWTS	CWTS-TSD-CN 26.115 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 115	5.0.0	Published	11-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16946">http://pda.etsi.org/pda/home.asp?wki_id=16946</a>
T1	T1.3GPP.26.115 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.115 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.115(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.115(R5-5.0.0).zip</a>

### 10.5.16 TS 26.131 Terminal acoustic characteristics for telephony; Requirements

The document is applicable to any terminal capable of supporting narrow-band or wideband telephony, either as a stand-alone service or as the telephony component of a multimedia service. The document specifies minimum performance requirements for the acoustic characteristics of 3G terminals when used to provide narrow-band or wideband telephony.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.131V5.2.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26131-520.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26131-520.pdf</a>
CWTS	CWTS-TSD-CN 26.131 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 131	5.2.0	Published	11-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17445">http://pda.etsi.org/pda/home.asp?wki_id=17445</a>
T1	T1.3GPP.26.131 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.131 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.131(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.131(R5-5.2.0).zip</a>

### 10.5.17 TS 26.140 Multimedia Messaging Service (MMS); Media formats and codes

This document specifies the media types, formats and codecs for the MMS within the 3GPP system. The scope of this document extends to codecs for speech, audio, video, still images, bitmap graphics, and other media in general, as well as scene description, multimedia integration and synchronization schemes.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.140V5.2.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26140-520.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26140-520.pdf</a>
CWTS	CWTS-TSD-CN 26.140 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 140	5.2.0	Published	09-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18021">http://pda.etsi.org/pda/home.asp?wki_id=18021</a>
T1	T1.3GPP.26.140 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.140 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.140(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.140(R5-5.2.0).zip</a>

### 10.5.18 TS 26.171 AMR speech codec, wideband; General description

This document is an introduction to the speech processing parts of the wideband telephony speech service employing the Adaptive Multi-Rate Wideband (AMR-WB) speech coder. A general overview of the speech processing functions is given, with reference to the documents where each function is specified in detail.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.171V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26171-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26171-500.pdf</a>
CWTS	CWTS-TSD-CN 26.171 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 171	5.0.0	Published	05-08-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16216">http://pda.etsi.org/pda/home.asp?wki_id=16216</a>
T1	T1.3GPP.26.171 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.171(R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.171(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.171(R5-5.0.0).zip</a>

### 10.5.19 TS 26.173 ANSI-C code for the Adaptive Multi-Rate (AMR) wideband speech codec

This document contains an electronic copy of the ANSI-C code for the Adaptive Multi-Rate Wideband codec. The ANSI-C code is necessary for a bit-exact implementation of the Adaptive Multi-Rate Wideband speech transcoder (3G TS 26.190), Voice Activity Detection (3G TS 26.194), comfort noise (3G TS 26.192), source controlled rate operation (3G TS 26.193) and example solutions for substituting and muting of lost frames (3G TS 26.191).

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.173V5.5.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26173-550.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26173-550.pdf</a>
CWTS	CWTS-TSD-CN 26.173 (R5)	5.5.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 173	5.5.0	Published	09-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18022">http://pda.etsi.org/pda/home.asp?wki_id=18022</a>
T1	T1.3GPP.26.173V550-2003	5.5.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.173(R5-5.5.0)	5.5.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.173(R5-5.5.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.173(R5-5.5.0).zip</a>

### 10.5.20 TS 26.190 Mandatory speech codec speech processing functions; AMR wideband speech codec; Transcoding functions

This Telecommunication Standard (TS) describes the detailed mapping from input blocks of 320 speech samples in 16-bit uniform PCM format to encoded blocks of 132, 177, 253, 285, 317, 365, 397, 461 and 477 bits and from encoded blocks of 132, 177, 253, 285, 317, 365, 397, 461 and 477 bits to output blocks of 320 reconstructed speech samples. The sampling rate is 16 000 samples/s leading to a bit rate for the encoded bit stream of 6.60, 8.85, 12.65, 14.25, 15.85, 18.25, 19.85, 23.05 or 23.85 kbit/s. The coding scheme for the multi-rate coding modes is the so-called Algebraic Code-Excited Linear Prediction Coder, hereafter referred to as ACELP. The multi-rate wideband ACELP coder is referred to as MRWB-ACELP.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.190V5.1.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-/Rel5T/A26190-510.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-/Rel5T/A26190-510.pdf</a>
CWTS	CWTS-TSD-CN 26.190 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 190	5.1.0	Published	05-08-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16217">http://pda.etsi.org/pda/home.asp?wki_id=16217</a>
T1	T1.3GPP.26.190 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.190 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.190(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.190(R5-5.1.0).zip</a>

### 10.5.21 TS 26.191 AMR speech codec, wideband; Error concealment of lost frames

This Specification defines an error concealment procedure, also termed frame substitution and muting procedure, which shall be used by the AMR-WB speech codec receiving end when one or more erroneous/lost speech or lost Silence Descriptor (SID) frames are received.

The requirements of this document are mandatory for implementation in all networks and User Equipment (UE)s capable of supporting the AMR-WB speech codec. It is not mandatory to follow the bit-exact implementation outlined in this document and the corresponding C source code.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.191V5.1.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26191-510.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26191-510.pdf</a>
CWTS	CWTS-TSD-CN 26.191 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 191	5.1.0	Published	18-04-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16095">http://pda.etsi.org/pda/home.asp?wki_id=16095</a>
T1	T1.3GPP.26.191 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.191 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.191(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.191(R5-5.1.0).zip</a>

### 10.5.22 TS 26.192 Speech codec speech processing functions; AMR wideband speech codec; Comfort noise aspects

This document gives the detailed requirements for the correct operation of the background acoustic noise evaluation, noise parameter encoding/decoding and comfort noise generation for the AMR Wideband (AMR-WB) speech codec during Source Controlled Rate (SCR) operation.

The requirements described in this document are mandatory for implementation in all UEs capable of supporting the AMR-WB speech codec.

The receiver requirements are mandatory for implementation in all networks capable of supporting the AMR-WB speech codec, the transmitter requirements only for those where downlink SCR will be used.

In case of discrepancy between the requirements described in this document and the fixed point computational description of these requirements contained in 3G TS 26.173, the description in 3G TS 26.173 will prevail.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.192V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26192-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26192-500.pdf</a>
CWTS	CWTS-TSD-CN 26.192 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 192	5.0.0	Published	06-08-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16218">http://pda.etsi.org/pda/home.asp?wki_id=16218</a>
T1	T1.3GPP.26.192V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.192(R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.192(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.192(R5-5.0.0).zip</a>

### 10.5.23 TS 26.193 AMR speech codec, wideband; Source Controlled Rate operation

This document describes the Source Controlled Rate (SCR) operation of the Adaptive Multi-Rate Wideband speech Codec. The implementation of this SCR operation is mandatory in all UMTS equipment implementing the Adaptive Multi-Rate Wideband speech Codec.

The description is structured according to the block diagram in Figure 10.5.23-1. This structure of distributing the various functions between system entities is not mandatory for implementation, as long as the operation on the speech decoder output remains the same.

Annex A describes the Discontinuous Transmission (DTX) operation of the Adaptive Multi-Rate Wideband speech Codec in Codec Type FR\_AMR-WB for the GSM system.

An overall description of the speech processing parts can be found in 3G TS 26.171. An overview of one link SCR operation is shown in Figure 10.5.23-1.

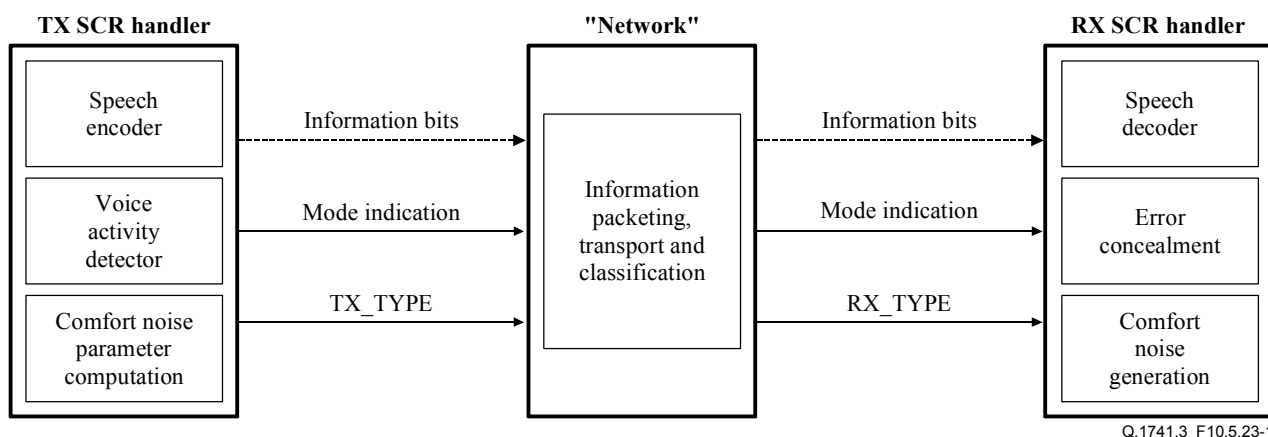


Figure 10.5.23-1/Q.1741.3 – Block diagram of one link SCR operation

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.193V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26193-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26193-500.pdf</a>
CWTS	CWTS-TSD-CN 26.193 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 193	5.0.0	Published	05-08-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16219">http://pda.etsi.org/pda/home.asp?wki_id=16219</a>
T1	T1.3GPP.26.193V50 0-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.193(R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.193(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.193(R5-5.0.0).zip</a>

### 10.5.24 TS 26.194 Mandatory speech codec speech processing functions AMR wideband speech codec; Voice Activity Detector (VAD)

This document specifies the Voice Activity Detector (VAD) to be used in the Discontinuous Transmission (DTX) as described in 3GPP TS 26.193.

The requirements are mandatory on any VAD to be used either in User Equipment (UE) or Base Station Systems (BSS)s that utilize the AMR wideband speech codec.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.194V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26194-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26194-500.pdf</a>
CWTS	CWTS-TSD-CN 26.194 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 194	5.0.0	Published	05-08-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16220">http://pda.etsi.org/pda/home.asp?wki_id=16220</a>
T1	T1.3GPP.26.194V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.194(R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.194(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.194(R5-5.0.0).zip</a>

### 10.5.25 TS 26.201 AMR speech codec, wideband; Frame structure

This document describes a generic frame format for the Adaptive Multi-Rate Wideband (AMR-WB) speech codec. This format shall be used as a common reference point when interfacing speech frames between different elements of the 3G system and between different systems. Appropriate mappings to and from this generic frame format will be used within and between each system element.

Annex A of this Technical Specification TS 26.201 describes a second frame format which shall be used when octet alignment of AMR-WB frames is required.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.201V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26201-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26201-500.pdf</a>
CWTS	CWTS-TSD-CN 26.201 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 201	5.0.0	Published	05-08-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16221">http://pda.etsi.org/pda/home.asp?wki_id=16221</a>
T1	T1.3GPP.26.201V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.201(R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.201(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.201(R5-5.0.0).zip</a>

### 10.5.26 TS 26.202 AMR wideband speech codec; Interface to Iu, Uu, and Nb

This document specifies the mapping of the AMR wideband generic frame format (3G TS 26.201) to the Iu Interface (3G TS 25.415), the Uu Interface and the Nb Interface (3G TS 29.415). It further specifies the mapping of PCM 64 kbit/s (ITU-T Rec. G.711) coded speech to the Nb Interface.



	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.202V5.1.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26202-510.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26202-510.pdf</a>
CWTS	CWTS-TSD-CN 26.202 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 202	5.1.0	Published	04-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17449">http://pda.etsi.org/pda/home.asp?wki_id=17449</a>
T1	T1.3GPP.26.202 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.202 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.202(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.202(R5-5.1.0).zip</a>

### 10.5.27 TS 26.204 ANSI-C code for the floating-point Adaptive Multi-Rate (AMR) wideband speech codec

This document contains an electronic copy of the ANSI-C code for the Floating-point Adaptive Multi-Rate Wideband codec. This floating-point codec specification is mainly targeted to be used in multimedia applications or in packet-based applications. The bit-exact fixed-point ANSI-C code in 3G TS 26.173 remains the preferred implementation for all applications, but the floating-point codec may be used instead of the fixed-point codec when the implementation platform is better suited for a floating-point implementation. It has been verified that the fixed-point and floating-point codecs interoperate with each other without any artifacts.

The floating-point ANSI-C code in this document is the only standard conforming non-bit-exact implementation of the Adaptive Multi-Rate Wideband speech transcoder (3G TS 26.190), Voice Activity Detection (3G TS 26.194), comfort noise generation (3G TS 26.192), and source controlled rate operation (3G TS 26.193). The floating-point code also contains example solutions for substituting and muting of lost frames (3G TS 26.191).

The fixed-point specification in 3G TS 26.173 shall remain the only allowed implementation for the 3G AMR-WB speech service and the use of the floating-point codec is strictly limited to other services.

The floating-point encoder in this document is a non-bit-exact implementation of the fixed-point encoder producing quality indistinguishable from that of the fixed-point encoder. The decoder in this document is functionally a bit-exact implementation of the fixed-point decoder, but the code has been optimized for speed and the standard fixed-point libraries are not used as such.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.204V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26204-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26204-500.pdf</a>
CWTS	CWTS-TSD-CN 26.204 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 204	5.0.0	Published	18-04-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16096">http://pda.etsi.org/pda/home.asp?wki_id=16096</a>
T1	T1.3GPP.26.204 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.204 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.204(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.204(R5-5.0.0).zip</a>



### 10.5.28 TS 26.226 Global Text Telephony (GTT); Cellular Text telephone Modem (CTM); General description

This Technical Specification (TS) concerns the Cellular Text telephone Modem (CTM). CTM allows reliable transmission of a text telephone conversation alternating with a speech conversation through the existing speech communication paths in cellular mobile phone systems. This reliability is achieved by an improved modulation technique, including error protection, interleaving and synchronization. Together with ITU-T Recommendations V.18 and T.140, CTM may serve for worldwide applications in text telephony.

A general overview and explanations of possible implementation architectures is provided. CTM is intended for use in end terminals (on the mobile or fixed side) and within the network for the adaptation between CTM and existing traditional text telephone standards.

The CTM transmitter is fully specified and a bit exact C-code reference is provided. An implementation of an example CTM receiver is also described.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.226V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26226-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26226-500.pdf</a>
CWTS	CWTS-TSD-CN 26.226 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 226	5.0.0	Published	05-08-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16223">http://pda.etsi.org/pda/home.asp?wki_id=16223</a>
T1	T1.3GPP.26.226 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.226 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.226(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.226(R5-5.0.0).zip</a>

### 10.5.29 TS 26.230 Global Text Telephony (GTT); Cellular text telephone modem; transmitter bit exact C-code

This Technical Standard (TS) contains an electronic copy of the ANSI-C code for the Cellular Text telephone Modem (CTM) for reliable transmission of text telephone text via the speech channel of cellular networks. While CTM is generally usable with text in UCS coding, the example application linked to CTM in this document is limited to use the signals and character set of the Baudot **type**.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.230V5.0.1	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26230-501.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26230-501.pdf</a>
CWTS	CWTS-TSD-CN 26.230 (R5)	5.0.1	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 230	5.0.1	Published	03-03-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16224">http://pda.etsi.org/pda/home.asp?wki_id=16224</a>
T1	T1.3GPP.26.230 V501-2003	5.0.1	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.230 (R5-5.0.1)	5.0.1	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.230(R5-5.0.1).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.230(R5-5.0.1).zip</a>

### 10.5.30 TS 26.231 Global Text Telephony (GTT); Cellular text telephone modem; minimum performance requirements

This Technical Standard (TS) describes the minimum performance requirements for the Cellular Text telephone Modem (CTM) for reliable transmission of text telephone text via the speech channel of cellular or PSTN networks. The transmitting parts of the Cellular Text telephone Modem are specified in 3G TS 26.226.

CTM is a general technology, independent of text telephone types. The tests are made only for one specific type of text telephone, the Baudot type. The tests are applicable only to a combination of a Baudot codec and CTM and tests the combined performance. A bit-exact implementation of the CTM transmitter as well as an example implementation of the remaining functions of such a combination are provided in 3G TS 26.230.

The test scripts and test vectors required to perform this testing are included in a supplement, which is located in the zip archive `ctm_testing.zip`. The path and file names given in this Specification refer to the file structures associated with this supplement. A second supplement (zip archive `ctm_score.zip`) provides the scoring program that is described in clause 6 of 3G TS 26.231.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.231V5.2.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26231-520.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26231-520.pdf</a>
CWTS	CWTS-TSD-CN 26.231 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 231	5.2.0	Published	18-04-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16097">http://pda.etsi.org/pda/home.asp?wki_id=16097</a>
T1	T1.3GPP.26.231 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.231 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.231(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.231(R5-5.2.0).zip</a>

### 10.5.31 TS 26.233 Transparent end-to-end Packet-switched Streaming Service (PSS); General description

The document contains a general description of a transparent packet-switched streaming service in 3G networks. In particular, it defines the usage scenarios, overall high-level end-to-end service concept, and lists terminal related functional components. It also lists any identified service interworking requirements. PSS protocols and codecs are defined in 3G TS 26.234.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.233V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26233-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26233-500.pdf</a>
CWTS	CWTS-TSD-CN 26.233 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 233	5.0.0	Published	18-04-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16101">http://pda.etsi.org/pda/home.asp?wki_id=16101</a>
T1	T1.3GPP.26.233 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.233 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.233(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.233(R5-5.0.0).zip</a>

### 10.5.32 TS 26.234 Transparent end-to-end Packet-switched Streaming Service (PSS); Protocols and codecs

The document specifies the protocols and codecs for the PSS within the 3G system. Protocols for control signalling, capability exchange, scene description, media transport and media encapsulations are specified. Codecs for speech, natural and synthetic audio, video, still images, bitmap graphics, vector graphics, timed text, and text are specified.

The document is applicable to IP based packet switched networks.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.234V5.3.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26234-530.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26234-530.pdf</a>
CWTS	CWTS-TSD-CN 26.234 (R5)	5.3.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 234	5.3.0	Published	09-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18025">http://pda.etsi.org/pda/home.asp?wki_id=18025</a>
T1	T1.3GPP.26.234 V530-2003	5.3.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.234 (R5-5.3.0)	5.3.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.234(R5-5.3.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.234(R5-5.3.0).zip</a>

### 10.5.33 TS 26.235 Packet-switched conversational multimedia applications; Default codecs

This document introduces the set of default codecs for packet-switched conversational multimedia applications within the 3G IP Multimedia Subsystem. Visual and sound communications are specifically addressed. The intended applications are assumed to require low-delay, real-time functionality.

This document is applicable, but not limited, to PS video telephony.

The applicability of this Specification to GERAN is FFS.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.235V5.1.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26235-510.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26235-510.pdf</a>
CWTS	CWTS-TSD-CN 26.235 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 235	5.1.0	Published	18-04-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16106">http://pda.etsi.org/pda/home.asp?wki_id=16106</a>
T1	T1.3GPP.26.235V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.235(R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.235(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.235(R5-5.1.0).zip</a>

### 10.5.34 TS 26.236 Packet-switched conversational multimedia applications; Transport protocols

This document introduces the required protocols for packet-switched conversational multimedia applications within 3GPP IP Multimedia Subsystem. Visual and sound communications are specifically addressed. The intended applications are assumed to require low-delay, real-time functionality.

This document describes the required protocol related elements for 3G PS multimedia terminal:

- required SDP signalling regarding the media type bit rate, packet size, packet transport frequency;
- usage of RTP payload for media types;
- bandwidth adaptation;
- QoS negotiation.

This document is applicable, but not limited, to packet-switched video telephony.

The applicability of this document to GERAN is FFS.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-26.236V5.1.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26236-510.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A26236-510.pdf</a>
CWTS	CWTS-TSD-CN 26.236 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 126 236	5.1.0	Published	09-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18026">http://pda.etsi.org/pda/home.asp?wki_id=18026</a>
T1	T1.3GPP.26.236V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.236(R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.236(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.236(R5-5.1.0).zip</a>

### 10.5.35 TR 26.911 Codec(s) for circuit-switched multimedia telephony service; Terminal Implementor's Guide

This document provides non-mandatory recommendations for the use of the different codec implementation options for the circuit-switched multimedia telephony service which is based on ITU-T Rec. H.324 [24], and Annex C/H.324 [24] in particular. These recommendations address issues specific to the 3G operating environment, including guaranteeing sufficient error resilience and interworking between terminals.

The contents of this document are provided for information to assist in high quality implementation of multimedia telephony terminals. All references to "terminals" in this report are to terminals supporting the Circuit-Switched Multimedia Telephony Service as described in ITU-T Recs H.324 [24], G.723.1 and H.263.

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CWTS	CWTS-TSD-CN 26.911 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TR 126 911	5.0.0	Published	11-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16947">http://pda.etsi.org/pda/home.asp?wki_id=16947</a>
T1	T1.3GPP.26.911 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.911 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.911(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.911(R5-5.0.0).zip</a>

### 10.5.36 TR 26.975 Performance characterization of the Adaptive Multi-Rate (AMR) speech codec

This document provides background information on the performances of the Adaptive Multi-Rate (AMR) speech codec. Experimental test results from the Verification and Characterization phases of testing are reported to illustrate the behaviour of AMR in multiple operational conditions.

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CWTS	CWTS-TSD-CN 26.975 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TR 126 975	5.0.0	Published	11-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16948">http://pda.etsi.org/pda/home.asp?wki_id=16948</a>
T1	T1.3GPP.26.975 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.975 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.975(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.975(R5-5.0.0).zip</a>

### 10.5.37 TS 26.976 Performance characterization of the Adaptive Multi-Rate Wideband (AMR-WB) speech codec

This document provides information of the AMR Wideband (AMR-WB) Characterization, Verification and Selection Phases. Experimental test results from the speech quality related testing are reported to illustrate the behaviour of the AMR-WB codec. Additional information is provided, e.g., on implementation complexity of the AMR-WB codec. Also the verification results for the floating-point version of the AMR-WB codec (3G TS 26.204) are presented.

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CWTS	CWTS-TSD-CN 26.976 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TR 126 976	5.0.0	Published	09-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18027">http://pda.etsi.org/pda/home.asp?wki_id=18027</a>
T1	T1.3GPP.26.976 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-26.976 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.976(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-26.976(R5-5.0.0).zip</a>

## 10.6 27-series, Data

### 10.6.1 TS 27.001 General on Terminal Adaptation Functions (TAFs) for Mobile Stations (MSs)

The document is based on the principles of terminal adaptor functions presented in the ITU-T I-series Recommendations (I.460 to I.463) [30] to [33].

The PLMN supports a wide range of voice and non-voice services in the same network. In order to enable non-voice traffic in the PLMN, there is a need to connect various kinds of terminal equipment to the Mobile Termination (MT). The target of this document is to outline the functions needed for the terminal adaptation.

In TS 22.002 the bearer services are described. The general network configuration is described in TS 23.002 and the GSM PLMN access reference configuration is defined in TS 04.02. The various connection types used in the GSM PLMN are presented in TS 43.010. Terminology used in this document is presented in TS 01.04, TR 21.905 and TS 29.990. For support of data services between a PLMN and other networks, see TS 29.007.

The document is valid for a 2nd generation PLMN (GSM) as well as for a 3rd generation PLMN (UMTS). If text applies only for one of these systems it is explicitly mentioned by using the terms "GSM" and "UMTS". If text applies to both of the systems, but a distinction between the ISDN/PSTN and the PLMN is necessary, the term "PLMN" is used.

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CWTS	CWTS-TSD-CN 27.001 (R5)	5.4.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 127 001	5.4.0	Published	16-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18028">http://pda.etsi.org/pda/home.asp?wki_id=18028</a>
T1	T1.3GPP.27.001 V540-2003	5.4.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-27.001 (R5-5.4.0)	5.4.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-27.001(R5-5.4.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-27.001(R5-5.4.0).zip</a>
TTC	TS-3GA-27.001 (Rel5)v5.4.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts27001rel5v540.pdf">http://www.ttc.or.jp/imt2000/ts/ts27001rel5v540.pdf</a>

### 10.6.2 TS 27.002 Terminal Adaptation Functions (TAFs) for services using asynchronous bearer capabilities

The document defines the interfaces and Terminal Adaptation Functions (TAF) integral to a Mobile Termination (MT) which enable the use of asynchronous bearer services in the PLMN and the attachment of asynchronous terminals to a MT (see TS 44.002 and TS 23.101).

The general aspects of Terminal Adaptation Functions are contained in TS 27.001.

This document covers support of these services for the following interfaces and procedures:

- i) ITU-T Rec. V.14 [49] procedures.
- ii) ITU-T Rec. V.21 [50] DTE/DCE interface.
- iii) ITU-T Rec. V.22 *bis* [52] DTE/DCE interface.
- iv) ITU-T Rec. V.32 [57] DTE/DCE procedures.
- v) ITU-T Rec. I.420 [29] S interface.
- vi) ITU-T Rec. V.250 [55] signalling procedures.

The asynchronous data rates between the MT and the IWF are defined in TS 22.002.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 27.002 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 127 002	5.0.0	Published	05-08-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16225">http://pda.etsi.org/pda/home.asp?wki_id=16225</a>
T1	T1.3GPP.27.002 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-27.002 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-27.002(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-27.002(R5-5.0.0).zip</a>
TTC	TS-3GA-27.002 (Rel5)v5.0.0	1	TTC published	28-05-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts27002rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts27002rel5v500.pdf</a>

### 10.6.3 TS 27.003 Terminal Adaptation Functions (TAFs) for services using synchronous bearer capabilities

The document defines Terminal Adaptation Functions (TAF) which are integrated in a Mobile Termination (MT) and which enable the use of synchronous bearer services in the PLMN and the attachment of Synchronous Terminals to an MT (see TS 24.002). For the case where asynchronous terminals are attached to the TAF when using synchronous bearer services in the PLMN, the reader is referred to TS 27.002 for the asynchronous MT-TAF interface specifics and to this document for synchronous bearer service specifics on the TAF-IWF interface. The general aspects of Terminal Adaptation Functions are contained in specification TS 27.001. This document covers support of synchronous data services (see TS 22.002) for the following interfaces and procedures:

- ITU-T Rec. V.22 [51] DTE/DCE Interface.
- ITU-T Rec. V.22 *bis* [52] DTE/DCE Interface.
- ITU-T Rec. V.26 *ter* [56] DTE/DCE Interface.
- ITU-T Rec. X.21 *bis* [60] DTE/DCE Interface.
- ITU-T Rec. X.32 [62] Procedure.
- ITU-T Rec. V.25 *bis* [54] Procedure.

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CWTS	CWTS-TSD-CN 27.003 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 127 003	5.0.0	Published	05-08-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16226">http://pda.etsi.org/pda/home.asp?wki_id=16226</a>
T1	T1.3GPP.27.003 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-27.003 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-27.003(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-27.003(R5-5.0.0).zip</a>
TTC	TS-3GA-27.003 (Rel5)v5.0.0	1	TTC published	28-05-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts27003rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts27003rel5v500.pdf</a>



#### 10.6.4 TS 27.005 Use of Data Terminal Equipment – Data Circuit-terminating Equipment (DTE – DCE) interface for Short Message Service (SMS) and Cell Broadcast Service (CBS)

This Technical Specification (TS) defines three interface protocols for control of SMS functions within a GSM/UMTS mobile telephone from a remote terminal via an asynchronous interface.

This document defines a binary protocol ("Block Mode"). The protocol includes error protection and is suitable for use where the link may not be completely reliable. It will be of particular use where control of remote devices is required. Efficient transfer of binary encoded user data is possible.

This document defines a character-based interface based on "AT" commands ("Text Mode"). This mode is suitable for unintelligent terminals or terminal emulators, and for application software built on command structures like those defined in ITU-T Rec. V.250 [55]. Some of the commands useful for implementations are defined in clause 5/V.250, for example enabling an indication of incoming SMS messages.

This document defines a character-based interface with hex-encoded binary transfer of message blocks ("PDU Mode"). This mode is suitable for software drivers based on AT command structures which do not understand the content of the message blocks and can only pass them between the MT and "upper level" software resident in the TE.

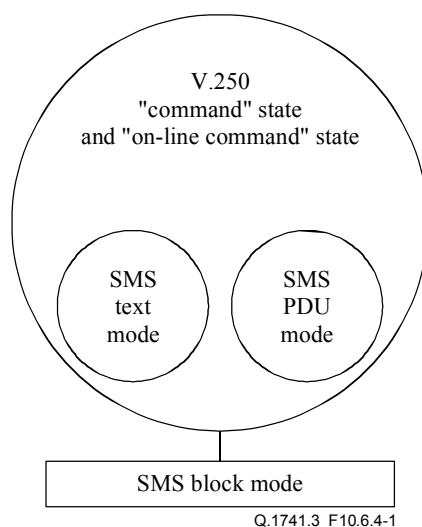
In all three modes, the terminal is considered to be in control for SMS/CBS transactions.

This Specification considers the mobile termination to be a single entity. Other 3G/GSM Technical Specifications describe the split of functionality between the mobile equipment and (U)SIM.

The three "modes" referred to above are represented in Figure 10.6.4-1.

The "Block mode" is a self-contained mode in its own right, and when entered, control will remain within that mode until the procedures to exit the mode are executed, after which control is returned to the V.250 [55] "command" state or "on-line command" state.

The "Text" and "PDU" modes are not in themselves V.250 [55] states but are simply sets of commands that will operate in either the V.250 [55] "command" state or "on-line command" state. The "Text" and "PDU" modes are transitory states and after each operation, control is automatically returned to the V.250 [55] "command" state or "on-line command" state. Whilst in the V.250 [55] command state, the MS is available to handle incoming and outgoing calls such as Data or Facsimile.



Q.1741.3\_F10.6.4-1

Figure 10.6.4-1/Q.1741.3 – Block, Text and PDU modes



In the "Block mode" and "PDU" mode a mobile is not permitted to modify any component of an SMS/CBS message received from the air interface or an SMS message received from a TE, before passing it on, except where TS 23.040 or TS 23.041 defines a "component modification facility" and where this "component modification facility" is supported by the mobile. In the Text Mode the mobile may be unable to display characters coded in particular coding schemes. In this case, the mobile shall behave as described in TS 23.038 and assume the coding scheme to be the GSM 7-bit default alphabet.

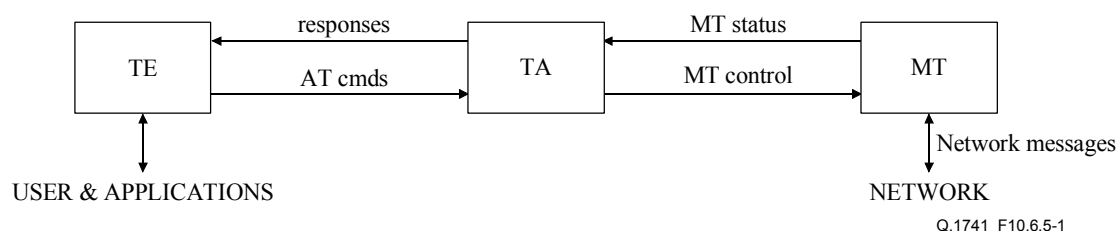
	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-27.005V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A27005-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A27005-500.pdf</a>
CWTS	CWTS-TSD-CN 27.005 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 127 005	5.0.0	Published	05-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16641">http://pda.etsi.org/pda/home.asp?wki_id=16641</a>
T1	T1.3GPP.27.005 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-27.005 (R5-5.0.0)	5.0.0	Approved	21-03-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-27.005(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-27.005(R5-5.0.0).zip</a>

### 10.6.5 TS 27.007 AT command set for 3G User Equipment (UE)

The document specifies a profile of AT commands and recommends that this profile be used for controlling Mobile Termination (MT) functions and GSM/UMTS network services from a Terminal Equipment (TE) through Terminal Adaptor (TA). The command prefix +C is reserved for Digital Cellular in ITU-T Rec. V.250 [55]. This document has also the syntax details used to construct these extended GSM/UMTS commands. Commands from ITU-T Rec. V.250 [55] and existing digital cellular standards (TIA IS-99 [63] and TIA IS-135 [64]) are used whenever applicable. Some of the new commands are defined in such a way that they can be easily applied to MT of networks other than GSM/UMTS. ITU-T Recs T.31 [47] and T.32 [48] fax AT commands may be used for GSM/UMTS fax transmission from TE. GSM/UMTS Short Message Service AT commands are defined in 3G TS 27.005. GPRS AT commands are defined in clause 10 of this Specification. This document assumes an abstract architecture comprising a TE (e.g. a computer) and a MT interfaced by a TA (see Figure 10.6.5-1). The span of control of the defined commands should allow handling any physical implementation that this abstract architecture may lead to:

- TA, MT and TE as three separate entities;
- TA integrated under the MT cover, and the TE implemented as a separate entity;
- TA integrated under the TE cover, and the MT implemented as a separate entity;
- TA and MT integrated under the TE cover as a single entity.

The commands described in this document may be observed on the link between the TE and the TA. However, most of the commands retrieve information about the MT, not about the TA.



**Figure 10.6.5-1/Q.1741.3 – Setup**

Interface between TE and TA is intended to operate over existing serial (ITU-T Rec. V.24 [53]) cables, infrared link, and all link types with similar behaviour. For correct operation, many of the defined commands require eight-bit data and therefore it is recommended that TE-TA link is set to eight bits/byte mode. (For infrared operation implementation, refer to informative references IrDA. For embedding AT commands and data during on-line data state, refer to TIA-617 [65]/ITU-T Rec. V.80 [58].) Interface between TA and MT is dependent on the interface in the MT.

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ARIB	ARIB STD-T63-27.007V5.2.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A27007-520.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A27007-520.pdf</a>
CWTS	CWTS-TSD-CN 27.007 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 127 007	5.2.0	Published	03-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18031">http://pda.etsi.org/pda/home.asp?wki_id=18031</a>
T1	T1.3GPP.27.007 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-27.007 (R5-5.2.0)	5.2.0	Approved	21-03-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-27.007(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-27.007(R5-5.2.0).zip</a>

### 10.6.6 TS 27.010 Terminal Equipment to User Equipment (TE-UE) multiplexer protocol

The document is to define a multiplexing protocol between a UE and a TE. The multiplexing protocol can be used to send any data, for instance voice, SMS, USSD, fax, etc.

The document describes the protocol, but not the commands or data transported with it.

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ARIB	ARIB STD-T63-27.010V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A27010-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A27010-500.pdf</a>
CWTS	CWTS-TSD-CN 27.010 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 127 010	5.0.0	Published	05-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16642">http://pda.etsi.org/pda/home.asp?wki_id=16642</a>
T1	T1.3GPP.27.010 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-27.010 (R5-5.0.0)	5.0.0	Approved	21-03-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-27.010(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-27.010(R5-5.0.0).zip</a>

### 10.6.7 TS 27.060 Packet domain; Mobile Station (MS) supporting packet-switched services

The document defines the requirements for TE-MT interworking over the R-reference point for the Packet Domain, within the GSM and 3G systems. It is up to the manufacturer how to implement the various functions but this document and existing TS 27.001, 27.002, and 27.003 shall be followed where applicable.

It is the intention that this document shall remain as the specification to develop a MS for support of packet-switched services and its text includes references to UMTS/GSM standards.

The UMTS/GSM PLMN supports a wide range of voice and non-voice services in the same network. In order to enable non-voice traffic in the PLMN, there is a need to connect various kinds of terminal equipments to the Mobile Station (MS). This document defines the requirements for TE-MT interworking over the R-reference point for the Packet Domain, including the protocols and signalling needed to support packet-switched services, as defined in TS 22.060 and TS 23.060.

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ARIB	ARIB STD-T63-27.060V5.3.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A27060-530.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A27060-530.pdf</a>
CWTS	CWTS-TSD-CN 27.060 (R5)	5.3.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 127 060	5.3.0	Published	16-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18032">http://pda.etsi.org/pda/home.asp?wki_id=18032</a>
T1	T1.3GPP.27.060 V530-2003	5.3.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-27.060 (R5-5.3.0)	5.3.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-27.060(R5-5.3.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-27.060(R5-5.3.0).zip</a>
TTC	TS-3GA-27.060 (Rel5)v5.3.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts27060rel5v530.pdf">http://www.ttc.or.jp/imt2000/ts/ts27060rel5v530.pdf</a>

### 10.6.8 TS 27.103 Wide area network synchronization

This Specification provides a definition of a Wide Area Synchronization protocol. The synchronization protocol is based upon current synchronization industry standards.

The document covers Wide Area Network Synchronization between current and future mobile communication end-user devices, desktop applications and server-based information servers. This is a living document and, as such, it will evaluate new technologies (e.g., XML) for inclusion as they become readily available.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-27.103V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A27103-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A27103-500.pdf</a>
CWTS	CWTS-TSD-CN 27.103 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 127 103	5.0.0	Published	05-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16646">http://pda.etsi.org/pda/home.asp?wki_id=16646</a>
T1	T1.3GPP.27.103 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-27.103 (R5-5.0.0)	5.0.0	Approved	21-03-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-27.103(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-27.103(R5-5.0.0).zip</a>

## 10.6.9 TR 27.901 Report on terminal interfaces – An overview

This document discusses external and internal interfaces of a terminal, with the exception of the radio and USIM interfaces. The focus of the study has been on external interfaces, to identify where existing industry standards can be used and whether there would be a need for specifications to be produced within 3GPP.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 27.901 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TR 127 901	5.0.0	Published	05-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16647">http://pda.etsi.org/pda/home.asp?wki_id=16647</a>
T1	T1.3GPP.27.901 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-27.901 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-27.901(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-27.901(R5-5.0.0).zip</a>

## 10.7 28-series, Signalling protocols (RSS-CN)

### 10.7.1 TS 28.062 In-band Tandem Free Operation (TFO) of speech codecs; Service description; Stage 3

The document contains the Service Description for the In-band signalling Protocol for the support of Tandem Free Operation of Speech Codecs in GSM and GSM-evolved 3G systems.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-28.062V5.3.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A28062-530.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A28062-530.pdf</a>
CWTS	CWTS-TSD-CN 28.062 (R5)	5.3.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 128 062	5.3.0	Published	09-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18034">http://pda.etsi.org/pda/home.asp?wki_id=18034</a>
T1	T1.3GPP.28.062 V530-2003	5.3.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-28.062 (R5-5.3.0)	5.3.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-28.062(R5-5.3.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-28.062(R5-5.3.0).zip</a>

## 10.8 29-series, Signalling protocols (NSS)

### 10.8.1 TS 29.002 Mobile Application Part (MAP) specification

It is necessary to transfer between entities of a Public Land Mobile Network (PLMN) information specific to the PLMN in order to deal with the specific behaviour of roaming Mobile Stations (MS)s. The Signalling System No. 7 specified by ITU-T is used to transfer this information.

This document describes the requirements for the signalling system and the procedures needed at the application level in order to fulfil these signalling needs.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.002 (R5)	5.4.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 002	5.4.0	Published	16-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18065">http://pda.etsi.org/pda/home.asp?wki_id=18065</a>
T1	T1.3GPP.29.002 V540-2003	5.4.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.002 (R5-5.4.0)	5.4.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.002(R5-5.4.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.002(R5-5.4.0).zip</a>
TTC	TS-3GA-29.002 (Rel4)v4.7.0	1	TTC published	28-05-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts29002rel4v470.pdf">http://www.ttc.or.jp/imt2000/ts/ts29002rel4v470.pdf</a>

### 10.8.2 TS 29.007 General requirements on interworking between the Public Land Mobile Network (PLMN) and the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN)

The document identifies the Mobile-services Switching Centre/Interworking Functions (MSC/IWFs) and requirements to support interworking between:

- a) PLMN and PSTN;
- b) PLMN and ISDN;

for circuit switched services in the PLMN. It is not possible to treat ISDN and PSTN as one type of network, even when both ISDN and PSTN subscribers are served by the same exchange because of the limitations of the PSTN subscriber's access, i.e., analogue connection without D-channel signalling.

Within this document, the requirements for voice and non-voice (data) calls are considered separately.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.007 (R5)	5.4.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 007	5.4.0	Published	16-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18068">http://pda.etsi.org/pda/home.asp?wki_id=18068</a>
T1	T1.3GPP.29.007 V540-2003	5.4.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.007 (R5-5.4.0)	5.4.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.007(R5-5.4.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.007(R5-5.4.0).zip</a>
TTC	TS-3GA-29.007 (Rel5)v5.4.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts29007rel5v540.pdf">http://www.ttc.or.jp/imt2000/ts/ts29007rel5v540.pdf</a>

### 10.8.3 TS 29.010 Information element mapping between Mobile Station – Base Station System (MS – BSS) and Base Station System – Mobile-services Switching Centre (BSS – MSC) signalling procedures and the Mobile Application Part (MAP)

The scope of the document is:

- i) To provide a detailed specification for the interworking between information elements contained in layer 3 messages sent on the MS-MSC interface (Call Control and Mobility Management parts of GSM 04.08) and parameters contained in MAP services sent over the MSC-VLR interface (GSM 09.02) where the MSC acts as a transparent relay of information.

- ii) To provide a detailed specification for the interworking between information elements contained in BSSMAP messages sent on the BSC-MSC interface (GSM 08.08) and parameters contained in MAP services sent over the MSC-VLR interface (GSM 09.02) where the MSC acts as a transparent relay of information.
- iii) To provide a detailed specification for the interworking between information elements contained in BSSMAP messages (TS 48.008) and RANAP (TS 25.413).
- iv) To provide a detailed specification for the interworking as in i) and ii) above when the MSC also processes the information.

Interworking for supplementary services is given in GSM 09.11. Interworking for the short message service is given in GSM 03.40 and GSM 04.11. Interworking between the call control signalling of GSM 04.08 and the PSTN/ISDN is given in GSM 09.03, GSM 09.07 and TS 49.008. Interworking between the 'A' and 'E' interfaces for inter-MSC handover signalling is given in GSM 09.07 and 09.08.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.010 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 010	5.2.0	Published	13-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18071">http://pda.etsi.org/pda/home.asp?wki_id=18071</a>
T1	T1.3GPP.29.010 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.010 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.010(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.010(R5-5.2.0).zip</a>
TTC	TS-3GA-29.010 (Rel5)v5.2.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts29010rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts29010rel5v520.pdf</a>

#### 10.8.4 TS 29.011 Signalling interworking for supplementary services

This Technical Specification is to provide a detailed specification for interworking between the A interface protocol and the Mobile Application Part for handling of supplementary services. The MAP interfaces of interest are the B-, C-, D- and E-interfaces.

The A-, C-, D- and E-interfaces are physical interfaces while the B-interface is an internal interface defined for modelling purposes. Information relating to the modelling interface is not normative in this Specification.

Supplementary service signalling may be passed by the MSC/VLR between the A- and E-interfaces after inter-MSC handover. This procedure is transparent as far as supplementary services are concerned; therefore, interworking concerning this process is not described in this specification.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.011 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 011	5.0.0	Published	05-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16659">http://pda.etsi.org/pda/home.asp?wki_id=16659</a>
T1	T1.3GPP.29.011V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.011 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.011(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.011(R5-5.0.0).zip</a>
TTC	TS-3GA-29.011 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts29011rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts29011rel5v500.pdf</a>



### 10.8.5 TS 29.013 Signalling interworking between ISDN supplementary services Application Service Element (ASE) and Mobile Application Part (MAP) protocols

This document is to provide a specification for interworking between the ISDN Application Service Element (ASE) protocol for supplementary services and the Mobile Application Part (MAP) protocol on MAP D-interface protocol for handling of supplementary services within the digital cellular telecommunications system (Phase 2+). This version of the specification includes the interworking for the Call Completion to Busy Subscriber (CCBS) service between the ISDN CCBS-ASE and MAP.

The MAP protocol for CCBS service is specified in GSM 09.02. The ISDN CCBS-ASE protocol is specified in ETSI ETS 300 356-18 [13]. The ISDN CCBS-ASE protocol is also commonly referred to as the SSAP protocol in GSM 03.93. This Specification clarifies the interworking within the HLR between these protocols for the Call Completion to Busy Subscriber (CCBS) service.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.013 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 013	5.0.0	Published	05-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16660">http://pda.etsi.org/pda/home.asp?wki_id=16660</a>
T1	T1.3GPP.29.013 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.013 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.013(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.013(R5-5.0.0).zip</a>
TTC	TS-3GA-29.013 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts29013rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts29013rel5v500.pdf</a>

### 10.8.6 TS 29.016 Serving GPRS Support Node (SGSN) – Visitor Location Register (VLR); Gs interface network service specification

This document specifies or references the subset of MTP and SCCP that is used for the reliable transport of BSSAP+ messages in the Gs interface. This document references the TS 29.202 that specifies alternative transport layers that can be applied instead of the MTP. This document also specifies the SCCP addressing capabilities to be provided in the Gs interface.

The SCCP is used to provide message routing between the SGSN and the VLR. The SCCP routing principles specified in this Technical Specification allow connecting one SGSN to several VLRs. No segmentation at SCCP level is needed on the Gs interface. Only SCCP class 0 is used on the Gs interface.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.016 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 016	5.0.0	Published	05-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16662">http://pda.etsi.org/pda/home.asp?wki_id=16662</a>
T1	T1.3GPP.29.016 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.016 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.016(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.016(R5-5.0.0).zip</a>
TTC	TS-3GA-29.016 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts29016rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts29016rel5v500.pdf</a>

### 10.8.7 TS 29.018 Serving GPRS Support Node (SGSN) – Visitor Location Register (VLR); Gs interface layer 3 specification

The document specifies or references procedures used on the Serving GPRS Support Node (SGSN) to Visitor Location Register (VLR) interface for interoperability between GSM circuit-switched services and GSM packet data services.

The document specifies the layer 3 messages and procedures on the Gs interface to allow coordination between databases and to relay certain messages related to GSM circuit-switched services over the GPRS subsystem.

The functional split between VLR and SGSN is defined in TS 23.060. The required procedures between VLR and SGSN are defined in detail in the document.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.018 (R5)	5.3.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 018	5.3.0	Published	03-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18072">http://pda.etsi.org/pda/home.asp?wki_id=18072</a>
T1	T1.3GPP.29.018 V530-2003	5.3.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.018 (R5-5.3.0)	5.3.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.018(R5-5.3.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.018(R5-5.3.0).zip</a>
TTC	TS-3GA-29.018 (Rel5)v5.3.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts29018rel5v530.pdf">http://www.ttc.or.jp/imt2000/ts/ts29018rel5v530.pdf</a>

### 10.8.8 TS 29.060 GPRS Tunnelling protocol (GTP) across the Gn and Gp interfaces

The document defines the second version of GTP used on:

- The Gn and Gp interfaces of the General Packet Radio Service (GPRS);
- The Iu, Gn and Gp interfaces of the UMTS system.

NOTE – The version number used in the message headers is 0 for the first version of GTP described in GSM 09.60, and 1 for the second version in TS 29.060.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.060 (R5)	5.4.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 060	5.4.0	Published	14-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18075">http://pda.etsi.org/pda/home.asp?wki_id=18075</a>
T1	T1.3GPP.29.060 V540-2003	5.4.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.060 (R5-5.4.0)	5.4.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.060(R5-5.4.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.060(R5-5.4.0).zip</a>
TTC	TS-3GA-29.060 (Rel5)v5.4.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts29060rel5v540.pdf">http://www.ttc.or.jp/imt2000/ts/ts29060rel5v540.pdf</a>



### 10.8.9 TS 29.061 Interworking between the Public Land Mobile Network (PLMN) supporting Packet Based services and Packet Data Networks (PDN)

The document defines the requirements for Packet Domain interworking between a:

- a) PLMN and PDN;
- b) PLMN and PLMN.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.061 (R5)	5.4.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 061	5.4.0	Published	16-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18078">http://pda.etsi.org/pda/home.asp?wki_id=18078</a>
T1	T1.3GPP.29.061 V540-2003	5.4.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.061 (R5-5.4.0)	5.4.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.061(R5-5.4.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.061(R5-5.4.0).zip</a>
TTC	TS-3GA-29.061 (Rel5)v5.4.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts29061rel5v540.pdf">http://www.ttc.or.jp/imt2000/ts/ts29061rel5v540.pdf</a>

### 10.8.10 TS 29.078 Customized Applications for Mobile network Enhanced Logic (CAMEL) Phase 3; CAMEL Application Part (CAP) specification

The document specifies the CAMEL Application Part (CAP) supporting the third phase of the network feature Customized Applications for Mobile network Enhanced Logic. CAP is based on a subset of the ETSI Core INAP CS-2 as specified by ETSI EN 301 140-1 [12]. Descriptions and definitions provided by ETSI EN 301 140-1 [12] are directly referenced by this standard in case no additions or clarifications are needed for the use in the CAP.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.078 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 078	5.2.0	Published	03-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18081">http://pda.etsi.org/pda/home.asp?wki_id=18081</a>
T1	T1.3GPP.29.078 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.078 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.078(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.078(R5-5.2.0).zip</a>
TTC	TS-3GA-29.078 (Rel5)v5.2.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts29078rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts29078rel5v520.pdf</a>

### 10.8.11 TS 29.108 Application of the Radio Access Network Application Part (RANAP) on the E-interface

The document describes the subset of Radio Access Network Application Part (RANAP) messages and procedures, defined in TS 25.413, which is used on the E-interface. A general description can be found in TS 23.002 and TS 23.009.

For the initiation and execution of relocation of SRNS (relocation for short, throughout the whole document) between MSCs, a subset of RANAP procedures are used. For the subsequent control of resources allocated to the User Equipment (UE), RANAP procedures are used. The Direct Transfer Elementary Procedure (EP) of RANAP, is used for the transfer of connection management and mobility management messages between the UE and the controlling 3G\_MSC.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.108 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 108	5.2.0	Published	09-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18083">http://pda.etsi.org/pda/home.asp?wki_id=18083</a>
T1	T1.3GPP.29.108 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.108 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.108(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.108(R5-5.2.0).zip</a>
TTC	TS-3GA-29.108 (Rel5)v5.2.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts29108rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts29108rel5v520.pdf</a>

#### 10.8.12 TS 29.119 GPRS Tunnelling Protocol (GTP) specification for Gateway Location Register (GLR)

The document describes the signalling requirements and procedures used at network elements related to the GLR for GTP within the 3G system at the application level.

The document gives the description of the systems needed only in the network utilizing GLR as the delta document against TS 29.060.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.119 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 119	5.0.0	Published	05-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16675">http://pda.etsi.org/pda/home.asp?wki_id=16675</a>
T1	T1.3GPP.29.119V50 0-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.119 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.119(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.119(R5-5.0.0).zip</a>
TTC	TS-3GA-29.119 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts29119rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts29119rel5v500.pdf</a>

#### 10.8.13 TS 29.120 Mobile Application Part (MAP) specification for Gateway Location Register (GLR); Stage 3

The document describes the signalling requirements and procedures used at network elements related to the GLR for MAP within the 3G system at the application level.

The document gives the description of the systems needed only in the network utilizing GLR as the delta document against TS 29.002.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.120 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 120	5.0.0	Published	05-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16676">http://pda.etsi.org/pda/home.asp?wki_id=16676</a>
T1	T1.3GPP.29.120 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.120 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.120(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.120(R5-5.0.0).zip</a>
TTC	TS-3GA-29.120 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts29120rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts29120rel5v500.pdf</a>

#### 10.8.14 TS 29.198-01 Open Service Access (OSA) Application Programming Interface (API); Part 1: Overview

The document is the first part of the Specification defining the Application Programming Interface (API) for Open Service Access (OSA), and provides an overview of the content and structure of the various parts of this Specification, and of the relation to other standards documents.

The OSA specifications define an architecture that enables service application developers to make use of network functionality through an open standardized interface, i.e., the OSA APIs. The concepts and the functional architecture for the OSA are contained in TS 23.127. The requirements for OSA are contained in TS 22.127.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.198-01 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 198-01	5.1.0	Published	10-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17473">http://pda.etsi.org/pda/home.asp?wki_id=17473</a>
T1	T1.3GPP.29.198-01V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.198-01 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-01(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-01(R5-5.1.0).zip</a>
TTC	TS-3GA-29.198-01 (Rel5)v5.1.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts29198-01rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts29198-01rel5v510.pdf</a>

#### 10.8.15 TS 29.198-02 Open Service Access (OSA) Application Programming Interface (API); Part 2: Common data

The document is Part 2 of the Stage 3 specification for an Application Programming Interface (API) for Open Service Access (OSA).

The OSA specifications define an architecture that enables application developers to make use of network functionality through an open standardized interface, i.e., the OSA APIs. The concepts and the functional architecture for the OSA are contained in TS 23.127. The requirements for OSA are contained in TS 22.127.

The document specifies the Common Data definitions of the OSA. The Common Data definitions contain data-types that are common across the rest of the OSA API.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.198-02 (R5)	5.1.1	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 198-02	5.1.1	Published	18-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17474">http://pda.etsi.org/pda/home.asp?wki_id=17474</a>
T1	T1.3GPP.29.198-02 V511-2003	5.1.1	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.198-02 (R5-5.1.1)	5.1.1	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-02(R5-5.1.1).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-02(R5-5.1.1).zip</a>
TTC	TS-3GA-29.198-02 (Rel5)v5.1.1	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts29198-02rel5v511.pdf">http://www.ttc.or.jp/imt2000/ts/ts29198-02rel5v511.pdf</a>

### 10.8.16 TS 29.198-03 Open Service Access (OSA) Application Programming Interface (API); Part 3: Framework

The document is Part 3 of the Stage 3 specification for an Application Programming Interface (API) for Open Service Access (OSA).

The OSA specifications define an architecture that enables application developers to make use of network functionality through an open standardized interface, i.e., the OSA APIs. The concepts and the functional architecture for the OSA are contained in TS 23.127. The requirements for OSA are contained in TS 22.127.

The document specifies the Framework aspects of the interface.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.198-03 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 198-03	5.1.0	Published	05-11-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17476">http://pda.etsi.org/pda/home.asp?wki_id=17476</a>
T1	T1.3GPP.29.198-03 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.198-03 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-03(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-03(R5-5.1.0).zip</a>
TTC	TS-3GA-29.198-03 (Rel5)v5.1.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts29198-03rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts29198-03rel5v510.pdf</a>

### 10.8.17 TS 29.198-04-1 Open Service Access (OSA) Application Programming Interface (API); Part 4: Call control; Sub-part 1: Call control common definitions

This document is Part 4, Sub-part 1 of the Stage 3 specification for an Application Programming Interface (API) for Open Service Access (OSA).

The OSA specifications define an architecture that enables application developers to make use of network functionality through an open standardized interface, i.e., the OSA APIs. The concepts and the functional architecture for the OSA are contained in 3G TS 23.127. The requirements for OSA are contained in 3G TS 22.127.

This document specifies the common definitions used by the Call Control Service Capability Features (SCF).

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.198-04-1 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 198-04-1	5.1.0	Published	05-11-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17478">http://pda.etsi.org/pda/home.asp?wki_id=17478</a>
T1	T1.3GPP.29.198-04-1V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.198-04-1(R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-04-1(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-04-1(R5-5.1.0).zip</a>
TTC	TS-3GA-29.198-04-1 (Rel5)v5.1.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts29198-04-1rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts29198-04-1rel5v510.pdf</a>

### 10.8.18 TS 29.198-04-2 Open Service Access (OSA) Application Programming Interface (API); Part 4: Call control; Sub-part 2: Generic Call Control SCF

The document is Part 4, Sub-part 2 of the Stage 3 specification for an Application Programming Interface (API) for Open Service Access (OSA).

The OSA specifications define an architecture that enables application developers to make use of network functionality through an open standardized interface, i.e., the OSA APIs. The concepts and the functional architecture for the OSA are contained in 3G TS 23.127. The requirements for OSA are contained in 3G TS 22.127.

This document specifies the Generic Call Control Service Capability Feature (SCF) aspects of the interface. All aspects of the Generic Call Control SCF are defined here, these being:

- sequence diagrams;
- class diagrams;
- interface specification plus detailed method descriptions;
- state transition diagrams;
- data definitions;
- IDL description of the interfaces;
- WSDL description of the interfaces;
- reference to the Java API description of the interfaces.

The process by which this task is accomplished is through the use of object modelling techniques described by the Unified Modelling Language (UML).

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.198-04-2 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 198-04-2	5.1.0	Published	05-11-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17479">http://pda.etsi.org/pda/home.asp?wki_id=17479</a>
T1	T1.3GPP.29.198-04-2V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.198-04-2(R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-04-2(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-04-2(R5-5.1.0).zip</a>
TTC	TS-3GA-29.198-04-2(Rel5)v5.1.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts29198-04-2rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts29198-04-2rel5v510.pdf</a>

### 10.8.19 TS 29.198-04-3 Open Service Access (OSA) Application Programming Interface (API); Part 4: Call control; Sub-part 3: MultiParty Call Control SCF

The document is Part 4, Sub-Part 3 of the Stage 3 specification for an Application Programming Interface (API) for Open Service Access (OSA).

The OSA specifications define an architecture that enables application developers to make use of network functionality through an open standardized interface, i.e., the OSA APIs. The concepts and the functional architecture for the OSA are contained in 3G TS 23.127. The requirements for OSA are contained in 3G TS 22.127.

This document specifies the MultiParty Call Control Service Capability Feature (SCF) aspects of the interface. All aspects of the MultiParty Call Control SCF are defined here, these being:

- sequence diagrams;
- class diagrams;
- interface specification plus detailed method descriptions;
- state transition diagrams;
- data definitions;
- IDL description of the interfaces;
- WSDL description of the interfaces.
- Reference to the Java API description of the interfaces

The process by which this task is accomplished is through the use of object modelling techniques described by the Unified Modelling Language (UML).

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CWTS	CWTS-TSD-CN 29.198-04-3 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 198-04-3	5.1.0	Published	05-11-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17480">http://pda.etsi.org/pda/home.asp?wki_id=17480</a>
T1	T1.3GPP.29.198-04-3V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.198-04-3(R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-04-3(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-04-3(R5-5.1.0).zip</a>
TTC	TS-3GA-29.198-04-3(Rel5)v5.1.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts29198-04-3rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts29198-04-3rel5v510.pdf</a>

### 10.8.20 TS 29.198-04-4 Open Service Access (OSA) Application Programming Interface (API); Part 4: Call control; Sub-part 4: Multi-Media Call Control SCF

The document is Part 4, Sub-Part 4 of the Stage 3 specification for an Application Programming Interface (API) for Open Service Access (OSA).

The OSA specifications define an architecture that enables application developers to make use of network functionality through an open standardized interface, i.e., the OSA APIs. The concepts and the functional architecture for the OSA are contained in 3G TS 23.127. The requirements for OSA are contained in 3G TS 22.127.

This document specifies the Multi-Media Call Control Service Capability Feature (SCF) aspects of the interface. All aspects of the Multi-Media Call Control SCF are defined here, these being:

- sequence diagrams;
- class diagrams;
- interface specification plus detailed method descriptions;
- state transition diagrams;
- data definitions;
- IDL description of the interfaces;
- WSDL description of the interfaces;
- reference to the Java API description of the interfaces.

The process by which this task is accomplished is through the use of object modelling techniques described by the Unified Modelling Language (UML).

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CWTS	CWTS-TSD-CN 29.198-04-4 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 198-04-4	5.1.0	Published	05-11-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17481">http://pda.etsi.org/pda/home.asp?wki_id=17481</a>
T1	T1.3GPP.29.198-04-4V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.198-04-4(R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-04-4(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-04-4(R5-5.1.0).zip</a>
TTC	TS-3GA-29.198-04-4(Rel5)v5.1.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts29198-04-4rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts29198-04-4rel5v510.pdf</a>

#### **10.8.21 TS 29.198-05 Open Service Access (OSA) Application Programming Interface (API); Part 5: Generic user interaction**

This document is Part 5 of the Stage 3 specification for an Application Programming Interface (API) for Open Service Access (OSA).

The OSA specifications define an architecture that enables application developers to make use of network functionality through an open standardized interface, i.e., the OSA APIs. The concepts and the functional architecture for the OSA are contained in TS 23.127. The requirements for OSA are contained in TS 22.127.

The document specifies the User Interaction (UI) Service Capability Feature (SCF) aspects of the interface.



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CWTS	CWTS-TSD-CN 29.198-05 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 198-05	5.1.0	Published	05-11-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17483">http://pda.etsi.org/pda/home.asp?wki_id=17483</a>
T1	T1.3GPP.29.198-05V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.198-05(R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-05(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-05(R5-5.1.0).zip</a>
TTC	TS-3GA-29.198-05(Rel5)v5.1.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts29198-05rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts29198-05rel5v510.pdf</a>

### 10.8.22 TS 29.198-06 Open Service Access (OSA) Application Programming Interface (API); Part 6: Mobility

The document is Part 6 of the Stage 3 specification for an Application Programming Interface (API) for Open Service Access (OSA).

The OSA specifications define an architecture that enables application developers to make use of network functionality through an open standardized interface, i.e., the OSA APIs. The concepts and the functional architecture for the OSA are contained in TS 23.127. The requirements for OSA are contained in TS 22.127.

The document specifies the Mobility Service Capability Feature (SCF) aspects of the interface.

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CWTS	CWTS-TSD-CN 29.198-06 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 198-06	5.1.0	Published	05-11-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17484">http://pda.etsi.org/pda/home.asp?wki_id=17484</a>
T1	T1.3GPP.29.198-06V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.198-06(R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-06(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-06(R5-5.1.0).zip</a>
TTC	TS-3GA-29.198-06(Rel5)v5.1.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts29198-06rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts29198-06rel5v510.pdf</a>

### 10.8.23 TS 29.198-07 Open Service Access (OSA) Application Programming Interface (API); Part 7: Terminal capabilities

The document is Part 7 of the Stage 3 specification for an Application Programming Interface (API) for Open Service Access (OSA).

The OSA specifications define an architecture that enables application developers to make use of network functionality through an open standardized interface, i.e., the OSA APIs. The concepts and the functional architecture for the OSA are contained in TS 23.127. The requirements for OSA are contained in TS 22.127.

The document specifies the Terminal Capabilities Service Capability Feature (SCF) aspects of the interface.



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CWTS	CWTS-TSD-CN 29.198-07 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 198-07	5.2.0	Published	05-11-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17485">http://pda.etsi.org/pda/home.asp?wki_id=17485</a>
T1	T1.3GPP.29.198-07 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.198-07 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-07(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-07(R5-5.2.0).zip</a>
TTC	TS-3GA-29.198-07 (Rel5)v5.2.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts29198-07rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts29198-07rel5v520.pdf</a>

#### **10.8.24 TS 29.198-08 Open Service Access (OSA) Application Programming Interface (API); Part 8: Data session control**

The document is Part 8 of the Stage 3 specification for an Application Programming Interface (API) for Open Service Access (OSA).

The OSA specifications define an architecture that enables application developers to make use of network functionality through an open standardized interface, i.e., the OSA APIs. The concepts and the functional architecture for the OSA are contained in TS 23.127. The requirements for OSA are contained in TS 22.127.

The document specifies the Data Session Control Service Capability Feature (SCF) aspects of the interface.

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CWTS	CWTS-TSD-CN 29.198-08 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 198-08	5.1.0	Published	05-11-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17487">http://pda.etsi.org/pda/home.asp?wki_id=17487</a>
T1	T1.3GPP.29.198-08 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.198-08 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-08(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-08(R5-5.1.0).zip</a>
TTC	TS-3GA-29.198-08 (Rel5)v5.1.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts29198-08rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts29198-08rel5v510.pdf</a>

#### **10.8.25 TS 29.198-11 Open Service Access (OSA) Application Programming Interface (API); Part 11: Account management**

The document is Part 11 of the Stage 3 specification for an Application Programming Interface (API) for Open Service Access (OSA).

The OSA specifications define an architecture that enables application developers to make use of network functionality through an open standardized interface, i.e., the OSA APIs. The concepts and the functional architecture for the OSA are contained in TS 23.127. The requirements for OSA are contained in TS 22.127.

The document specifies the Account Management Service Capability Feature (SCF) aspects of the interface.

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CWTS	CWTS-TSD-CN 29.198-11 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 198-11	5.1.0	Published	05-11-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17488">http://pda.etsi.org/pda/home.asp?wki_id=17488</a>
T1	T1.3GPP.29.198-11 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
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### 10.8.26 TS 29.198-12 Open Service Access (OSA) Application Programming Interface (API); Part 12: Charging

The document is Part 12 of the Stage 3 specification for an Application Programming Interface (API) for Open Service Access (OSA).

The OSA specifications define an architecture that enables application developers to make use of network functionality through an open standardized interface, i.e., the OSA APIs. The concepts and the functional architecture for the OSA are contained in TS 23.127. The requirements for OSA are contained in TS 22.127.

The document specifies the Charging Service Capability Feature (SCF) aspects of the interface.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.198-12 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 198-12	5.1.0	Published	05-11-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17489">http://pda.etsi.org/pda/home.asp?wki_id=17489</a>
T1	T1.3GPP.29.198-12 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.198-12 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-12(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-12(R5-5.1.0).zip</a>
TTC	TS-3GA-29.198-12 (Rel5)v5.1.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts29198-12rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts29198-12rel5v510.pdf</a>

### 10.8.27 TS 29.198-13 Open Service Access (OSA) Application Programming Interface (API); Part 13: Policy management

The document is Part 13 of the Stage 3 specification for an Application Programming Interface (API) for Open Service Access (OSA).

The OSA specifications define an architecture that enables application developers to make use of network functionality through an open standardized interface, i.e., the OSA APIs. The concepts and the functional architecture for the OSA are contained in 3G TS 23.127. The requirements for OSA are contained in 3G TS 22.127.

This document specifies the Policy Management Service Capability Feature (SCF) aspects of the interface. All aspects of the Policy Management SCF are defined here, these being:

- sequence diagrams;
- class diagrams;
- interface specification plus detailed method descriptions;

- state transition diagrams;
- data definitions;
- IDL description of the interfaces.

The process by which this task is accomplished is through the use of object modelling techniques described by the Unified Modelling Language (UML).

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CWTS	CWTS-TSD-CN 29.198-13 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 198-13	5.1.0	Published	05-11-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17490">http://pda.etsi.org/pda/home.asp?wki_id=17490</a>
T1	T1.3GPP.29.198-13 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.198-13 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-13(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-13(R5-5.1.0).zip</a>
TTC	TS-3GA-29.198-13 (Rel5)v5.1.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts29198-13rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts29198-13rel5v510.pdf</a>

#### **10.8.28 TS 29.198-14 Open Service Access (OSA) Application Programming Interface (API); Part 14: Presence and Availability Management (PAM)**

The document is Part 14 of the Stage 3 specification for an Application Programming Interface (API) for Open Service Access (OSA).

The OSA specifications define an architecture that enables application developers to make use of network functionality through an open standardized interface, i.e., the OSA APIs. The concepts and the functional architecture for the OSA are contained in 3G TS 23.127. The requirements for OSA are contained in 3G TS 22.127.

This document specifies the Presence and Availability Management Service Capability Feature (SCF) aspects of the interface. All aspects of the Presence and Availability Management SCF are defined here, these being:

- sequence diagrams;
- class diagrams;
- interface specification plus detailed method descriptions;
- state transition diagrams;
- data definitions;
- IDL description of the interfaces.

The process by which this task is accomplished is through the use of object modelling techniques described by the Unified Modelling Language (UML).

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CWTS	CWTS-TSD-CN 29.198-14 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 198-14	5.1.0	Published	05-11-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17491">http://pda.etsi.org/pda/home.asp?wki_id=17491</a>
T1	T1.3GPP.29.198-14 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.198-14 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-14(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.198-14(R5-5.1.0).zip</a>
TTC	TS-3GA-29.198-14 (Rel5)v5.1.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts29198-14rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts29198-14rel5v510.pdf</a>

### 10.8.29 TS 29.202 Signalling System No. 7 (SS7) signalling transport in core network; Stage 3

The document defines the possible protocol architectures for transport of SS7 signalling protocols in Core Network.

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CWTS	CWTS-TSD-CN 29.202 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 202	5.2.0	Published	13-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18085">http://pda.etsi.org/pda/home.asp?wki_id=18085</a>
T1	T1.3GPP.29.202V52 0-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.202 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.202(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.202(R5-5.2.0).zip</a>
TTC	TS-3GA-29.202 (Rel5)v5.2.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts29202rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts29202rel5v520.pdf</a>

### 10.8.30 TS 29.205 Application of Q.1900-series of ITU-T Recommendations to bearer-independent circuit-switched core network architecture; Stage 3

The document describes the protocols to be used when ITU-T Recs Q.1902.x [41] to [46] "Bearer Independent Call Control" is used as call control protocol in a 3G Bearer Independent CS core network 3G TS 23.205. ITU-T Recs Q.1902.x [41] to [46] operates between (G)MSC servers. The BICC architecture as described in ITU-T Recs Q.1902.x [41] to [46] consists of a number of protocols. The following types of protocols are described: call control protocol, bearer control protocols and a resource control protocol for this architecture. The architecture complies with the requirements imposed by 3G TS 23.205 and 3G TS 23.153.

NOTE – ITU-T Recs Q.1902.x [41] to [46] can be used in other network architectures than the one defined in TS 23.205.

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CWTS	CWTS-TSD-CN 29.205 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 205	5.0.0	Published	04-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16695">http://pda.etsi.org/pda/home.asp?wki_id=16695</a>
T1	T1.3GPP.29.205 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.205 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.205(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.205 (R5-5.0.0).zip</a>
TTC	TS-3GA-29.205 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts29205rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts29205rel5v500.pdf</a>

### 10.8.31 TS 29.207 Policy control over Go interface

The document provides the Stage 3 specification of the Go interface. The functional requirements and the Stage 2 specifications of the Go interface are contained in 3G TS 23.002 and 3G TS 23.207. The Go interface is the interface between the GGSN and the Policy Decision Function (PDF).

This document defines:

- the protocol to be used between PDF and GGSN over the Go interface;
- the signalling interactions to be performed between PDF and GGSN over the Go interface;
- the information to be exchanged between PDF and GGSN over the Go interface.

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CWTS	CWTS-TSD-CN 29.207 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 207	5.2.0	Published	17-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18086">http://pda.etsi.org/pda/home.asp?wki_id=18086</a>
T1	T1.3GPP.29.207 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.207 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.207(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.207 (R5-5.2.0).zip</a>
TTC	TS-3GA-29.207 (Rel5)v5.2.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts29207rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts29207rel5v520.pdf</a>

### 10.8.32 TS 29.208 End-to-end Quality of Service (QoS) signalling flows

The specification shows QoS signalling flows for resource reservation to provide end-to-end QoS. The flows are used as bases of developing QoS-related protocol descriptions for new and existing specifications.

The relationship between SIP/SDP session level and the bearer level (RSVP and GPRS) in flows is described in 3G TS 24.228. This Specification adds detailed flows of Service Based Local Policy (SBLP) procedures over the Go interface and their relationship with the bearer level signalling flows over the Gn interface.

This Specification also describes the mapping of QoS parameters among SDP, UMTS QoS parameters, and QoS authorization parameters.

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CWTS	CWTS-TSD-CN 29.208 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 208	5.2.0	Published	14-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18087">http://pda.etsi.org/pda/home.asp?wki_id=18087</a>
T1	T1.3GPP.29.208V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.208(R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.208(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.208(R5-5.2.0).zip</a>
TTC	TS-3GA-29.208(Rel5)v5.2.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts29208rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts29208rel5v520.pdf</a>

### 10.8.33 TS 29.228 IP Multimedia (IM) Subsystem Cx and Dx interfaces; Signalling flows and message contents

This Technical Specification (TS) specifies:

- 1) The interactions between the HSS (Home Subscriber Server) and the CSCF (Call Session Control Functions), referred to as the Cx interface.
- 2) The interactions between the CSCF and the SLF (Server Locator Function), referred to as the Dx interface.

The IP Multimedia (IM) Subsystem Stage 2 is specified in 3G TS 23.228 and the signalling flows for the IP multimedia call control based on SIP and SDP are specified in 3G TS 24.228.

This document addresses the signalling flows for Cx and Dx interfaces.

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CWTS	CWTS-TSD-CN 29.228 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 228	5.2.0	Published	13-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18088">http://pda.etsi.org/pda/home.asp?wki_id=18088</a>
T1	T1.3GPP.29.228 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.228 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.228(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.228(R5-5.2.0).zip</a>
\$ TTC	TS-3GA-29.228 (Rel5)v5.2.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts29228rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts29228rel5v520.pdf</a>

### 10.8.34 TS 29.229 Cx and Dx interfaces based on the Diameter protocol; Protocol details

The document defines a transport protocol for use in the IP multimedia (IM) Core Network (CN) subsystem based on Diameter.

This document is applicable to:

- The Cx interface between the I-CSCF/S-CSCF and the HSS.
- The Dx interface between the I-CSCF/S-CSCF and the SLF.

Whenever it is possible, this document specifies the requirements for this protocol by reference to specifications produced by the IETF within the scope of Diameter. Where this is not possible, extensions to Diameter are defined within this document.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.229 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 229	5.2.0	Published	13-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18089">http://pda.etsi.org/pda/home.asp?wki_id=18089</a>
T1	T1.3GPP.29.229 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.229 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.229(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.229 (R5-5.2.0).zip</a>
TTC	TS-3GA-29.229 (Rel5)v5.2.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts29229rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts29229rel5v520.pdf</a>

### 10.8.35 TS 29.232 Media Gateway Controller (MGC) – Media Gateway (MGW) interface; Stage 3

The document describes the protocol to be used on the Media Gateway Controller (MGC) – Media Gateway (MGW) interface. The Media Gateway Controllers covered in this Specification are the MSC server and the GMSC server. The basis for this protocol is the H.248 [22]/MEGACO protocol as specified in ITU-T and IETF. The BICC architecture as described in TS 23.205 and 29.205 defines the usage of this protocol.

This specification describes the changes to H.248 [22]/MEGACO which are needed to handle 3G specific traffic cases. This is done by using the H.248 [22]/MEGACO standard extension mechanism.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.232 (R5)	5.4.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 232	5.4.0	Published	13-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18091">http://pda.etsi.org/pda/home.asp?wki_id=18091</a>
T1	T1.3GPP.29.232 V540-2003	5.4.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.232 (R5-5.4.0)	5.4.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.232(R5-5.4.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.232 (R5-5.4.0).zip</a>
TTC	TS-3GA-29.232 (Rel5)v5.4.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts29232rel5v540.pdf">http://www.ttc.or.jp/imt2000/ts/ts29232rel5v540.pdf</a>

### 10.8.36 TS 29.278 Customized Applications for Mobile network Enhanced Logic (CAMEL) Phase 4; CAMEL Application Part (CAP) specification for IP Multimedia Subsystems (IMS)

The document specifies the CAMEL Application Part (CAP) supporting the fourth phase of the network feature Customized Applications for Mobile network Enhanced Logic for IP Multimedia CN subsystems. CAP is based on a subset of the ETSI Core INAP CS-2 as specified by ETSI EN 301 140-1 [12]. Descriptions and definitions provided by ETSI EN 301 140-1 [12] are directly referenced by this Standard in case no additions or clarifications are needed for the use in the CAP.



	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.278 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 278	5.1.0	Published	17-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18092">http://pda.etsi.org/pda/home.asp?wki_id=18092</a>
T1	T1.3GPP.29.278 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.278 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.278(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.278(R5-5.1.0).zip</a>
TTC	TS-3GA-29.278 (Rel5)v5.1.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts29278rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts29278rel5v510.pdf</a>

### 10.8.37 TS 29.328 IP Multimedia (IM) Subsystem Sh interface; signalling flows and message contents

This Technical Specification (TS) specifies the interactions between the HSS (Home Subscriber Server) and the SIP AS (Application Server) and between the HSS and the OSA SCS (Service Capability Server). This interface is referred to as the Sh reference point.

The IP Multimedia (IM) Core Network Subsystem Stage 2 is specified in 3G TS 23.228 and the signalling flows for the IP multimedia call control based on SIP and SDP are specified in 3G TS 24.228.

The IP Multimedia (IM) Session Handling with the IP Multimedia (IM) call model is specified in 3G TS 23.218.

This document addresses the signalling flows and message contents for the protocol at the Sh interface.

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CWTS	CWTS-TSD-CN 29.328 (R5)	5.2.1	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 328	5.2.1	Published	14-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18093">http://pda.etsi.org/pda/home.asp?wki_id=18093</a>
T1	T1.3GPP.29.328 V521-2003	5.2.1	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.328 (R5-5.2.1)	5.2.1	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.328(R5-5.2.1).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.328(R5-5.2.1).zip</a>
TTC	TS-3GA-29.328 (Rel5)v5.2.1	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts29328rel5v521.pdf">http://www.ttc.or.jp/imt2000/ts/ts29328rel5v521.pdf</a>

### 10.8.38 TS 29.329 Sh interface based on the Diameter protocol

The document defines a transport protocol for use in the IP multimedia (IM) Core Network (CN) subsystem based on Diameter.

This document is applicable to:

- the Sh interface between an AS and the HSS;
- the Sh interface between an SCS and the HSS.

Whenever it is possible, this document specifies the requirements for this protocol by reference to specifications produced by the IETF within the scope of Diameter. Where this is not possible, extensions to Diameter are defined within this document.



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CWTS	CWTS-TSD-CN 29.329 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 329	5.2.0	Published	14-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18094">http://pda.etsi.org/pda/home.asp?wki_id=18094</a>
T1	T1.3GPP.29.329 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.329 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.329(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.329(R5-5.2.0).zip</a>
TTC	TS-3GA-29.329 (Rel5)v5.2.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts29329rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts29329rel5v520.pdf</a>

### 10.8.39 TS 29.414 Core network Nb data transport and transport signalling

The document specifies the bearer data transport and bearer control protocols used between MGWs within the CS core network across the Nb Interface. This document assumes the implementation of the split of the call control and the bearer transport and control, as specified in TS 23.205, see Figure 10.8.39-1. The User Plane protocol that uses this bearer data transport (Nb UP) is described in TS 29.415. Note that the document does not preclude an implementation of a combined MSC Server and MGW.

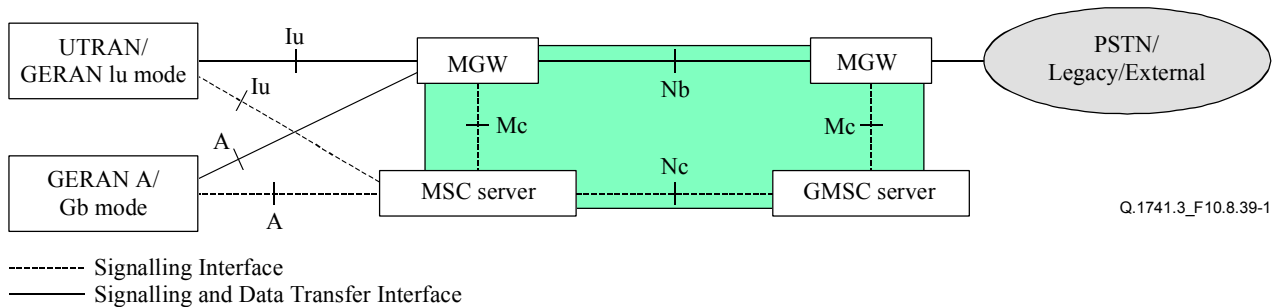


Figure 10.8.39-1/Q.1741.3 – CS core network logical architecture

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CWTS	CWTS-TSD-CN 29.414 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 414	5.0.0	Published	03-04-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=15943">http://pda.etsi.org/pda/home.asp?wki_id=15943</a>
T1	T1.3GPP.29.414 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.414 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.414(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.414(R5-5.0.0).zip</a>
TTC	TS-3GA-29.414 (Rel5)v5.0.0	1	TTC published	28-05-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts29414rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts29414rel5v500.pdf</a>

#### 10.8.40 TS 29.415 Core network Nb user plane protocols

The document specifies the user plane protocol of the bearer used between two MGWs within the CS core network, called the Nb UP protocol. This document assumes the implementation of the split between call control and the bearer transport and control, as specified in TS 23.205. Note that the document does not preclude an implementation of a combined MSC Server and MGW.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.415 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 129 415	5.0.0	Published	03-04-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=15944">http://pda.etsi.org/pda/home.asp?wki_id=15944</a>
T1	T1.3GPP.29.415 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.415 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.415(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.415(R5-5.0.0).zip</a>
TTC	TS-3GA-29.415 (Rel5)v5.0.0	1	TTC published	28-05-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts29415rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts29415rel5v500.pdf</a>

#### 10.8.41 TR 29.998-01 Open Service Access (OSA) Application Programming Interface (API) Mapping for Open Service Access; Part 1: General issues on API mapping

The document is suggesting a mapping of the Application Programming Interface (API) for Open Service Access (OSA) onto CAMEL Application Part (CAP) operations and Mobile Application Part (MAP) operations, and provides an overview of the content and structure of the various parts of this document. The mapping of the OSA API to the CAP and relevant MAP operations is considered informative and not normative.

The API specification is contained in the 3G TS 29.198 series of specifications. An overview of these is available in the introduction of this document as well as in 3G TS 29.198-1. The concepts and the functional architecture for the Open Service Access (OSA) are described by 3G TS 23.127. The requirements for OSA are defined in 3G TS 22.127.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.998-01 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TR 129 998-01	5.0.0	Published	27-06-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16704">http://pda.etsi.org/pda/home.asp?wki_id=16704</a>
T1	T1.3GPP.29.998-01 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.998-01 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.998-01(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.998-01(R5-5.0.0).zip</a>
TTC	TR-3GA-29.998-01 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/tr/tr29998-01rel5v500.pdf">http://www.ttc.or.jp/imt2000/tr/tr29998-01rel5v500.pdf</a>

#### 10.8.42 TR 29.998-04-1 Open Service Access (OSA) Application Programming Interface (API) Mapping for Open Service Access; Part 4: Call Control Service Mapping; Sub-part 1: API to CAP Mapping

This document investigates how the OSA Call Control Interface Class methods defined in 3G TS 29.198-04 can be mapped onto CAMEL Application Part (CAP) operations and Mobile Application Part (MAP) operations.

The mapping of the OSA API to the CAP and relevant MAP operations is considered informative, and not normative. An overview of the mapping TR is contained in the introduction of this document as well as in 3G TR 29.998-01.

The OSA specifications define an architecture that enables application developers to make use of network functionality through an open standardized interface, i.e., the OSA APIs. The API specification is contained in the 3G TS 29.198 series of specifications. An overview of these is available in the introduction of this document as well as in 3G TS 29.198-01. The concepts and the functional architecture for the Open Service Access (OSA) are described by 3G TS 23.127. The requirements for OSA are defined in 3G TS 22.127.

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CWTS	CWTS-TSD-CN 29.998-04-1 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TR 129 998-04-1	5.0.0	Published	27-06-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16705">http://pda.etsi.org/pda/home.asp?wki_id=16705</a>
T1	T1.3GPP.29.998-04-1 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.998-04-1 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.998-04-1(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.998-04-1(R5-5.0.0).zip</a>
TTC	TR-3GA-29.998-04-1 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/tr/tr29998-04-1rel5v500.pdf">http://www.ttc.or.jp/imt2000/tr/tr29998-04-1rel5v500.pdf</a>

#### 10.8.43 TR 29.998-04-4 Open Service Access (OSA) Application Programming Interface (API) Mapping for Open Service Access; Part 4: Call Control Service Mapping; Sub-part 4: Multi-media Call Control Internal Service Control (ISC)

This document investigates how the OSA Call Control Interface Class methods defined in 3G TS 29.198-04 can be mapped onto SIP methods.

The mapping of the OSA API to the SIP is considered informative, and not normative. An overview of the mapping TR is contained in the introduction of this document as well as in 3G TR 29.998-01.

The OSA specifications define an architecture that enables application developers to make use of network functionality through an open standardized interface, i.e., the OSA APIs. The API specification is contained in the 3G TS 29.198 series of specifications. An overview of these is available in the introduction of this document as well as in 3G TS 29.198-01. The concepts and the functional architecture for the Open Service Access (OSA) are described by 3G TS 22.127. The requirements for OSA are defined in 3G TS 22.127.

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CWTS	CWTS-TSD-CN 29.998-04-4 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TR 129 998-04-4	5.0.0	Published	27-06-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16706">http://pda.etsi.org/pda/home.asp?wki_id=16706</a>
T1	T1.3GPP.29.998-04-4V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.998-04-4(R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.998-04-4(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.998-04-4(R5-5.0.0).zip</a>
TTC	TR-3GA-29.998-04-4(Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/tr/tr29998-04-4rel5v500.pdf">http://www.ttc.or.jp/imt2000/tr/tr29998-04-4rel5v500.pdf</a>

**10.8.44 TR 29.998-05-1 Open Service Access (OSA) Application Programming Interface (API) Mapping for Open Service Access; Part 5: user interaction service mapping; Sub-part 1: API to CAP mapping**

This document investigates how the OSA User Interaction Interface Class methods defined in 3G TS 29.198-05 can be mapped onto CAMEL Application Part operations and Mobile Application Part operations.

The mapping of the OSA API to the CAP and relevant MAP operations is considered informative, and not normative. An overview of the mapping TR is contained in the introduction of this document as well as in 3G TR 29.998-01.

The OSA specifications define an architecture that enables application developers to make use of network functionality through an open standardized interface, i.e., the OSA APIs. The API specification is contained in the 3G TS 29.198 series of specifications. An overview of these is available in the introduction of this document as well as in 3G TS 29.198-01. The concepts and the functional architecture for the Open Service Access (OSA) are described by 3G TS 23.127. The requirements for OSA are defined in 3G TS 22.127.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.998-05-1 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TR 129 998-05-1	5.0.0	Published	27-06-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16707">http://pda.etsi.org/pda/home.asp?wki_id=16707</a>
T1	T1.3GPP.29.998-05-1V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.998-05-1(R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.998-05-1(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.998-05-1(R5-5.0.0).zip</a>
TTC	TR-3GA-29.998-05-1(Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/tr/tr29998-05-1rel5v500.pdf">http://www.ttc.or.jp/imt2000/tr/tr29998-05-1rel5v500.pdf</a>

**10.8.45 TR 29.998-05-4 Open Service Access (OSA) Application Programming Interface (API) Mapping for Open Service Access; Part 5: User interaction service mapping; Sub-part 4: API to SMS mapping**

This document investigates how the OSA User Interaction Interface Class methods defined in 3G TS 29.198-05 can be mapped onto CAMEL Application Part operations and Mobile Application Part operations, within the context of SMS. The mapping of the OSA API to the CAP and relevant MAP operations is considered informative, and not normative. An overview of the mapping TR is contained in the introduction of this document as well as in 3G TR 29.998-01.

The OSA specifications define an architecture that enables application developers to make use of network functionality through an open standardized interface, i.e., the OSA APIs. The API specification is contained in the 3G TS 29.198 series of specifications. An overview of these is available in the introduction of this document as well as in 3G TS 29.198-01. The concepts and the functional architecture for the Open Service Access (OSA) are described by 3G TS 23.127. The requirements for OSA are defined in 3G TS 22.127.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.998-05-4 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TR 129 998-05-4	5.0.0	Published	27-06-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16708">http://pda.etsi.org/pda/home.asp?wki_id=16708</a>
T1	T1.3GPP.29.998-05-4V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.998-05-4(R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.998-05-4(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.998-05-4(R5-5.0.0).zip</a>
TTC	TR-3GA-29.998-05-4(Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/tr/tr29998-05-4rel5v500.pdf">http://www.ttc.or.jp/imt2000/tr/tr29998-05-4rel5v500.pdf</a>

#### **10.8.46 TR 29.998-06 Open Service Access (OSA) Application Programming Interface (API) Mapping for Open Service Access; Part 6: User location – User status service mapping to MAP**

This document investigates how the OSA Mobility Interface Class methods defined in 3G TS 29.198-06 can be mapped onto CAMEL Application Part (CAP) operations and Mobile Application Part (MAP) operations.

The mapping of the OSA API to the CAP and relevant MAP operations is considered informative, and not normative. An overview of the mapping TR is contained in the introduction of this document as well as in 3G TR 29.998-01.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.998-06 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TR 129 998-06	5.0.0	Published	27-06-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16709">http://pda.etsi.org/pda/home.asp?wki_id=16709</a>
T1	T1.3GPP.29.998-06 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.998-06 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.998-06(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.998-06(R5-5.0.0).zip</a>
TTC	TR-3GA-29.998-06 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/tr/tr29998-06rel5v500.pdf">http://www.ttc.or.jp/imt2000/tr/tr29998-06rel5v500.pdf</a>

#### **10.8.47 TR 29.998-08 Open Service Access (OSA) Application Programming Interface (API) Mapping for Open Service Access; Part 8: Data session control service mapping to CAP**

This document investigates how the OSA Data Session Control Interface Class methods defined in 3G TS 29.198-08 can be mapped onto CAMEL Application Part operations and Mobile Application Part operations.

The mapping of the OSA API to the CAP and relevant MAP operations is considered informative, and not normative. An overview of the mapping TR is contained in the introduction of this document as well as in 3G TR 29.998-01.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 29.998-08 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TR 129 998-08	5.0.0	Published	27-06-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16710">http://pda.etsi.org/pda/home.asp?wki_id=16710</a>
T1	T1.3GPP.29.998-08V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-29.998-08(R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.998-08(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-29.998-08(R5-5.0.0).zip</a>
TTC	TR-3GA-29.998-08(Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/tr/tr29998-08rel5v500.pdf">http://www.ttc.or.jp/imt2000/tr/tr29998-08rel5v500.pdf</a>

## 10.9 31-series, UIM User Identity Module

### 10.9.1 TS 31.101 UICC-terminal interface; Physical and logical characteristics

The document specifies the interface between the UICC and the Terminal for 3G-telecom network operation.

The document specifies:

- 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 model which serves as a basis for the logical structure of the UICC;
- the communication commands and the procedures;
- the application independent files and protocols.

The administrative procedures and initial card management are not part of the document.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-31.101V5.1.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A31101-510.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A31101-510.pdf</a>
CWTS	CWTS-TSD-CN 31.101 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 131 101	5.1.0	Published	08-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18096">http://pda.etsi.org/pda/home.asp?wki_id=18096</a>
T1	T1.3GPP.31.101 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-31.101 (R5-5.1.0)	5.1.0	Approved	21-03-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-31.101(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-31.101(R5-5.1.0).zip</a>

### 10.9.2 TS 31.102 Characteristics of the USIM application

The document defines the USIM application for 3G-telecom network operation.

The document specifies:

- specific command parameters;
- file structures;
- contents of EFs (Elementary Files);

- security functions;
- application protocol to be used on the interface between UICC (USIM) and ME.

This is to ensure interoperability between a USIM and an ME independently of the respective manufacturer, card issuer or operator.

The document does not define any aspects related to the administrative management phase of the USIM. Any internal technical realization of either the USIM or the ME is only specified where these are reflected over the interface. The document does not specify any of the security algorithms that may be used.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-31.102V5.3.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A31102-530.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A31102-530.pdf</a>
CWTS	CWTS-TSD-CN 31.102 (R5)	5.3.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 131 102	5.3.0	Published	08-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18100">http://pda.etsi.org/pda/home.asp?wki_id=18100</a>
T1	T1.3GPP.31.102 V530-2003	5.3.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-31.102 (R5-5.3.0)	5.3.0	Approved	21-03-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-31.102(R5-5.3.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-31.102(R5-5.3.0).zip</a>

### 10.9.3 TS 31.103 Characteristics of the IP Multimedia Services Identity Module (ISIM) application

This document defines the ISIM application for access to IMS services.

This document specifies:

- specific command parameters;
- file structures;
- contents of EFs (Elementary Files);
- security functions;
- application protocol to be used on the interface between UICC (ISIM) and Terminal.

This is to ensure interoperability between an ISIM and Terminal independently of the respective manufacturer, card issuer or operator.

This document does not define any aspects related to the administrative management phase of the ISIM. Any internal technical realization of either the ISIM or the Terminal is only specified where these are reflected over the interface. This document does not specify any of the security algorithms that may be used.



	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-31.103V5.2.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A31103-520.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A31103-520.pdf</a>
CWTS	CWTS-TSD-CN 31.103 (R5)	5.20	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 31.103	5.2.0	Published	08-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18101">http://pda.etsi.org/pda/home.asp?wki_id=18101</a>
T1	T1.3GPP.31.103 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-31.103 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-31.103(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-31.103(R5-5.2.0).zip</a>

#### 10.9.4 TS 31.111 USIM Application Toolkit (USAT)

The document defines the interface between the Universal ICC (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.

Specifying the interface is to ensure interoperability between a UICC and an ME independently of the respective manufacturers and operators.

The document defines:

- the commands;
- the application protocol;
- the mandatory requirements on the UICC and ME for each procedure.

This document does not specify any aspects related to the administrative management phase. Any internal technical realization of either the UICC or the ME is only specified where these reflect over the interface. The document does not specify any of the security algorithms that may be used.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-31.111V5.3.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A31111-530.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A31111-530.pdf</a>
CWTS	CWTS-TSD-CN 31.111 (R5)	5.3.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 131 111	5.3.0	Published	08-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18104">http://pda.etsi.org/pda/home.asp?wki_id=18104</a>
T1	T1.3GPP.31.111 V530-2003	5.3.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-31.111(R5-5.3.0)	5.3.0	Approved	21-03-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-31.111(R5-5.3.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-31.111(R5-5.3.0).zip</a>

#### 10.9.5 TS 31.112 USAT interpreter architecture description; Stage 2

This document defines the Stage 2 description for the USAT Interpreter system. As the second stage of a three-level structure, it is derived from the Stage 1 service description.

This document defines the overall architecture for the USAT Interpreter system:

- role models;



- system architecture;
- function and information flow.

The Stage 3 documents shall conform to this document.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-31.112V5.2.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A31112-520.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A31112-520.pdf</a>
CWTS	CWTS-TSD-CN 31.112 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 131 112	5.2.0	Published	24-06-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16718">http://pda.etsi.org/pda/home.asp?wki_id=16718</a>
T1	T1.3GPP.31.112 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-31.112 (R5-5.2.0)	5.2.0	Approved	21-03-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-31.112(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-31.112(R5-5.2.0).zip</a>

### 10.9.6 TS 31.113 USAT interpreter byte codes

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

The design objectives of the byte code set are:

- compact representation for efficient transmission over the air interface;
- minimization of USAT Interpreter complexity to minimize SIM footprint and ease compliance testing;
- easily configured and extended;
- source language independent although XML-style mark-up languages are explicitly envisioned;
- transport bearer independent (e.g. SMS, GPRS, etc.);
- transport protocol independent;
- independent from design of external entities.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-31.113V5.4.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A31113-540.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A31113-540.pdf</a>
CWTS	CWTS-TSD-CN 31.113 (R5)	5.4.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 131 113	5.4.0	Published	15-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17511">http://pda.etsi.org/pda/home.asp?wki_id=17511</a>
T1	T1.3GPP.31.113 V540-2003	5.4.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-31.113 (R5-5.4.0)	5.4.0	Approved	21-03-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-31.113(R5-5.4.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-31.113(R5-5.4.0).zip</a>

### 10.9.7 TS 31.114 USAT interpreter protocol and administration

This document specifies the transmission protocol to be used to communicate with the USAT Interpreter and the administrative structures and procedures to administer the USAT Interpreter.

This document does not specify any USAT Interpreter byte code commands.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-31.114V5.2.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A31114-520.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A31114-520.pdf</a>
CWTS	CWTS-TSD-CN 31.114 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 131 114	5.2.0	Published	14-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17512">http://pda.etsi.org/pda/home.asp?wki_id=17512</a>
T1	T1.3GPP.31.114 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-31.114 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-31.114(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-31.114(R5-5.2.0).zip</a>

### 10.9.8 TR 31.900 SIM/USIM internal and external interworking aspects

This document describes:

- the different cases of interworking between a 2G or 3G ICC and a 2G or 3G ME;
- the different cases of interworking between any given ME/ICC combination and the rest of the network;
- the possibilities of interworking between a SIM and a USIM together on a single UICC;
- the possibilities of interworking between several USIMs on a single UICC.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 31.900 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TR 131 900	5.1.0	Published	24-06-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16724">http://pda.etsi.org/pda/home.asp?wki_id=16724</a>
T1	T1.3GPP.31.900 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-31.900 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-31.900(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-31.900(R5-5.1.0).zip</a>

### 10.10 32-series, operation and maintenance

#### 10.10.1 TS 32.101 3G Telecommunication management; Principles and high-level requirements

The document establishes and defines the management principles and high-level requirements for the management of UMTS.

In particular, this document identifies the requirements for:

- the upper level of a UMTS Management System;
- the reference model, showing the elements the UMTS Management System interacts with;
- the network operator processes needed to run, operate and maintain a UMTS network;

- the functional architecture of the UMTS Management System;
- the principles to be applied to UMTS Management Interfaces.

The requirements identified in this document are directed to the further development of UMTS Management specifications as well as the development of UMTS Management products. This document can be seen as guidance for the development of all other Technical Specifications addressing the management of UMTS.

This document does not provide physical architectures of the UMTS Management System. These aspects are defined and discussed in more detail in TS 32.102.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.101 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 101	5.2.0	Published	09-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18109">http://pda.etsi.org/pda/home.asp?wki_id=18109</a>
T1	T1.3GPP.32.101 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.101 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.101(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.101(R5-5.2.0).zip</a>
TTC	TS-3GA-32.101 (Rel5)v5.2.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts32101rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts32101rel5v520.pdf</a>

### 10.10.2 TS 32.102 3G Telecommunication management; Architecture

The document identifies and standardizes the most important and strategic contexts in the physical architecture for the management of UMTS. It serves as a framework to help define a telecom management physical architecture for a planned UMTS and to adopt standards and provide products that are easy to integrate.

The requirements identified in this document are applicable to all further development of UMTS Telecom Management specifications as well as the development of UMTS Management products. This document can be seen as guidance for the development of all other Technical Specifications addressing the management of UMTS, except TS 32.101.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.102 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 102	5.2.0	Published	09-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18110">http://pda.etsi.org/pda/home.asp?wki_id=18110</a>
T1	T1.3GPP.32.102V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.102 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.102(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.102(R5-5.2.0).zip</a>
TTC	TS-3GA-32.102 (Rel5)v5.2.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts32102rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts32102rel5v520.pdf</a>

### 10.10.3 TS 32.111-1 Telecommunication management; Fault management; Part 1: 3G fault management requirements

The document specifies the overall requirements for 3G Fault Management (FM) as it applies to the Network Elements (NE), Element Manager (EM) and Network Manager (NM).

This document defines the FM concept and functional requirements for the detection of faults and the generation, collection and presentation of alarms, operational state data and test results across 3G systems. These functions are described on a non-formal level since the formal standardization of these functions across the different vendors' equipment is not required. The functional areas specified in this document cover:

- fault surveillance and detection in the NEs;
- notification of alarms (including alarm cease) and operational state changes;
- retrieval of current alarms from the NEs;
- fault isolation and defence mechanisms in the NEs;
- alarm filtering;
- management of alarm severity levels;
- alarm and operational state data presentation and analysis at the Operations System (OS);
- retention of alarm and operational state data in the NEs and the OS; and
- the management of tests.

Any (re)configuration activity exerted from the EM as a consequence of faults will not be subject of this document, these are described in TS 32.600-series.

This document defines the functional requirements for the standard Itf-N, for the purpose of Fault Management of 3G networks, as seen from the Network Manager (NM). The Itf-N is fully standardized so as to connect systems of any vendor to the NM via this interface.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.111-1 (R5)	5.1.1	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 111-1	5.1.1	Published	17-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18221">http://pda.etsi.org/pda/home.asp?wki_id=18221</a>
T1	T1.3GPP.32.111-1V511-2003	5.1.1	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.111-1(R5-5.1.1)	5.1.1	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.111-1(R5-5.1.1).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.111-1(R5-5.1.1).zip</a>
TTC	TS-3GA-32.111-1(Rel5)v5.1.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32111-1rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts32111-1rel5v510.pdf</a>

### 10.10.4 TS 32.111-2 Telecommunication management; Fault management; Part 2: Alarm integration reference point: Information service

The document defines the Alarm Integration Reference Point (IRP) Information Service (IS), which addresses the alarm surveillance aspects of Fault Management (FM), applied to the N Interface.

The purpose of the Alarm IRP is to define an interface through which a "system" (typically a Network Element Manager or a Network Element) can communicate alarm information for its managed objects to one or several Manager Systems (typically Network Management Systems).

The Alarm IRP IS defines the semantics of alarms and the interactions visible across the reference point in a protocol neutral way. It defines the semantics of the operations and notifications visible in the IRP. It does not define the syntax or encoding of the operations, notifications and their parameters.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.111-2 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 111-2	5.2.0	Published	16-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18112">http://pda.etsi.org/pda/home.asp?wki_id=18112</a>
T1	T1.3GPP.32.111-2 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.111-2 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.111-2(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.111-2(R5-5.2.0).zip</a>
TTC	TS-3GA-32.111-2 (Rel5)v5.2.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts32111-2rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts32111-2rel5v520.pdf</a>

#### 10.10.5 TS 32.111-3 Telecommunication management; Fault management; Part 3: Alarm integration reference point: CORBA solution set version 1:1

The document specifies the CORBA Solution Set (SS) for the IRP whose semantics is specified in Alarm IRP: Information Service (IS) (3G TS 32.111-2).

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.111-3 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 111-3	5.2.0	Published	16-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18114">http://pda.etsi.org/pda/home.asp?wki_id=18114</a>
T1	T1.3GPP.32.111-3 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.111-3 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.111-3(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.111-3(R5-5.2.0).zip</a>
TTC	TS-3GA-32.111-3 (Rel5)v5.2.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts32111-3rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts32111-3rel5v520.pdf</a>

#### 10.10.6 TS 32.111-4 Telecommunication management; Fault management; Part 4: Alarm integration reference point: CMIP solution set

The document defines the alarm integration reference point for the CMIP solution set.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.111-4 (R5)	5.3.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 111-4	5.3.0	Published	16-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18116">http://pda.etsi.org/pda/home.asp?wki_id=18116</a>
T1	T1.3GPP.32.111-4 V530-2003	5.3.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.111-4 (R5-5.3.0)	5.3.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.111-4(R5-5.3.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.111-4(R5-5.3.0).zip</a>
TTC	TS-3GA-32.111-4 (Rel5)v5.3.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts32111-4rel5v530.pdf">http://www.ttc.or.jp/imt2000/ts/ts32111-4rel5v530.pdf</a>

### 10.10.7 TS 32.200 Telecommunication management; Charging management; Charging principles

The document describes the principles of charging and billing for the provision of service and services by a 3G system.

The document elaborates on the charging requirements described in the Charging Principles in TS 22.101. It allows the generation of accurate charging information to be used in the commercial and contractual relationships between the parties concerned. The document is not intended to duplicate existing standards or standards being developed by other groups on these topics, and references these where appropriate.

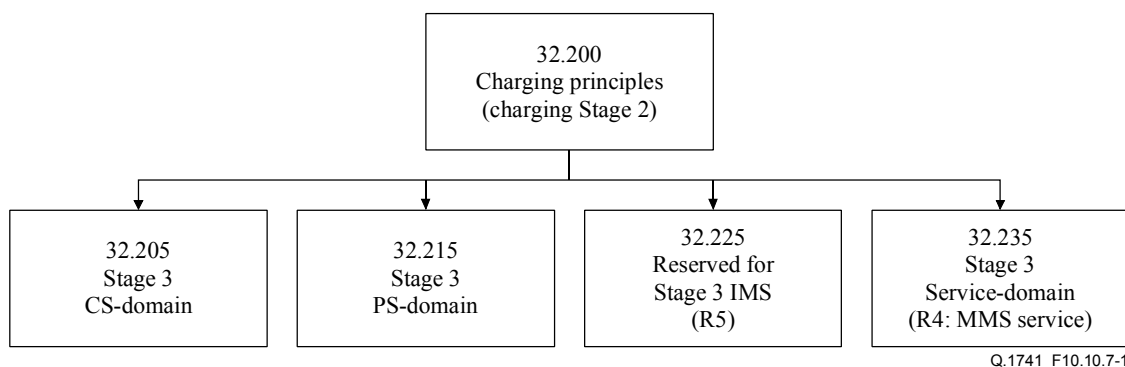
The charging data records (CDRs) generated by the network elements of the 3G network are required for a number of telecom management activities including, but not limited to, the following:

- the billing of home subscribers, either directly or via service providers, for network utilization charges;
- the settlement of accounts for traffic carried or services performed by fixed network operators and other operators;
- the settlement of accounts with other PLMNs for roaming traffic via the transferred account procedure;
- statistical analysis of service usage;
- as archival information in dealing with customer service and billing complaints.

In addition to the information collected from network elements, network management functions are required for the administration of charging data.

The document is part of a series of documents specifying charging functionality in UMTS networks. The UMTS charging architecture and principles are specified in the document, which provides an umbrella for other charging documents that specify the structure and content of the CDRs and the interface protocol that is used to transfer them to the collecting node. The CDRs used in the Circuit Switched (CS) domain are specified in TS 32.205. The CDRs content and transport within the PS domain are described in TS 32.215, while CDRs used for application services are defined in TS 32.235.

The relationship among these charging specifications is illustrated in Figure 10.10.7-1.



**Figure 10.10.7-1/Q.1741.3 – Charging documents structure**

For the purpose of the document, the charging data is considered to be generated and collected by charging functions in the network elements.

Charging data fields are collected and CDRs generated by the network elements for transfer to the billing system. For the packet-switched domain, the CDRs are first sent to the Charging Gateway Function (CGF) for storage and further processing. The CGF may be a distinct network element or may be integrated into the packet domain network elements themselves.

The objectives of this document are:

- to describe principles of charging in a 3G network;
- to provide a description of the charging architecture; and
- to provide the descriptions of events and triggers for the generation of Charging Data Records (CDRs).

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.200 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 200	5.2.0	Published	09-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18118">http://pda.etsi.org/pda/home.asp?wki_id=18118</a>
T1	T1.3GPP.32.200 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.200 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.200(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.200(R5-5.2.0).zip</a>
TTC	TS-3GA-32.200 (Rel5)v5.2.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts32200rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts32200rel5v520.pdf</a>

#### 10.10.8 TS 32.205 Telecommunication management; Charging management; Charging data description for the Circuit-Switched (CS) domain

The GSM and UMTS PLMNs support a wide range of circuit-based services. In order to enable operators the ability to provide a commercially viable service, there is a need to provide charging functions.

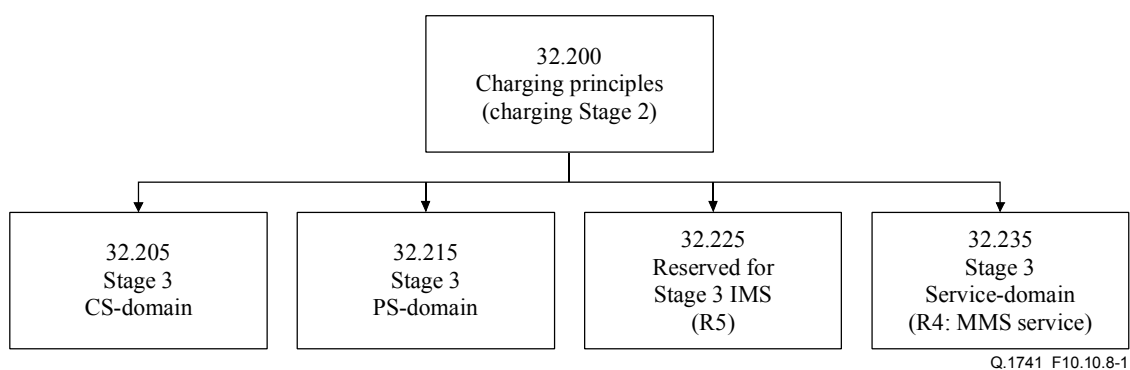
The document is part of a series of documents specifying charging functionality in UMTS networks. The UMTS charging architecture and principles are specified in TS 32.200 that provides an umbrella for other charging documents that specify the structure and content of the CDRs and the interface protocol that is used to transfer them to the collecting node.

The document specifies the structure and the contents of the CDRs that are collected by the relevant network elements for circuit-switched services in 2G (GSM) and 3G (UMTS) networks. It also defines the syntax for the transfer of these CDRs from the collecting nodes to billing post-processing systems using standard file transfer protocols.

The CDRs content and transport within the PS domain are described in TS 32.215, while CDRs used for application services are defined in TS 32.235.

The relationship among these charging specifications is illustrated in Figure 10.10.8-1.





**Figure 10.10.8-1/Q.1741.3 – Charging documents structure**

The interface definitions of GSM 12.05 are maintained for 2G, in order to assure backward compatibility to earlier GSM releases.

The charging architecture and principles that this document is based on are specified in TS 32.200.

All references, abbreviations, definitions, descriptions, principles and requirements that are common to charging in UMTS domains or subsystems are provided in the umbrella document TS 32.200. To avoid unnecessary duplications, they are not repeated in this document unless it is essential.

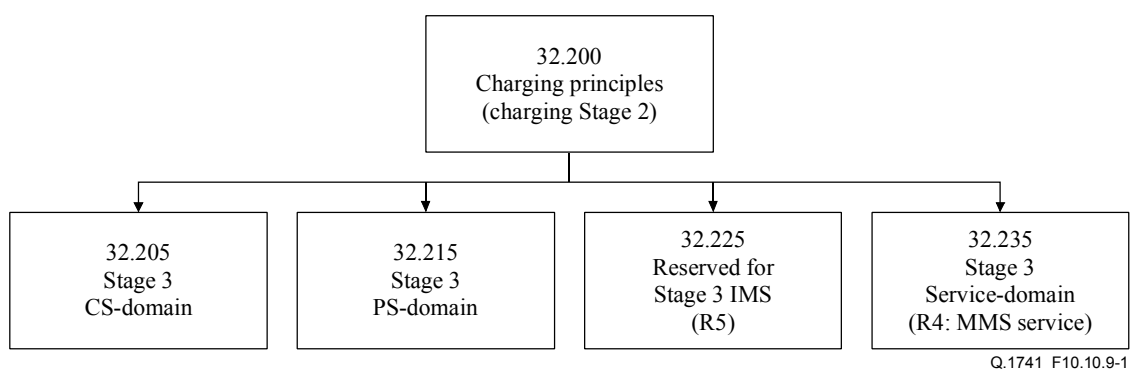
	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.205 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 205	5.2.0	Published	16-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18120">http://pda.etsi.org/pda/home.asp?wki_id=18120</a>
T1	T1.3GPP.32.205 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.205 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.205(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.205(R5-5.2.0).zip</a>
TTC	TS-3GA-32.205 (Rel5)v5.2.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts32205rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts32205rel5v520.pdf</a>

### 10.10.9 TS 32.215 Telecom management; Charging management; Charging data description for the Packet-Switched (PS) domain

The GSM and UMTS PLMN support a wide range of packet-based services by means of the General Packet Radio Service (GPRS), as defined in TS 22.060 and TS 23.060. In order to enable operators the ability to provide a commercially viable service, there is a need to provide charging functions. For GPRS, these functions include the generation of Charging Data Records (CDRs) by the Serving GPRS Support Node (SGSN) and the Gateway GPRS Support Node (GGSN) as well as the transport of these CDRs to a Billing System (BS) through a Charging Gateway Function (CGF).

The document is part of a series of documents specifying charging functionality in UMTS networks. The UMTS charging architecture and principles are specified in TS 32.200 that provides an umbrella for other charging documents that specify the structure and content of the CDRs and the interface protocol that is used to transfer them to the collecting node. The CDRs content and transport within the PS domain are described in the document. The CDRs used in the Circuit Switched (CS) domain are specified in TS 32.205 while CDRs used for application services are defined in TS 32.235. The document structure is depicted in Figure 10.10.9-1.





**Figure 10.10.9-1/Q.1741.3 – Charging documents structure**

All references, abbreviations, definitions, descriptions, principles and requirements that are common to charging in UMTS domains or subsystems are provided in the umbrella document TS 32.200. To avoid unnecessary duplications, they are not repeated in this document unless it is essential.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.215 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 215	5.2.0	Published	16-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18122">http://pda.etsi.org/pda/home.asp?wki_id=18122</a>
T1	T1.3GPP.32.215 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.215 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.215(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.215(R5-5.2.0).zip</a>
TTC	TS-3GA-32.215 (Rel5)v5.2.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/jmt2000/ts/ts32215rel5v520.pdf">http://www.ttc.or.jp/jmt2000/ts/ts32215rel5v520.pdf</a>

#### **10.10.10 TS 32.225 Telecommunication management; Charging management; Charging data description for the IP Multimedia Subsystem (IMS)**

This document covers both online and offline charging for the IMS. For clarity, the terms Offline Charging and Online charging as applied to the IMS are defined here in clause 3. These definitions are the same as listed in 3G TS 32.200.

The IMS charging architecture details, requirements, definitions and principles are listed in 3G TS 32.200 and therefore are not repeated here.

In this document the charging data triggers, message content and format are specified along with the transport of these messages using the Diameter protocol. Details about charging message flows and the definitions of the Diameter AVPs are also included in this document. This information is divided into two main clauses: Online Charging and Offline Charging.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.225 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 225	5.1.0	Published	09-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18123">http://pda.etsi.org/pda/home.asp?wki_id=18123</a>
T1	T1.3GPP.32.225 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.225 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.225(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.225(R5-5.1.0).zip</a>
TTC	TS-3GA-32.225 (Rel5)v5.1.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts32225rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts32225rel5v510.pdf</a>

### 10.10.11 TS 32.235 Telecommunication management; Charging management; Charging data description for application services

The document is part of a series of documents specifying charging functionality in UMTS network with application services. The UMTS core network charging principles are specified in TS 32.200, which provides an umbrella for other charging documents that specify the structure and content of the CDRs and the interface protocol that is used to transfer them to the collecting node. The document structure is defined in Figure 10.10.11-1. The CDR content and transport for application services are described in this document especially for MMS. As the basis and reference for this work is taken, the functional description of the MMS is specified for Stage 1 in TS 22.140 and Stage 2 in TS 23.140.

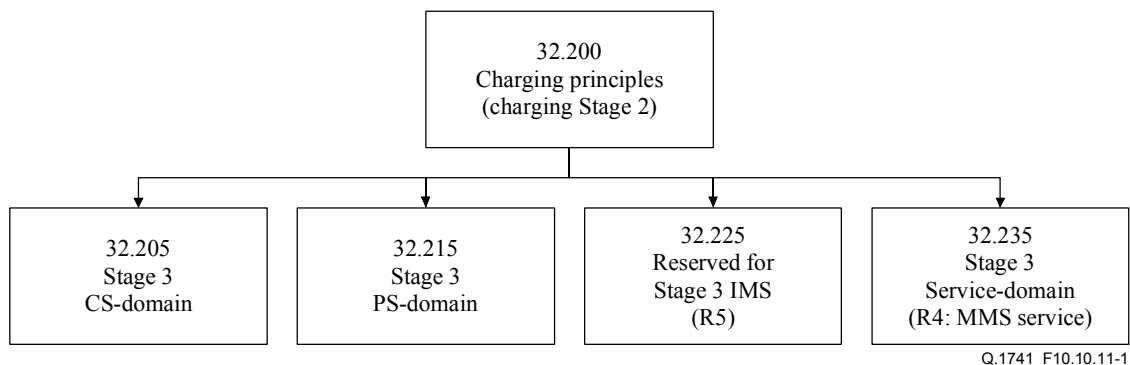


Figure 10.10.11-1/Q.1741.3 – Charging documents structure

All references, abbreviations, definitions, descriptions, principles and requirements that are common are defined in the 3G Vocabulary TR 21.905 [71] to [76] and specialized to charging in UMTS domains or subsystems are provided in the umbrella document TS 32.200.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.235 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 235	5.1.0	Published	14-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18125">http://pda.etsi.org/pda/home.asp?wki_id=18125</a>
T1	T1.3GPP.32.235 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.235 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.235(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.235(R5-5.1.0).zip</a>
TTC	TS-3GA-32.235 (Rel5)v5.1.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts32235rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts32235rel5v510.pdf</a>

### 10.10.12 TS 32.300 Telecommunication management; Configuration Management (CM); Name convention for managed objects

A more detailed background and introduction of the IRP concept is given in TS 32.101 and TS 32.102.

To perform network management tasks, cooperating applications require identical interpretation of names assigned to network resources under management. Such names are required to be unambiguous as well. The document recommends one name convention for network resources under management in the IRP context.

To facilitate integration of network management information obtained via multiple IRPs of different technologies such as CMIP and CORBA, identical network resource name semantics shall be conveyed in all IRPs. The document specifies one such name convention.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.300 (R5)	5.0.4	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 300	5.0.1	Published	17-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18223">http://pda.etsi.org/pda/home.asp?wki_id=18223</a>
T1	T1.3GPP.32.300V504-2003	5.0.4	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.300(R5-5.0.1)	5.0.1	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.300(R5-5.0.1).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.300(R5-5.0.1).zip</a>
TTC	TS-3GA-32.300(Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32300rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32300rel5v500.pdf</a>

### 10.10.13 TS 32.301 Telecommunication management; Configuration management; Notification Integration Reference Point (IRP); Requirements

The purpose of Notification IRP is to define an interface through which an IRPManager can subscribe to an IRPAgent for receiving notifications. This document is the "Requirements" of Notification IRP. It defines, for the purpose of subscribing to an IRPAgent for receiving notifications, the basic requirements that shall be fulfilled on Itf-N.

How IRPManager discovers the IRPAgent's address or reference (so that IRPManager can invoke an operation) is outside the scope of this document.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.301 (R5)	5.0.1	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 301	5.0.1	Published	17-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18225">http://pda.etsi.org/pda/home.asp?wki_id=18225</a>
T1	T1.3GPP.32.301 V501-2003	5.0.1	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.301 (R5-5.0.1)	5.0.1	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.301(R5-5.0.1).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.301(R5-5.0.1).zip</a>
TTC	TS-3GA-32.301 (Rel5)v5.0.0	1	TTC published	28-05-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32301rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32301rel5v500.pdf</a>

#### **10.10.14 TS 32.302 Telecommunication management; Configuration management; Notification Integration Reference Point; Information Service version 1**

The purpose of Notification IRP is to define an interface through which an IRPManager can subscribe to an IRPAgent for receiving notifications. This document is the "Information Service" of Notification IRP. It defines, for the purpose of subscribing to an IRPAgent for receiving notifications, the information observable and controlled by management system's client and it also specifies the semantics of the interactions used to carry this information. It also defines the information common to all notifications which is called the notificationHeader.

An IRPAgent supporting this IRP IS may emit one or multiple categories of notifications, such as alarms (as specified in Alarm IRP: Information Service 3G TS 32.111-2) and others. This IRP IS defines a mechanism that IRPManager can use to determine the categories of notifications supported by an IRPAgent. It also defines a mechanism (subscribe and unsubscribe operations) that IRPManager can use to specify the categories of notifications IRPAgent should emit to IRPManager during subscription. It also defines a mechanism (getSubscriptionIds operation) that IRPManager can use to check which categories of notifications it has subscribed to. IRPManager can set and change filter criteria applicable during the life-cycle of a subscription. IRPManager can also exercise flow-control on IRPAgent's emission of notifications (suspendSubscription and resumeSubscription operations).

Using different managerReference, an IRPManager can subscribe several times. It will result in multiple subscriptions. As far as IRPAgent is concerned, notifications are sent to multiple "places".

Using the same managerReference, an IRPManager can subscribe several times specifying different categories of notifications.

This IRP IS does not specify information that is carried in some but not all notifications. That kind of information is specified in other IRP ISs involved. For example, perceivedSeverity is a piece of information specific for notifications carrying alarm information. This information is not defined in this document but in Alarm IRP: Information Service 3G TS 32.111-2.

How IRPManager discovers the IRPAgent's address or reference (so that IRPManager can invoke an operation) is outside the scope of this document.

	<b>Document No.</b>	<b>Version</b>	<b>Status</b>	<b>Issued date</b>	<b>Location</b>
CWTS	CWTS-TSD-CN 32.302 (R5)	5.0.2	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 302	5.0.2	Published	17-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18227">http://pda.etsi.org/pda/home.asp?wki_id=18227</a>
T1	T1.3GPP.32.302 V502-2003	5.0.2	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.302 (R5-5.0.2)	5.0.2	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.302(R5-5.0.2).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.302(R5-5.0.2).zip</a>
TTC	TS-3GA-32.302 (Rel5)v5.0.1	1	TTC published	28-05-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32302rel5v501.pdf">http://www.ttc.or.jp/imt2000/ts/ts32302rel5v501.pdf</a>

#### **10.10.15 TS 32.303 Telecommunication management; Configuration management; Notification Integration Reference Point; CORBA solution set version 1:1**

The document specifies the Common Object Request Broker Architecture (CORBA) Solution Set (SS) for the IRP whose semantics is specified in Notification IRP: Information Service 3G TS 32.302.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.303 (R5)	5.1.2	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 303	5.1.2	Published	17-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18229">http://pda.etsi.org/pda/home.asp?wki_id=18229</a>
T1	T1.3GPP.32.303 V512-2003	5.1.2	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.303 (R5-5.1.2)	5.1.2	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.303(R5-5.1.2).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.303(R5-5.1.2).zip</a>
TTC	TS-3GA-32.303 (Rel5)v5.1.1	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32303rel5v511.pdf">http://www.ttc.or.jp/imt2000/ts/ts32303rel5v511.pdf</a>

#### 10.10.16 TS 32.304 Telecommunication management; Configuration management; Notification Integration Reference Point: CMIP solution set

The document specifies the Common Management Information Protocol (CMIP) Solution Set (SS) for the Notification Integration Reference Point (IRP): Information Service defined in 3G TS 32.302.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.304 (R5)	5.2.1	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 304	5.2.1	Published	17-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18231">http://pda.etsi.org/pda/home.asp?wki_id=18231</a>
T1	T1.3GPP.32.304 V521-2003	5.2.1	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.304 (R5-5.2.1)	5.2.1	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.304(R5-5.2.1).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.304(R5-5.2.1).zip</a>
TTC	TS-3GA-32.304 (Rel5)v5.2.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32304rel5v520.pdf">http://www.ttc.or.jp/imt2000/ts/ts32304rel5v520.pdf</a>

#### 10.10.17 TS 32.311 Telecommunication management; Generic IRP management; Requirements

The purpose of the document is to define a common service supported by all IRPs. This document is the "Requirements" part. It defines, for the purpose of supporting the common service, the requirements that shall be fulfilled by all IRPs supporting this service.

With this common service supported by all IRPs, an IRPManager shall be able to retrieve the profile of operations and notifications supported by a given IRP that are by an IRPAgent. An IRPManager shall also be able to retrieve the different versions supported by an IRP.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.311 (R5)	5.0.1	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 311	5.0.1	Published	17-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18233">http://pda.etsi.org/pda/home.asp?wki_id=18233</a>
T1	T1.3GPP.32.311V501-2003	5.0.1	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.311(R5-5.0.1)	5.0.1	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.311(R5-5.0.1).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.311(R5-5.0.1).zip</a>
TTC	TS-3GA-32.311(Rel5)v5.0.0	1	TTC published	28-05-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32311rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32311rel5v500.pdf</a>

#### 10.10.18 TS 32.312 Telecommunication management; Generic IRP management; Information service

The purpose of the document is to define a common service supported by all IRPs. This document is the "Information Service" part. It defines, for the purpose of supporting the common service, the information observable and controlled by management system's client and it also specifies the semantics of the interactions used to carry this information.

With this common service supported by all IRPs, an IRPManager can retrieve the profile of operations and notifications supported by a given IRP supported by an IRPAgent. An IRPManager can also retrieve the different versions supported by an IRP.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.312 (R5)	5.0.1	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 312	5.0.1	Published	17-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18235">http://pda.etsi.org/pda/home.asp?wki_id=18235</a>
T1	T1.3GPP.32.312 V501-2003	5.0.1	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.312 (R5-5.0.1)	5.0.1	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.312(R5-5.0.1).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.312(R5-5.0.1).zip</a>
TTC	TS-3GA-32.312 (Rel5)v5.0.0	1	TTC published	28-05-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32312rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32312rel5v500.pdf</a>

#### 10.10.19 TS 32.321 Telecommunication management; Test management Integration Reference Point (IRP); Requirements

This document describes, in addition to the requirements defined in 3G TS 32.101 and 3G TS 32.102, the requirements for the Test Management IRP.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.321 (R5)	5.0.1	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 321	5.0.1	Published	17-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18236">http://pda.etsi.org/pda/home.asp?wki_id=18236</a>
T1	T1.3GPP.32.321 V501-2003	5.0.1	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.321 (R5-5.0.1)	5.0.1	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.321(R5-5.0.1).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.321(R5-5.0.1).zip</a>
TTC	TS-3GA-32.321 (Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32321rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32321rel5v500.pdf</a>

#### 10.10.20 TS 32.322 Telecommunication management; Test management Integration Reference Point (IRP); Information service

This document defines the IS part of the Test Management IRP, which describes the semantics of the information and the interactions visible across Itf-N in a protocol independent way. The information is specified by means of information object classes and the interactions by means of operations and notifications. This document does not specify the syntax (encoding) of the information.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.322 (R5)	5.0.1	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 322	5.0.1	Published	17-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18237">http://pda.etsi.org/pda/home.asp?wki_id=18237</a>
T1	T1.3GPP.32.322 V501-2003	5.0.1	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.322 (R5-5.0.1)	5.0.1	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.322(R5-5.0.1).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.322(R5-5.0.1).zip</a>
TTC	TS-3GA-32.322 (Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32322rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32322rel5v500.pdf</a>

#### 10.10.21 TS 32.323 Telecommunication management; Test management Integration Reference Point (IRP); CORBA solution set

This document specifies the CORBA Solution Set (SS) for the IRP whose semantics is specified in Test Management IRP: Information Service (IS) (3G TS 32.322).

Clauses 1 to 3 provide background information. Clause 4 provides key architectural features supporting the SS. Clause 5 defines the mapping of operations, notification, parameters and attributes defined in IS to their SS equivalents. Clause 6 describes the notification interface containing the push method. Annex A contains the IDL specification.

This Solution Set specification is related to 3G TS 32.322.



	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.323 (R5)	5.0.1	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 323	5.0.1	Published	17-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18238">http://pda.etsi.org/pda/home.asp?wki_id=18238</a>
T1	T1.3GPP.32.323 V501-2003	5.0.1	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.323 (R5-5.0.1)	5.0.1	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.323(R5-5.0.1).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.323(R5-5.0.1).zip</a>
TTC	TS-3GA-32.323 (Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32323rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32323rel5v500.pdf</a>

### 10.10.22 TS 32.324 Telecommunication management; Test management Integration Reference Point (IRP); CMIP solution set

This document specifies the Common Management Information Protocol (CMIP) Solution Set (SS) for the Test Management IRP: Information Service defined in 3G TS 32.322. In detail:

- Clause 4 provides the basic architectural concept of the CMIP SS and the mapping between the IOCs, operations and notifications defined in 3G TS 32.322 to the corresponding CMIP SS equivalents.
- Clause 5 contains the GDMO definitions for the Test Management IRP over the CMIP interfaces.
- Clause 6 contains the ASN.1 definitions supporting the GDMO definitions provided in clause 5.

This Solution Set specification is related to 3G TS 32.322.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.324 (R5)	5.0.1	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 324	5.0.1	Published	17-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18239">http://pda.etsi.org/pda/home.asp?wki_id=18239</a>
T1	T1.3GPP.32.324 V501-2003	5.0.1	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.324 (R5-5.0.1)	5.0.1	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.324(R5-5.0.1).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.324(R5-5.0.1).zip</a>
TTC	TS-3GA-32.324 (Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32324rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32324rel5v500.pdf</a>

### 10.10.23 TS 32.401 Telecommunication management; Performance Management (PM); Concept and requirements

The document describes the requirements for the management of performance measurements and the collection of performance measurement result data across GSM and UMTS networks. It defines the administration of measurement schedules by the Network Element Manager (EM), the generation of measurement results in the Network Elements (NEs) and the transfer of these results to one or more Operations Systems, i.e., EM(s) and/or Network Manager(s) (NM(s)).

The basic Performance Management concept that this document is built upon is described in clause 4. The requirements how an EM administers the performance measurements and how the results can be collected are defined in detail in clause 5. Annex A specifies the file format for the



bulk transfer of performance measurement results to the NM, while Annex B discusses the file transfer procedure utilized on that interface. A set of measurements available for collection by NEs are described in TS 52.402 for GSM and in TS 32.403 for UMTS and combined UMTS/GSM systems, effort has been made to ensure consistency in the definition of measurements between different NEs and generations.

The following is beyond the scope of this document, and therefore this document does not describe:

- the formal definition of the interface that the EM uses to administer performance measurements in the NEs;
- the formal definition of the interface that the EM uses to collect measurement results from the NEs;
- how the data, once accumulated and collected, could or should be processed, stored, or presented to an end user;
- the information which may be obtained through the collection and processing of call or event related records which have been produced by the NEs primarily for the purpose of raising bills and other charges.

The management requirements have been derived from existing telecommunications operations experience. The management definitions were then derived from other standardization work so as to minimize the re-invention factor. References are given as appropriate.

The objectives of this standardization are:

- to provide the descriptions for a standard set of measurements;
- to produce a common description of the management technique for measurement administration and result accumulation; and
- to define a method for the bulk transmission of measurement results across a management interface.

The definition of the standard measurements is intended to result in comparability of measurement result data produced in a multi-vendor wireless network, for those measurement types that can be standardized across all vendors' implementations.

As far as possible, existing standardization in the area of Performance Management has been re-used and enhanced where particular requirements, peculiar to the mobile telephony environment, have been recognized.

The document considers all the above aspects of Performance Management for a GSM and UMTS network and its NEs defined in the core Technical Specifications. However, only those aspects, which are specific to a GSM/UMTS system and particular to wireless network operation are included in the document.

	<b>Document No.</b>	<b>Version</b>	<b>Status</b>	<b>Issued date</b>	<b>Location</b>
CWTS	CWTS-TSD-CN 32.401 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 401	5.1.0	Published	11-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17531">http://pda.etsi.org/pda/home.asp?wki_id=17531</a>
T1	T1.3GPP.32.401 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.401 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.401(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.401(R5-5.1.0).zip</a>
TTC	TS-3GA-32.401 (Rel5)v5.1.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32401rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts32401rel5v510.pdf</a>

#### **10.10.24 TS 32.403 Telecommunication management; Performance Management (PM); Performance measurements – UMTS and combined UMTS/GSM**

The document describes the measurements for UMTS and combined UMTS/GSM.

TS 32.401 describes Performance Management concepts and requirements.

The document is valid for all measurement types provided by an implementation of a UMTS network and combined UMTS/GSM network. These may be measurement types defined within this TS, measurements defined within other standards bodies, or vendor-specific measurement types.

Only measurement types that are specific to UMTS or combined UMTS/GSM networks are defined within this document, i.e., vendor-specific measurement types and measurements related to "external" technologies used in UMTS and combined UMTS/GSM networks, such as ATM or IP, are not covered. Instead, these could be applied as described by the other, "external" standards bodies (e.g., ITU-T or IETF) or according to manufacturer's documentation.

The definition of the standard measurements is intended to result in comparability of measurement data produced in a multi-vendor network, for those measurement types that can be standardized across all vendors' implementations.

	<b>Document No.</b>	<b>Version</b>	<b>Status</b>	<b>Issued date</b>	<b>Location</b>
CWTS	CWTS-TSD-CN 32.403 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 403	5.1.0	Published	11-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17532">http://pda.etsi.org/pda/home.asp?wki_id=17532</a>
T1	T1.3GPP.32.403 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.403 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.403(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.403(R5-5.1.0).zip</a>
TTC	TS-3GA-32.403 (Rel5)v5.1.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32403rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts32403rel5v510.pdf</a>

#### **10.10.25 TS 32.600 Telecommunication management; Configuration Management (CM); Concept and high-level requirements**

The document describes the Configuration Management (CM) aspects of managing a 3G network. This is described from the management perspective in TS 32.101 and TS 32.102.

This document defines a set of controls to be employed to effect set-up and changes to a 3G network in such a way that operational capability and Quality of Service (QoS), network integrity and system interworking are ensured. In this way, this document describes the interface definition and behaviour for the management of relevant 3G NEs in the context of the described management environment. The context is described for both the management system (OS) and Network Element (NE) functionality.

The Itf-N for CM is built up by a number of Integration Reference Points (IRPs) and a related Name Convention, which realize the functional capabilities over this interface. The basic structure of the IRPs is defined in TS 32.101 and TS 32.102. For CM, a number of IRPs (and a Name Convention TS 32.300) are defined, used by this as well as by other specifications for Telecom Management produced by 3GPP. These IRPs are defined in separate specifications.

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CWTS	CWTS-TSD-CN 32.600 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 600	5.0.0	Published	10-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17533">http://pda.etsi.org/pda/home.asp?wki_id=17533</a>
T1	T1.3GPP.32.600 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.600 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.600(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.600(R5-5.0.0).zip</a>
TTC	TS-3GA-32.600 (Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32600rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32600rel5v500.pdf</a>

### 10.10.26 TS 32.601 Telecommunication management; Configuration management; Basic CM IRP: Requirements

The document defines, in addition to the requirements defined in TS 32.101, 32.102 and 32.600, the requirements for the present IRP: Basic Configuration Management IRP.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.601 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 601	5.0.0	Published	11-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17534">http://pda.etsi.org/pda/home.asp?wki_id=17534</a>
T1	T1.3GPP.32.601 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.601 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.601(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.601(R5-5.0.0).zip</a>
TTC	TS-3GA-32.601 (Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32601rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32601rel5v500.pdf</a>

### 10.10.27 TS 32.602 Telecommunication management; Configuration management; Basic CM Integration Reference Point (IRP) information service

The document defines a component of an Integration Reference Point (IRP) through which an 'IRP Agent' (typically an Element Manager or Network Element) can communicate basic Configuration Management related information to one or several 'IRP Managers' (typically Network Managers).

This version of the IRP is mainly intended for "passive management" of high-level network configuration and status information as required by a Network Manager.

The Configuration Management (CM) area is very large. The intention is to split the specification of the related interfaces in several IRPs – as described in the Introduction clause above. An important aspect of such a split is that the Network Resource Models (NRMs) defined in different IRPs containing NRMs are consistent, and that NRMs supported by an IRP Agent implementation can be accessed as one coherent model through one IRP Information Service. The Basic CM IRP: IS defined herein provides one such Information Service.

The Basic CM IRP: IS defined in the document has the following main purpose: to define an interface for retrieval of Configuration Management information.

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CWTS	CWTS-TSD-CN 32.602 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 602	5.0.0	Published	14-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17535">http://pda.etsi.org/pda/home.asp?wki_id=17535</a>
T1	T1.3GPP.32.602 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.602 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.602(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.602(R5-5.0.0).zip</a>
TTC	TS-3GA-32.602 (Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32602rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32602rel5v500.pdf</a>

#### 10.10.28 TS 32.603 Telecommunication management; Configuration management; Basic configuration management IRP: CORBA solution set

The purpose of this Basic Configuration Management (CM) IRP: CORBA Solution Set is to define the mapping of the Basic CM IRP: IS (see TS 32.602) to the protocol specific details necessary for implementation of this IRP in a CORBA/IDL environment.

This document defines NRM independent data types, methods and notifications.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.603 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 603	5.0.0	Published	14-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17536">http://pda.etsi.org/pda/home.asp?wki_id=17536</a>
T1	T1.3GPP.32.603V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.603(R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.603(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.603(R5-5.0.0).zip</a>
TTC	TS-3GA-32.603(Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32603rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32603rel5v500.pdf</a>

#### 10.10.29 TS 32.604 Telecommunication management; Configuration management; Basic configuration management IRP Common Management Information Protocol (CMIP) solution set

The document specifies the Common Management Information Protocol (CMIP) Solution Set (SS) for the Basic CM Integration Reference Point (IRP): Information Service defined in TS 32.602.

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CWTS	CWTS-TSD-CN 32.604 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 604	5.0.0	Published	14-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18126">http://pda.etsi.org/pda/home.asp?wki_id=18126</a>
T1	T1.3GPP.32.604V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.604(R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.604(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.604(R5-5.0.0).zip</a>
TTC	TS-3GA-32.604(Rel5)v5.0.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts32604rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32604rel5v500.pdf</a>

### 10.10.30 TS 32.611 Telecommunication management; 3G configuration management (CM): Bulk CM Integration Reference Point (IRP); Requirements

The document describes the Bulk Configuration Management (CM) requirements for managing a 3G network. This is described from the management perspective in TS 32.101 and TS 32.102.

The Itf-N for CM is built up by a number of Integration Reference Points (IRPs) and a related Name Convention TS 32.300, which realize the functional capabilities over this interface. The basic structure of the IRPs is defined in TS 32.101 and TS 32.102. For CM, a number of IRPs (and a Name Convention) are defined, used by this as well as by other specifications for Telecom Management. These IRPs are defined in separate specifications. This document defines the requirements for the Bulk CM IRP.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.611 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 611	5.1.0	Published	07-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17537">http://pda.etsi.org/pda/home.asp?wki_id=17537</a>
T1	T1.3GPP.32.611 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.611 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.611(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.611(R5-5.1.0).zip</a>
TTC	TS-3GA-32.611 (Rel5)v5.1.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32611rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts32611rel5v510.pdf</a>

### 10.10.31 TS 32.612 Telecommunication management; 3G configuration management (CM): Bulk CM Integration Reference Point (IRP); Information service

The document (Bulk Configuration Management IRP: Information Service) defines an Integration Reference Point (IRP) through which an 'IRPAgent' (typically an Element Manager or Network Element) can communicate bulk Configuration Management related information to one or several 'IRPManagers' (typically Network Managers).

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.612 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 612	5.1.0	Published	14-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18128">http://pda.etsi.org/pda/home.asp?wki_id=18128</a>
T1	T1.3GPP.32.612 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.612 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.612(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.612(R5-5.1.0).zip</a>
TTC	TS-3GA-32.612 (Rel5)v5.1.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts32612rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts32612rel5v510.pdf</a>

### 10.10.32 TS 32.613 Telecommunication management; 3G configuration management (CM): Bulk CM Integration Reference Point (IRP); CORBA solution set

The purpose of this Bulk CM IRP: CORBA Solution Set is to define the mapping of the IRP information service (see TS 32.612) to the protocol specific details necessary for implementation of this IRP in a CORBA/IDL environment.

The document does not describe any Network Resource Model (NRM) – they are described in Generic Network Resources IRP: NRM TS 32.622, UTRAN Network Resources IRP: NRM TS 32.642.

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CWTS	CWTS-TSD-CN 32.613 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 613	5.0.0	Published	14-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17541">http://pda.etsi.org/pda/home.asp?wki_id=17541</a>
T1	T1.3GPP.32.613 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.613 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.613(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.613(R5-5.0.0).zip</a>
TTC	TS-3GA-32.613 (Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32613rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32613rel5v500.pdf</a>

### 10.10.33 TS 32.614 Telecommunication management; 3G configuration management (CM): Bulk CM Integration Reference Point (IRP); CMIP solution set

The document specifies the Common Management Information Protocol (CMIP) Solution Set (SS) for the Bulk CM Integration Reference Point (IRP): Information Service defined in TS 32.612.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.614 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 614	5.0.0	Published	13-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18131">http://pda.etsi.org/pda/home.asp?wki_id=18131</a>
T1	T1.3GPP.32.614 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.614 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.614(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.614(R5-5.0.0).zip</a>
TTC	TS-3GA-32.614 (Rel5)v5.0.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts32614rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32614rel5v500.pdf</a>

### 10.10.34 TS 32.615 Telecommunication management; Configuration Management (CM): Bulk CM Integration Reference Point (IRP); eXtensible Markup Language (XML) file format definition

The document defines the XML file formats for the configuration data files and session log files of Bulk CM IRP IS TS 32.612.



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CWTS	CWTS-TSD-CN 32.615 (R5)	5.0.1	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 615	5.0.1	Published	18-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17641">http://pda.etsi.org/pda/home.asp?wki_id=17641</a>
T1	T1.3GPP.32.615 V501-2003	5.0.1	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.615 (R5-5.0.1)	5.0.1	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.615(R5-5.0.1).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.615(R5-5.0.1).zip</a>
TTC	TS-3GA-32.615 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32615rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32615rel5v500.pdf</a>

### 10.10.35 TS 32.621 Telecommunication management; Configuration Management (CM); Generic network resources Integration Reference Point (IRP): Requirements

The document defines, in addition to the requirements defined in TS 32.101, 32.102 and 32.600, the requirements for the present IRP: Generic Network Resources IRP.

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CWTS	CWTS-TSD-CN 32.621 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 621	5.0.0	Published	04-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17542">http://pda.etsi.org/pda/home.asp?wki_id=17542</a>
T1	T1.3GPP.32.621 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.621 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.621(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.621(R5-5.0.0).zip</a>
TTC	TS-3GA-32.621 (Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32621rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32621rel5v500.pdf</a>

### 10.10.36 TS 32.622 Telecommunication management; Configuration Management (CM); Generic network resources IRP: Network Resource Model (NRM)

The document (Generic Network Resources IRP: Network Resource Model) defines an Integration Reference Point (IRP) through which an 'IRPAgent' (typically an Element Manager or Network Element) can communicate Network Management related information to one or several 'IRPManagers' (typically Network Managers).

The document specifies a generic Network Resource Model, NRM (also referred to as a Management Information Model – MIM) with definitions of Managed Object Classes.

The Configuration Management (CM) area is very large. The intention is to split the specification of the related interfaces in several IRPs. In addition to the subject IRP, it is expected that IRPs will be defined for functional areas like Security management, Software management, Network & Service provisioning, etc. An important aspect of such a split is that the Network Resource Models (NRMs) defined in different IRPs are consistent. The Generic Network Resources IRP here provides a base for all resource modelling.

The Generic Network Resources IRP main purpose is to define a generic Network Resource Model that constitutes a base from which other (more specialized) resource models can inherit or have associations with.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.622 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 622	5.0.0	Published	04-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17543">http://pda.etsi.org/pda/home.asp?wki_id=17543</a>
T1	T1.3GPP.32.622 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.622 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.622(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.622(R5-5.0.0).zip</a>
TTC	TS-3GA-32.622 (Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32622rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32622rel5v500.pdf</a>

### 10.10.37 TS 32.623 Telecommunication management; Configuration Management (CM); Generic network resources IRP: CORBA solution set

The TS 32.620 series (Generic Network Resources IRP) defines an Integration Reference Point (IRP) through which an 'IRPAgent' (typically an Element Manager or Network Element) can communicate Network Management related information to one or several 'IRPManagers' (typically Network Managers).

This series of documents specifies a generic Network Resource Model, NRM (also referred to as a Management Information Model – MIM) with definitions of Information Object Classes and Managed Object Classes.

The document specifies the CORBA Solution set.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.623 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 623	5.0.0	Published	07-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17544">http://pda.etsi.org/pda/home.asp?wki_id=17544</a>
T1	T1.3GPP.32.623 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.623 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.623(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.623(R5-5.0.0).zip</a>
TTC	TS-3GA-32.623 (Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32623rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32623rel5v500.pdf</a>

### 10.10.38 TS 32.624 Telecommunication management; Configuration Management (CM); Generic network resources IRP: CMIP solution set

The document specifies the Common Management Information Protocol (CMIP) Solution Set (SS) for the Generic Network Resource Integration Reference Point (IRP): Network Resource Model defined in TS 32.622.



	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.624 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 624	5.0.0	Published	04-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17545">http://pda.etsi.org/pda/home.asp?wki_id=17545</a>
T1	T1.3GPP.32.624V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.624(R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.624(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.624(R5-5.0.0).zip</a>
TTC	TS-3GA-32.624(Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32624rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32624rel5v500.pdf</a>

#### 10.10.39 TS 32.625 Telecommunication management; Configuration Management (CM); Generic network resources IRP: Bulk CM eXtensible Markup Language (XML) file format definition

This document provides the NRM-specific part related to the Generic Network Resources IRP NRM (3G TS 32.622) of the XML file format definition for the Bulk Configuration Management IRP IS (3G TS 32.612).

The main part of this XML file format definition is provided by 3G TS 32.615.

This File Format Definition specification is related to 3G TS 32.622.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.625 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 625	5.0.0	Published	04-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17546">http://pda.etsi.org/pda/home.asp?wki_id=17546</a>
T1	T1.3GPP.32.625 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.625 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.625(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.625(R5-5.0.0).zip</a>
TTC	TS-3GA-32.625 (Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32625rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32625rel5v500.pdf</a>

#### 10.10.40 TS 32.631 Telecommunication management; Configuration Management (CM); Core network resources IRP: Requirements

The document defines, in addition to the requirements defined in TS 32.101, 32.102 and 32.600, the requirements for the present IRP: Core Network Resources IRP.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.631 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 631	5.0.0	Published	11-07-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16755">http://pda.etsi.org/pda/home.asp?wki_id=16755</a>
T1	T1.3GPP.32.631 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.631 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.631(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.631(R5-5.0.0).zip</a>
TTC	TS-3GA-32.631 (Rel5)v5.0.0	1	TTC published	27-08-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32631rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32631rel5v500.pdf</a>

#### 10.10.41 TS 32.632 Telecommunication management; Configuration Management; Core Network Resources IRP: Network Resource Model (NRM)

The document is part of an Integration Reference Point (IRP) named "Core Network Resources IRP", through which an 'IRPAgent' (typically an Element Manager or Network Element) can communicate Configuration Management information to one or several 'IRPManagers' (typically Network Managers) concerning CN resources. This version of the IRP is mainly intended for "passive management" of high-level network configuration and status information as required by a Network Manager. The "Core Network Resources IRP" comprises a set of specifications defining Requirements, a protocol neutral Network Resource Model (NRM) and corresponding Solution Set(s).

The document specifies the protocol neutral Core Network Resources IRP: Network Resource Model. It reuses relevant parts of the generic NRM in TS 32.622, either by direct reuse or subclassing, and in addition to that defines CN specific Managed Object Classes.

The Configuration Management (CM) area is very large. The intention is to split the specification of the related interfaces in several IRPs – as described in the Introduction clause above. An important aspect of such a split is that the Network Resource Models (NRMs) defined in different IRPs containing NRMs are consistent, and that NRMs supported by an IRPAgent implementation can be accessed as one coherent model through one IRP Information Service.

The document has the following main purpose: to define the applied CN specific Network Resource Model, based on the generic NRM in TS 32.622.

Finally, in order to access the information defined by this NRM, an IRP Information Service (IS) is needed, such as the Basic CM IRP: IS TS 32.602. However, which Information Service that is applicable is outside the scope of this document.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.632 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 632	5.1.0	Published	14-01-03	<a href="http://pda.etsi.org/pda/home.asp?wiki_id=18132">http://pda.etsi.org/pda/home.asp?wiki_id=18132</a>
T1	T1.3GPP.32.632 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.632 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.632(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.632(R5-5.1.0).zip</a>
TTC	TS-3GA-32.632 (Rel5)v5.1.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts32632rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts32632rel5v510.pdf</a>

#### 10.10.42 TS 32.633 Telecommunication management; Configuration Management (CM); Core network resources IRP: CORBA solution set

The purpose of this Core Network Resources IRP: CORBA Solution Set is to define the mapping of the IRP information model (see TS 32.632) to the protocol-specific details necessary for implementation of this IRP in a CORBA/IDL environment.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.633 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 633	5.1.0	Published	14-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18133">http://pda.etsi.org/pda/home.asp?wki_id=18133</a>
T1	T1.3GPP.32.633 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.633 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.633(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.633(R5-5.1.0).zip</a>
TTC	TS-3GA-32.633 (Rel5)v5.1.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts32633rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts32633rel5v510.pdf</a>

#### 10.10.43 TS 32.634 Telecommunication management; Configuration Management (CM); Core network resources IRP: CMIP solution set

The document specifies the Common Management Information Protocol (CMIP) Solution Set (SS) for the CN Network Resource Integration Reference Point (IRP): Network Resource Model defined in TS 32.632.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.634 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 634	5.0.0	Published	14-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18134">http://pda.etsi.org/pda/home.asp?wki_id=18134</a>
T1	T1.3GPP.32.634 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.634 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.634(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.634(R5-5.0.0).zip</a>
TTC	TS-3GA-32.634 (Rel5)v5.0.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts32634rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32634rel5v500.pdf</a>

#### 10.10.44 TS 32.635 Telecommunication management; Configuration Management (CM); Core network resources IRP: Bulk CM eXtensible Markup Language (XML) file format definition

This document provides the NRM-specific part related to the Core Network Resources IRP NRM (3G TS 32.632) of the XML file format definition for the Bulk Configuration Management IRP IS (3G TS 32.612).

The main part of this XML file format definition is provided by 3G TS 32.615.

This File Format Definition specification is related to 3G TS 32.632.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.635 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 635	5.0.0	Published	10-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17549">http://pda.etsi.org/pda/home.asp?wki_id=17549</a>
T1	T1.3GPP.32.635 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.635 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.635(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.635(R5-5.0.0).zip</a>
TTC	TS-3GA-32.635 (Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32635rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32635rel5v500.pdf</a>

#### 10.10.45 TS 32.641 Telecommunication management; Configuration Management (CM); UTRAN network resources IRP: Requirements

The document defines, in addition to the requirements defined in TS 32.101, 32.102 and 32.600, the requirements for the present IRP: UTRAN Network Resources IRP.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.641 (R4)	4.0.0	Published	25-09-02	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 641	5.0.0	Published	11-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17550">http://pda.etsi.org/pda/home.asp?wki_id=17550</a>
T1	T1.3GPP.32.641 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.641 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.641(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.641(R5-5.0.0).zip</a>
TTC	TS-3GA-32.641 (Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32641rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32641rel5v500.pdf</a>

#### 10.10.46 TS 32.642 Telecommunication management; Configuration Management (CM); UTRAN network resources IRP: NRM

The document is part of an Integration Reference Point (IRP) named "UTRAN Network Resources IRP", through which an 'IRPAgent' (typically an Element Manager or Network Element) can communicate Configuration Management information to one or several 'IRPManagers' (typically Network Managers) concerning UTRAN resources. The "UTRAN Network Resources IRP" comprises a set of specifications defining Requirements, a protocol neutral Network Resource Model (NRM) and corresponding Solution Set(s).

The document specifies the protocol neutral UTRAN Network Resources IRP: Network Resource Model. It reuses relevant parts of the generic NRM in [16], either by direct reuse or sub-classing, and in addition to that defines UTRAN specific Managed Object Classes.

The Configuration Management (CM) area is very large. The intention is to split the specification of the related interfaces in several IRPs – as described in the Introduction clause above. An important aspect of such a split is that the Network Resource Models (NRMs) defined in different IRPs containing NRMs are consistent, and that NRMs supported by an IRPAgent implementation can be accessed as one coherent model through one IRP Information Service.

The document has the following main purpose:

- To define the applied UTRAN specific Network Resource Model, based on the generic NRM in TS 32.600.

Finally, in order to access the information defined by this NRM, an IRP Information Service (IS) is needed, such as the Basic CM IRP: IS 32.602 or the Bulk CM IRP: IS 32.612. However, which Information Service is applicable is outside the scope of this document.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.642 (R5)	5.1.1	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 642	5.1.1	Published	14-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18135">http://pda.etsi.org/pda/home.asp?wki_id=18135</a>
T1	T1.3GPP.32.642 V511-2003	5.1.1	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.642 (R5-5.1.1)	5.1.1	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.642(R5-5.1.1).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.642(R5-5.1.1).zip</a>
TTC	TS-3GA-32.642 (Rel5)v5.1.1	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts32642rel5v511.pdf">http://www.ttc.or.jp/imt2000/ts/ts32642rel5v511.pdf</a>

#### **10.10.47 TS 32.643 Telecommunication management; Configuration Management (CM); UTRAN network resources IRP; CORBA solution set**

The purpose of this UTRAN Network Resources IRP: CORBA Solution Set is to define the mapping of the IRP information model (see TS 32.642) to the protocol specific details necessary for implementation of this IRP in a CORBA/IDL environment.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.643 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 643	5.0.0	Published	14-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17553">http://pda.etsi.org/pda/home.asp?wki_id=17553</a>
T1	T1.3GPP.32.643 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.643 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.643(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.643(R5-5.0.0).zip</a>
TTC	TS-3GA-32.643 (Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32643rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32643rel5v500.pdf</a>

#### **10.10.48 TS 32.644 Telecommunication management; Configuration Management (CM); UTRAN network resources IRP; CMIP solution set**

The document specifies the Common Management Information Protocol (CMIP) Solution Set (SS) for the UTRAN Network Resource Integration Reference Point (IRP): Network Resource Model defined in TS 32.642.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.644 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 644	5.0.0	Published	14-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18136">http://pda.etsi.org/pda/home.asp?wki_id=18136</a>
T1	T1.3GPP.32.644 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.644 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.644(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.644(R5-5.0.0).zip</a>
TTC	TS-3GA-32.644 (Rel5)v5.0.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts32644rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32644rel5v500.pdf</a>

#### **10.10.49 TS 32.645 Telecommunication management; Configuration Management (CM); UTRAN network resources IRP; Bulk CM eXtensible Markup Language (XML) file format definition**

This document provides the NRM-specific part related to the UTRAN Network Resources IRP NRM (3G TS 32.642) of the XML file format definition for the Bulk Configuration Management IRP IS (3G TS 32.612).

The main part of this XML file format definition is provided by 3G TS 32.615.

This File Format Definition specification is related to 3G TS 32.642.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.645 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 645	5.0.0	Published	10-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17554">http://pda.etsi.org/pda/home.asp?wki_id=17554</a>
T1	T1.3GPP.32.645 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.645 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.645(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.645(R5-5.0.0).zip</a>
TTC	TS-3GA-32.645 (Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32645rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32645rel5v500.pdf</a>

#### **10.10.50 TS 32.655 Telecommunication management; Configuration Management (CM); GERAN network resources Integration Reference Point (IRP): Bulk CM eXtensible Markup Language (XML) file format definition**

This document provides the NRM-specific part related to the GERAN Network Resources IRP NRM (3G TS 32.652) of the XML file format definition for the Bulk Configuration Management IRP IS (3G TS 32.612).

The main part of this XML file format definition is provided by 3G TS 32.615.

This File Format Definition specification is related to 3G TS 32.652.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.655 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 655	5.0.0	Published	10-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17559">http://pda.etsi.org/pda/home.asp?wki_id=17559</a>
T1	T1.3GPP.32.655 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.655 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.655(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.655(R5-5.0.0).zip</a>

#### 10.10.51 TS 32.661 Telecommunication management; Configuration Management (CM); Kernel CM requirements

This document defines, in addition to the requirements defined in 3G TS 32.101, 3G TS 32.102 and 3G TS 32.600, the requirements for the present IRP: Kernel Configuration Management IRP. It is the intent of Kernel Configuration Management to provide an IRP that contains the configuration management functionality that is basic and minimal. It is the functionality that is common to and required by both Basic CM and Bulk CM. While neither the Basic CM IRP nor Bulk CM IRP requires the other, they each require the Kernel CM IRP.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.661 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 661	5.1.0	Published	13-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18138">http://pda.etsi.org/pda/home.asp?wki_id=18138</a>
T1	T1.3GPP.32.661 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.661 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.661(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.661(R5-5.1.0).zip</a>
TTC	TS-3GA-32.661 (Rel5)v5.1.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts32661rel5v510.pdf">http://www.ttc.or.jp/imt2000/ts/ts32661rel5v510.pdf</a>

#### 10.10.52 TS 32.662 Telecommunication management; Configuration Management (CM); Kernel CM information service

This document defines Integration Reference Point (IRP) through which an 'IRP Agent' (typically an Element Manager or Network Element) can communicate Configuration Management related information to one or several 'IRP Managers' (typically Network Managers).

The function of this Kernel CM IRP Information Service is to define an interface that provides the essential CM services. While it is not expected that the Kernel CM IRP alone will provide adequate CM capability, the Kernel CM IRP is expected to provide the common supporting capability required for other IRPs such as the Basic CM IRP or the Bulk CM IRP, each of which requires the Kernel CM IRP.



	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.662 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 662	5.0.0	Published	16-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17678">http://pda.etsi.org/pda/home.asp?wki_id=17678</a>
T1	T1.3GPP.32.662 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.662 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.662(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.662(R5-5.0.0).zip</a>
TTC	TS-3GA-32.662 (Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32662rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32662rel5v500.pdf</a>

#### **10.10.53 TS 32.663 Telecommunication management; Configuration Management (CM); Kernel CM: CORBA solution set**

The purpose of this document is to define the mapping of the Kernel CM IRP: IS (see 3G TS 32.662) to the protocol specific details necessary for implementation of this IRP in a CORBA/IDL environment.

This Solution Set specification is related to 3G TS 32.662.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.663 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 663	5.0.0	Published	15-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17669">http://pda.etsi.org/pda/home.asp?wki_id=17669</a>
T1	T1.3GPP.32.663 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.663 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.663(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.663(R5-5.0.0).zip</a>
TTC	TS-3GA-32.663 (Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32663rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32663rel5v500.pdf</a>

#### **10.10.54 TS 32.664 Telecommunication management; Configuration Management (CM); Kernel CM IRP: CMIP solution set**

This document specifies the Common Management Information Protocol (CMIP) Solution Set (SS) for the Kernel Configuration Management IRP: Information Service defined in 3G TS 32.662. In detail:

- Clause 4 contains an introduction to some concepts that are the base for some specific aspects of the CMIP interfaces.
- Clause 5 contains the GDMO definitions for the Kernel Configuration Management IRP over the CMIP interfaces
- Clause 6 contains the ASN.1 definitions supporting the GDMO definitions provided in clause 5.

This Solution Set specification is related to 3G TS 32.662.



	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.664 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 664	5.0.0	Published	14-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18139">http://pda.etsi.org/pda/home.asp?wki_id=18139</a>
T1	T1.3GPP.32.664 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.664 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.664(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.664(R5-5.0.0).zip</a>
TTC	TS-3GA-32.664 (Rel5)v5.0.0	1	TTC published	21-02-03	<a href="http://www.ttc.or.jp/imt2000/ts/ts32664rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32664rel5v500.pdf</a>

#### 10.10.55 TS 32.671 Telecommunication management; Configuration Management (CM); State Management Integration Reference Point (IRP): Requirements

This document defines, in addition to the requirements defined in 3G TS 32.101, 3G TS 32.102 and 3G TS 32.600, the requirements for the present IRP: State Management.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.671 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 671	5.0.0	Published	10-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17560">http://pda.etsi.org/pda/home.asp?wki_id=17560</a>
T1	T1.3GPP.32.671 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.671 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.671(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.671(R5-5.0.0).zip</a>
TTC	TS-3GA-32.671 (Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32671rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32671rel5v500.pdf</a>

#### 10.10.56 TS 32.672 Telecommunication management; Configuration Management (CM); State Management Integration Reference Point (IRP): Information service

This document defines the Information Service (IS) part of the State Management IRP. It specifies the semantics of the network resource state and status information visible across the Itf-N. It also specifies the interaction required for the management of the state and status information.

The state and status attributes specified in this document shall be used, where applicable, as attributes in Information Object Class (IOC) definitions of other 3G IRPs. When used by the IOC definition, the semantics of the state and status attributes can be qualified and enhanced if deemed necessary.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.672 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 672	5.0.0	Published	10-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17561">http://pda.etsi.org/pda/home.asp?wki_id=17561</a>
T1	T1.3GPP.32.672 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.672 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.672(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.672(R5-5.0.0).zip</a>
TTC	TS-3GA-32.672 (Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32672rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32672rel5v500.pdf</a>

#### **10.10.57 TS 32.673 Telecommunication management; Configuration Management (CM); State Management Integration Reference Point (IRP): CORBA solution set**

This document specifies the CORBA Solution Set (SS) for the IRP whose semantics is specified in State Management IRP: Information Service (IS) (3G TS 32.672).

Clauses 1 to 3 provide background information. Clause 4 provides key architectural features supporting the SS. Clause 5 defines the mapping of operations, notification, parameters and attributes defined in IS to their SS equivalents. Annex A contains the IDL specification.

This Solution Set specification is related to 3G TS 32.672.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.673 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 673	5.0.0	Published	04-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17562">http://pda.etsi.org/pda/home.asp?wki_id=17562</a>
T1	T1.3GPP.32.673 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.673 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.673(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.673(R5-5.0.0).zip</a>
TTC	TS-3GA-32.673 (Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32673rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32673rel5v500.pdf</a>

#### **10.10.58 TS 32.674 Telecommunication management; Configuration Management (CM); State Management Integration Reference Point (IRP): CMIP solution set**

This document specifies the Common Management Information Protocol (CMIP) Solution Set (SS) for the Generic State Management: Information Service defined in 3G TS 32.672. In detail:

- Clause 4 contains an introduction to some concepts that are the base for some specific aspects of the CMIP interfaces.
- Clause 5 contains the GDMO definitions for the Generic State Management over the CMIP interfaces.
- Clause 6 contains the ASN.1 definitions supporting the GDMO definitions provided in clause 5.

This solution set is related to 3G TS 32.672.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.674 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 674	5.0.0	Published	04-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17563">http://pda.etsi.org/pda/home.asp?wki_id=17563</a>
T1	T1.3GPP.32.674 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.674 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.674(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.674(R5-5.0.0).zip</a>
TTC	TS-3GA-32.674 (Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32674rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32674rel5v500.pdf</a>

#### **10.10.59 TS 32.691 Telecommunication management; Inventory management network resources Integration Reference Point (IRP): Requirements**

This document defines, in addition to the requirements defined in 3G TS 32.101, 3G TS 32.102 and 3G TS 32.600, the requirements for the present IRP: Inventory Management Network Resources IRP.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 32.691 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 132 691	5.0.0	Published	10-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17564">http://pda.etsi.org/pda/home.asp?wki_id=17564</a>
T1	T1.3GPP.32.691 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.691 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.691(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.691(R5-5.0.0).zip</a>
TTC	TS-3GA-32.691 (Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32691rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32691rel5v500.pdf</a>

#### **10.10.60 TS 32.692 Telecommunication management; Inventory management network resources Integration Reference Point (IRP): Network resource model**

This document defines an Integration Reference Point (IRP) through which an 'IRP Agent' (typically an Element Manager or Network Element) can communicate Network Management related information to one or several 'IRP Managers' (typically Network Managers).

This document specifies an Inventory Management Network Resource Model, NRM (also referred to as a Management Information Model – MIM) with definitions of Information Object Classes.

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CWTS	CWTS-TSD-CN 32.692 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 32.692	5.0.0	Published	04-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17565">http://pda.etsi.org/pda/home.asp?wki_id=17565</a>
T1	T1.3GPP.32.692 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-32.692 (R5-5.0.0)	5.0.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.692(R5-5.0.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-32.692(R5-5.0.0).zip</a>
TTC	TS-3GA-32.692 (Rel5)v5.0.0	1	TTC published	26-11-02	<a href="http://www.ttc.or.jp/imt2000/ts/ts32692rel5v500.pdf">http://www.ttc.or.jp/imt2000/ts/ts32692rel5v500.pdf</a>

## 10.11 33-series, Security aspects

### 10.11.1 TS 33.102 3G security; Security architecture

This specification defines the security architecture, i.e., the security features and the security mechanisms, for the third generation mobile telecommunication system.

A security feature is a service capability that meets one or several security requirements. The complete set of security features address the security requirements as they are defined in "3G Security: Threats and Requirements" (TS 21.133) and implement the security objectives and principles described in TS 33.120. A security mechanism is an element that is used to realize a security feature. All security features and security mechanisms taken together form the security architecture.

An example of a security feature is user data confidentiality. A security mechanism that may be used to implement that feature is a stream cipher using a derived cipher key.

This specification defines 3G security procedures performed within 3G capable networks (R99+), i.e., intra-UMTS and UMTS-GSM. As an example, UMTS authentication is applicable to UMTS radio access as well as GSM radio access provided that the serving network node and the MS are UMTS capable. Interoperability with non-UMTS capable networks (R98-) is also covered.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-33.102V5.1.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A33102-510.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A33102-510.pdf</a>
CWTS	CWTS-TSD-CN 33.102 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 133 102	5.1.0	Published	03-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18142">http://pda.etsi.org/pda/home.asp?wki_id=18142</a>
T1	T1.3GPP.33.102 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-33.102 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-33.102(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-33.102(R5-5.1.0).zip</a>

### 10.11.2 TS 33.106 Lawful interception requirements

The document provides basic interception requirements within a Third Generation Mobile Communication System (3GMS).

The specification describes the service requirements from a Law Enforcement point of view only. The aim of this document is to define a 3GMS interception system that supports a number of regional interception regulations, but these regulations are not repeated here as they vary. Regional interception requirements shall rely on this Specification to derive such information, as they require.

These interception requirements shall be used to derive specific network requirements.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-33.106V5.1.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A33106-510.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A33106-510.pdf</a>
CWTS	CWTS-TSD-CN 33.106 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 133 106	5.1.0	Published	15-10-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=17566">http://pda.etsi.org/pda/home.asp?wki_id=17566</a>
T1	T1.3GPP.33.106 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-33.106 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-33.106(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-33.106(R5-5.1.0).zip</a>

### 10.11.3 TS 33.107 3G security; Lawful interception architecture and functions

The document describes the architecture and functional requirements within a Third Generation Mobile Communication System (3GMS).

The specification shows the service requirements from a Law Enforcement point of view only. The aim of this document is to define a 3GMS interception system that supports a number of regional interception regulations, but these regulations are not repeated here as they vary. Regional interception requirements shall be met in using specific (regional) mediation functions allowing only required information to be transported.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-33.107V5.5.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A33107-550.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A33107-550.pdf</a>
CWTS	CWTS-TSD-CN 33.107 (R5)	4.3.0	Published	25-09-02	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 133 107	5.5.0	Published	03-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18143">http://pda.etsi.org/pda/home.asp?wki_id=18143</a>
T1	T1.3GPP.33.107 V550-2003	5.5.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-33.107(R5-5.5.0)	5.5.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-33.107(R5-5.5.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-33.107(R5-5.5.0).zip</a>

#### 10.11.4 TS 33.108 3G security; Handover interface for Lawful Interception (LI)

This Specification addresses the handover interfaces for lawful interception of Packet-Data Services, Circuit-Switched Services, and Multimedia Services within the UMTS network. The handover interface in this context includes the delivery of Intercept Related Information (HI2) and Content of Communication (HI3) to the Law Enforcement Monitoring Facility.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-33.108V5.2.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A33108-520.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A33108-520.pdf</a>
CWTS	CWTS-TSD-CN 33.108 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 33.108	5.2.0	Published	03-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18144">http://pda.etsi.org/pda/home.asp?wki_id=18144</a>
T1	T1.3GPP.33.108 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-33.108 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-33.108(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-33.108(R5-5.2.0).zip</a>

#### 10.11.5 TS 33.200 3G security; Network Domain Security (NDS); Mobile Application Part (MAP) application layer security

This Technical Specification covers the security mechanisms and procedures necessary to protect the MAP protocol. The complete set of enhancements and extensions to facilitate security protection for the MAP protocol is termed MAPsec and it covers transport security in the MAP protocol itself and the security management procedures.

The security mechanisms specified for MAP are on the application layer. This means that MAPsec is independent of the network and transport protocols to be used.

This Technical Specification contains the Stage-2 specification for security protection of the MAP protocol. The actual implementation (Stage-3) specification can be found in the MAP Stage-3 specification, TS 29.002.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-33.200V5.1.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A33200-510.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A33200-510.pdf</a>
CWTS	CWTS-TSD-CN 33.200 (R5)	5.1.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 133 200	5.1.0	Published	03-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18145">http://pda.etsi.org/pda/home.asp?wki_id=18145</a>
T1	T1.3GPP.33.200 V510-2003	5.1.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-33.200 (R5-5.1.0)	5.1.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-33.200(R5-5.1.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-33.200(R5-5.1.0).zip</a>

#### 10.11.6 TS 33.203 3G security; Access security for IP-based services

The scope for this Technical Specification is to specify the security features and mechanisms for secure access to the IM Subsystem (IMS) for the 3G mobile telecommunication system.

The IMS in UMTS will support IP Multimedia applications such as video, audio and multimedia conferences. Session Initiation Protocol (SIP [66]) has been chosen as the signalling protocol for creating and terminating Multimedia sessions. This specification only deals with how the SIP signalling is protected between the subscriber and the IMS, how the subscriber is authenticated and how the subscriber authenticates the IMS.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-33.203V5.4.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A33203-540.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A33203-540.pdf</a>
CWTS	CWTS-TSD-CN 33.203 (R5)	5.4.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 133 203	5.4.0	Published	03-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18146">http://pda.etsi.org/pda/home.asp?wki_id=18146</a>
T1	T1.3GPP.33.203 V540-2003	5.4.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-33.203 (R5-5.4.0)	5.4.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-33.203(R5-5.4.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-33.203(R5-5.4.0).zip</a>

#### 10.11.7 TS 33.210 3G security; Network Domain Security (NDS); IP network layer security

This document defines the security architecture for the UMTS network domain IP-based control plane. The scope of the UMTS network domain control plane security is to cover the control signalling on selected interfaces between UMTS network elements.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-33.210V5.4.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A33210-520.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A33210-520.pdf</a>
CWTS	CWTS-TSD-CN 33.210 (R5)	5.2.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 133 210	5.2.0	Published	03-01-03	<a href="http://pda.etsi.org/pda/home.asp?wki_id=18147">http://pda.etsi.org/pda/home.asp?wki_id=18147</a>
T1	T1.3GPP.33.210 V520-2003	5.2.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAT.3G-33.210 (R5-5.2.0)	5.2.0	Approved	28-05-03	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-33.210(R5-5.2.0).zip">http://www.tta.or.kr/standardDB/stnfile/TTAT.3G-33.210(R5-5.2.0).zip</a>



## 10.12 35-series, Algorithm specifications

### 10.12.1 TS 35.201 Specification of the 3GPP confidentiality and integrity algorithms; Document 1: *f8* and *f9* specifications

This Specification gives a detailed specification of the confidentiality algorithm *f8*, and the integrity algorithm *f9*.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-35.201V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A35201-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A35201-500.pdf</a>
CWTS	CWTS-TSD-CN 35.201 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 135 201	5.0.0	Published	27-06-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16790">http://pda.etsi.org/pda/home.asp?wki_id=16790</a>
T1	T1.3GPP.35.201 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAE.3G-35.201 (R5-5.0.0)	5.0.0	Approved	28-10-02	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-35.201(R5-5.0.0).pdf">http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-35.201(R5-5.0.0).pdf</a>

### 10.12.2 TS 35.202 Specification of the 3GPP confidentiality and integrity algorithms; Document 2: Kasumi algorithm specification

This Specification gives a detailed specification of the Algorithm KASUMI. KASUMI is a block cipher that forms the heart of the confidentiality algorithm *f8*, and the integrity algorithm *f9*.

	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-35.202V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A35202-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A35202-500.pdf</a>
CWTS	CWTS-TSD-CN 35.202 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 135 202	5.0.0	Published	27-06-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16791">http://pda.etsi.org/pda/home.asp?wki_id=16791</a>
T1	T1.3GPP.35.202 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAE.3G-35.202 (R5-5.0.0)	5.0.0	Approved	28-10-02	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-35.202(R5-5.0.0).pdf">http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-35.202(R5-5.0.0).pdf</a>

### 10.12.3 TS 35.204 Specification of the 3GPP confidentiality and integrity algorithms; Document 4: Design conformance test data

This Specification gives black-box test data for the algorithm set. The test data has been selected to give a high degree of confidence that the implementation is correct. However, no claim is made that conformance with this test data guarantees a correct implementation.



	Document No.	Version	Status	Issued date	Location
ARIB	ARIB STD-T63-35.204V5.0.0	3.30	ARIB published	26-03-03	<a href="http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A35204-500.pdf">http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/Rel5T/A35204-500.pdf</a>
CWTS	CWTS-TSD-CN 35.204 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 135 204	5.0.0	Published	27-06-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16793">http://pda.etsi.org/pda/home.asp?wki_id=16793</a>
T1	T1.3GPP.35.204 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAE.3G-35.204 (R5-5.0.0)	5.0.0	Approved	28-10-02	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-35.204(R5-5.0.0).pdf">http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-35.204(R5-5.0.0).pdf</a>

#### 10.12.4 TS 35.205 3G security; Specification of the MILENAGE algorithm set: An example algorithm set for the 3GPP authentication and key generation functions $f_1, f_1^*, f_2, f_3, f_4, f_5$ and $f_5^*$ ; Document 1: General

This report is a description of the work undertaken by an ETSI SAGE Task Force on the design of the Milenage Algorithm Set: an example set of Authentication and Key Generation Functions.

The Authentication and Key Generation Functions are not standardized. An example set of these algorithms has been produced with the intent that it shall be offered to the UMTS operators, to utilize instead of developing their own. An ETSI SAGE Task Force has carried out this work.

The requirement specification stated that operator personalization of the example set must be possible and that the basic Kernel must be possible to replace.

The example set is based on the block cipher Rijndael, which at the time was one of the AES candidates and the specification describes how the seven algorithms used in 3GPP authentication and key generation are scheduled around this basic Kernel. The specification and associated test data for the example algorithm set is documented in three documents:

- a formal specification of both the modes and the example Kernel TS 35.206;
- a detailed test data document, covering modes and the example Kernel TS 35.207;
- a "black box" test data document TS 35.208.

This report gives an overview of the overall work by the task force.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 35.205 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 135 205	5.0.0	Published	27-06-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16794">http://pda.etsi.org/pda/home.asp?wki_id=16794</a>
T1	T1.3GPP.35.205 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAE.3G-35.205 (R5-5.0.0)	5.0.0	Approved	28-10-02	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-35.205(R5-5.0.0).pdf">http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-35.205(R5-5.0.0).pdf</a>

### 10.12.5 TS 35.206 3G security; Specification of the MILENAGE algorithm set: An example algorithm set for the 3GPP authentication and key generation functions $f_1, f_1^*, f_2, f_3, f_4, f_5$ and $f_5^*$ ; Document 2: Algorithm specification

This document contains an example set of algorithms which may be used as the authentication and key generation functions  $f_1, f_1^*, f_2, f_3, f_4, f_5$  and  $f_5^*$ . (It is not mandatory that the particular algorithms specified in this document are used – all seven functions are operator-specifiable rather than being fully standardized).

The algorithms specified in this document are examples that may be used by an operator who does not wish to design his own.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 35.206 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 135 206	5.0.0	Published	27-06-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16795">http://pda.etsi.org/pda/home.asp?wki_id=16795</a>
T1	T1.3GPP.35.206 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAE.3G-35.206 (R5-5.0.0)	5.0.0	Approved	28-10-02	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-35.206(R5-5.0.0).pdf">http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-35.206(R5-5.0.0).pdf</a>

### 10.12.6 TS 35.208 3G security; Specification of the MILENAGE algorithm set: An example algorithm set for the 3GPP authentication and key generation functions $f_1, f_1^*, f_2, f_3, f_4, f_5$ and $f_5^*$ ; Document 4: Design conformance test data

This document contains an example set of algorithms which may be used as the authentication and key generation functions  $f_1, f_1^*, f_2, f_3, f_4, f_5$  and  $f_5^*$ . (It is not mandatory that the particular algorithms specified in this document are used – all seven functions are operator-specifiable rather than being fully standardized).

The algorithms specified in this document are examples that may be used by an operator who does not wish to design his own.

For each of the algorithms the test data sets have been selected such that, provided the entire set of tests is run:

- each input bit of the Rijndael Kernel function will have been in both the '0' and '1' states.
- each input bit of the modes (RAND, K, SQN, AMF) will have been in both the '0' and '1' states.
- every S-Box entry of the Rijndael Kernel function will have been used.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 35.208 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TS 135 208	5.0.0	Published	27-06-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16797">http://pda.etsi.org/pda/home.asp?wki_id=16797</a>
T1	T1.3GPP.35.208 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAE.3G-35.208 (R5-5.0.0)	5.0.0	Approved	28-10-02	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-35.208(R5-5.0.0).pdf">http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-35.208(R5-5.0.0).pdf</a>

**10.12.7 TR 35.909 3G security; Specification of the MILENAGE algorithm set: An example algorithm set for the 3GPP authentication and key generation functions  $f_1, f_1^*, f_2, f_3, f_4, f_5$  and  $f_5^*$ ; Document 5: Summary and results of design and evaluation**

This report contains a detailed summary of the work performed during the design and evaluation of the 3G Authentication Functions denoted as the MILENAGE algorithm set.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-TSD-CN 35.909 (R5)	5.0.0	Published	-04-03	<a href="http://www.cwts.org/itu/itu-t/Q1741/R5.htm">http://www.cwts.org/itu/itu-t/Q1741/R5.htm</a>
ETSI	TR 135 909	5.0.0	Published	27-06-02	<a href="http://pda.etsi.org/pda/home.asp?wki_id=16798">http://pda.etsi.org/pda/home.asp?wki_id=16798</a>
T1	T1.3GPP.35.909 V500-2003	5.0.0	Approved	08-08-03	<a href="https://www.atis.org/atis/docstore/search.asp?committee=S24">https://www.atis.org/atis/docstore/search.asp?committee=S24</a>
TTA	TTAE.3G-35.909 (R5-5.0.0)	5.0.0	Approved	28-10-02	<a href="http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-35.909(R5-5.0.0).pdf">http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-35.909(R5-5.0.0).pdf</a>





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