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SERIES Q: SWITCHING AND SIGNALLING

Signalling requirements and protocols for IMT-2000

IMT-2000 references (approved as of 11 July 2002) to ANSI-41 evolved core network with cdma2000 access network

ITU-T Recommendation Q.1742.2

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ITU-T Recommendation Q.1742.2

IMT-2000 references (approved as of 11 July 2002) to ANSI-41 evolved core network with cdma2000 access network

Summary

This Recommendation associates the published core network standards from the regional standards development organizations (SDOs) with those 3GPP2 specifications that were approved as of 11 July 2002 for the IMT-2000 family member "ANSI-41 evolved core network with cdma2000 access network".

3GPP2 specifications that were approved as of 17 July 2001 were associated with the published core network standards from the regional standards development organizations in ITU-T Rec. Q.1742.1. 3GPP2 specifications that are approved as of July 2003 will be associated with published core network standards in the future ITU-T Rec. Q.1742.3. The radio interface and radio access network and standards from the SDOs for this IMT-2000 family member are associated in ITU-R M.1457-1. The associations for other IMT-2000 family members are identified in the ITU-T Q.174x series.

This Recommendation combines and associates the regional standards for the core network of this IMT-2000 family member into a global Recommendation.

Source

ITU-T Recommendation Q.1742.2 was approved by ITU-T Study Group SSG (2001-2004) under the ITU-T Recommendation A.8 procedure on 29 July 2003.

Keywords

ANSI-41, cdma2000, core network, IMT-2000, third generation system.

FOREWORD

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1 Scope

This Recommendation identifies the IMT-2000 family member; "ANSI-41 evolved core network with cdma2000 access network". This set of referenced specifications includes those 3GPP2 specifications that were approved as of 11 July 2002.

The core network interfaces identified in this Recommendation, and the radio interfaces and radio access network interfaces identified in ITU-R Rec. M.1457-1 [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, Rec. ITU-R M.1457-1 [1], shall take precedence.

2 References

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.

- [1] Recommendation ITU-R M.1457-1 (2001), *Detailed specifications of the radio interfaces of International Mobile Telecommunications-2000 (IMT-2000)*.
- [2] ANSI; TIA/EIA-41D (1997), *Cellular radiotelecommunications intersystem operations (ANSI/TIA/EIA-41-D-97)*.
- [3] ANSI; TIA/EIA-95-B (1999), *Mobile Station-Base station Compatibility Standard for Wideband Spread Spectrum Cellular Systems (ANSI/TIA/EIA-95-B-99)*.
- [4] ANSI; TIA/EIA-124-D (2001), *Wireless Radio Telecommunications Intersystem Non-Signalling Data Communication DMH (Data Message Handler) (ANSI/124-D-2001)*.
- [5] ANSI; TIA/EIA 136 (2001), *TDMA cellular PCS (ANSI/TIA/EIA-136, Rev C-2001)*.
- [6] ANSI; TIA/EIA-553-A (1999), *Mobile Station – Base Station Compatibility Standard (ANSI TIA/EIA-553-A-99)*.
- [7] ANSI; TIA/EIA 664A (2000), *Cellular features description (ANSI/TIA/EIA-664-A-2000)*.
- [8] TIA/EIA/IS-91-A (1999), *Base station – Mobile Station Compatibility Specification for 800 MHz Cellular, Auxiliary and Residential Services (TIA/EIA/IS-91-A)*.
- [9] TIA/EIA/IS-2000 (2000), *CDMA 2000 series (TIA/EIA/IS-2000 Series Revision A)*.
- [10] TIA/EIA/IS-2001-A (2001), *Interoperability specifications (IOS) for cdma2000 access network interfaces (TIA/EIA/IS-2001-A)*.

- [11] TIA/EIA TSB29-D (2000), *International implementation of wireless telecommunication systems compliant with TIA/EIA-41*.
- [12a] CWTS; CWTS-MC-S.R0005-B (2002), *Network reference model for cdma2000 spread spectrum systems*.
- [12b] TIA/EIA TSB100-A (2001), *Wireless Network Reference Model*.
- [12c] TTA; TTAE.3G-S.R0005-B (2001), *3GPP2 Network reference model for cdma2000 spread spectrum systems*.
- [12d] TTC; TS-3GB-S.R0005-Bv1.0 (2001), *Network reference model for cdma2000 spread spectrum systems*.
- [13a] CWTS; CWTS-MC-N.S0037 (2002), *IP Network Architecture Model for cdma2000 Spread Spectrum Systems*.
- [13b] TTA; TTAT.3G-S.R0037-0v2.0 (2003), *IP network architecture model for cdma2000 spread spectrum systems*.
- [13c] TTC; TS-3GB-S.R0037-0v2.0 (2002), *IP network architecture model for cdma2000 spread spectrum systems*.
- [14] TIA/EIA TSB29-E (2002), *International implementation of wireless telecommunication systems compliant with TIA/EIA-41*.

3 Definitions

This Recommendation defines the following terms:

- 3.1 active:** The MS is available for call delivery. This state is maintained by the MSC, the VLR and the HLR. (See also Available, Inactive and Unavailable.)
- 3.2 access denial call treatment:** A tone, announcement, or call redirection applied as appropriate.
- 3.3 access network:** Network that connects access technologies (such as a Radio Access Network) to the core network.
- 3.4 adjunct MSC:** A Mobile Switching Centre (MSC) that is providing adjunct services such as voice response, voice recognition, DTMF tone detection, voice message storage, etc.
- 3.5 anchor MSC:** The Mobile Switching Centre (MSC), that is the first to assign a traffic channel to a call on origination or termination is called the Anchor MSC. For the duration of this call, this MSC shall be the anchor (fixed) point in the event that the Mobile Station (MS) should be handed off to other MSCs.
- 3.6 authentication:** The act of verifying the identity of an entity (e.g., a user, device).
- 3.7 available:** The MS can accept a call delivery (i.e., the MS is in a known location and it is in a state able to accept call deliveries). The availability of a MS to accept a call delivery is maintained only by the MSC. (See also Active, Inactive and Unavailable.)
- 3.8 base transceiver station:** A piece of radio access network equipment that contains the radios and serves a geographic area.
- 3.9 call delivery:** The process by which calls directed to the cellular subscriber are delivered to the subscriber while roaming in a visited system.
- 3.10 call delivery method:** Method by which a call is delivered to a subscriber in MSC-V.
- 3.11 call disconnect:** The process of requesting the release of a connection between two or more network addresses.

- 3.12 call release:** The process of relinquishing the facilities and circuits used for a call.
- 3.13 call termination:** The process of connecting a subscriber to an incoming call.
- 3.14 candidate MSC:** This term is used during the handoff measurement request by the current serving MSC to reference the MSC that is being requested to provide its best CELL ID and SIGNAL QUALITY values.
- 3.15 cell site:** The physical location of a cell's radio equipment and supporting systems. This term is also used to refer to the equipment located at the cell site.
- 3.16 clearinghouse:** A service used for the exchange and management of information.
- 3.17 data communications:** The digital transmission of information (other than voice).
- 3.18 dialogue:** A user interaction sequence composed of tones and announcements that may gather information.
- 3.19 gateway MSC:** See MSC-G.
- 3.20 home system:** The system which is transmitting the System Identifier (SID) (refer to *EIA/TIA-553*) which is recognized by the MS as the "Home" SID.
- 3.21 inactive:** The MS is not available for call delivery. The MS may not be registered. The MS may be registered, but is out of radio contact (e.g., missing autonomous registrations) or is intentionally inaccessible for periods of time (e.g., slotted mode, paging frame class, or sleep mode). An inactive MS may accept SMS message deliveries. This state is maintained by the MSC, the VLR and the HLR. (See also Active, Available, and Unavailable.)
- 3.22 market identification (MarketID):** A unique market identifier that is specified by the service provider (e.g., FCC assigned SID, CIBERNET assigned BID – see *TIA/EIA TSB29*).
- 3.23 mobile assisted handoff (MAHO):** A process where handoff measurements are done by the MS under the control of the MSC and Base Station. The MSC and Base Station retain the control over when the handoff actually occurs.
- 3.24 mobility:** The ability to access services from any point in the network. The degree of service availability may depend on the access network capabilities, as well as any service level agreements between the user's home network and the visited network. Types of mobility include personal mobility, service mobility, and terminal mobility.
- 3.25 mobility management:** The set of functions used to manage a mobile user accessing a network other than that user's home network. These functions include communication with the home network for purposes of authentication, authorization, location updating and download of user information.
- 3.26 MSC-G:** An MSC that is capable of the Intersystem procedures, defined in this Recommendation, between entities in the network reference model so as to provide service.
- 3.27 MSC-H:** The "home" MSC of an MS which is broadcasting the SID that is recorded in the MS's Security and Identification memory, and to which the MS's Directory Number is assigned.
- 3.28 MSC-V:** A "visited" MSC in whose service area a roamer is operating.
- 3.29 network reference model:** The functional entities and the associated interface reference points that may logically comprise a cellular network. (See clause 6.)
- 3.30 number portability:** A mechanism that allows a user to retain the same directory number, regardless of the subscribed-to service provider. Number portability may be limited to specific geographical areas. In the context of the All-IP network, the term "number portability" refers specifically to E.164 numbers used for telephony.

- 3.31 originating MSC:** The MSC-H or MSC-G that initiates the call delivery procedures defined in this Recommendation.
- 3.32 originating SMS supplementary service:** Services or features that affect SMS message originations and are requested on a per message basis as supported by a particular teleservice, for example, delayed delivery or message distribution to a list of destinations.
- 3.33 personal mobility:** The ability of users to change their association with one or more terminals at any point and time. The user should continue to receive subscribed and otherwise authorized services as supported by the current MS and access network.
- 3.34 personalized services:** Services that need access to the subscriber profile and/or are dependent on the overall call/session state (of the user) for reasons of service interaction. An example: a call termination service such as TIA/EIA-41's "Call Forward on Busy".
- 3.35 protocol extension:** A mechanism provided to allow systems with a common bilateral agreement to extend the *TIA/EIA-41* protocol. There is a range of reserved Error Codes, Operation Codes, Parameter Identifiers (in addition to PRIVATE Parameter Identifiers), and ranges of values in enumerated parameter types and data fields. The only mechanism to resolve conflicting uses of protocol extension is to standardize their usage. The Protocol Extension mechanism is used at the risk of the implementation. Protocol Extensions should not be used unless the message recipient is known to support them.
- 3.36 radio access network:** The network that connects radio base stations to the core network. The RAN provides and maintains radio-specific functions which may be unique to a given radio access technology that allow users to access the core network.
- 3.37 registered:** The HLR has a pointer to a system serving an MS. A registered MS may be active or inactive.
- 3.38 registration:** The procedure by which a MS becomes listed as being present in the service area of an MSC.
- 3.39 remote feature control port (RFC Port):** A terminating directory number supporting service profile modification.
- 3.40 roamer port:** A terminating directory number supporting call delivery to mobile stations.
- 3.41 roamer service profile:** The specific set of features, capabilities and/or operating restrictions, other than financial accountability, associated with the subscriber.
- 3.42 roamer validation:** That aspect of roamer service qualification dealing with financial accountability. Also, the general procedure by which a roamer's financial accountability is established.
- 3.43 Roaming:** Action whereby users access services while outside of their subscribed home network.
- 3.44 service qualification:** The service capabilities, features and privileges to which an MS is entitled. Also, the general procedure by which such service capabilities, features and privileges become established in an MSC.
- 3.45 serving MSC:** The MSC which currently has the MS obtaining service at one of its cell sites within its coverage area.
- 3.46 signalling:** The information exchanged between the mobile station and the network or within the network, for the purposes of service provision (e.g., connection establishment).
- 3.47 switch number (SWNO):** A number uniquely identifying a particular switch (i.e., a group of cell sites and the associated switch resources) within a group of switches associated with a common MarketID.

3.48 target MSC: The MSC which was selected from the candidate list as having the cell site with the best signal quality value for the MS during the location request function.

3.49 temporary local directory number (TLDN): A network address temporarily assigned for call setup.

3.50 terminating SMS supplementary service: Services or features that affect SMS message terminations, for example, screening, forwarding, delivery to an MS, delayed delivery while roaming or distribution to a group based upon a destination address.

3.51 termination address: One or more digits, as determined by the Home System, which identify the Terminating Party. This could include Speed Call Codes (when supported by the Home Service Provider), other Mobile Telephone Numbers or any valid World Telephone Number.

3.52 traffic: The information generated by the subscriber that is transported on the network (i.e., user voice or data).

3.53 unavailable: The MS cannot accept a normal call delivery (i.e., the MS is in an unknown location or it is in a state unable to accept call deliveries). The availability of an MS to accept a call delivery is maintained only by the MSC. (See also Active, Available and Inactive.)

3.54 unregistered: A state where the MS is unavailable for any type of termination event and the HLR pointer is not directed to any visited system.

3.55 visited network: The visited network is a carrier's network where a subscriber is currently roaming. The term "visited network" is more business significant, than geographically significant.

3.56 visited system: From the MS's perspective, a system which is transmitting a SID which is not recognized by the MS as the "Home" SID. From a network perspective, the system in which an MS is currently registered.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations:

μ	Microsecond (10^{-6} second)
3G	Third Generation
3GPP2	Third Generation Partnership Project (ANSI driven)
AC	Authentication Centre
ADDS	Application Data Delivery Service
ADPCM	Adaptive Differential Pulse Code Modulation
ADS	Asynchronous Data Service
AH	Answer Hold
AMPS	Advanced Mobile Phone System
ANSI	American National Standards Institute
AoC	Advice of Charge
ARIB	Association of Radio Industries and Businesses (Japan)
BS	Base Station
BSC	Base Station Controller
BTS	Basic Transceiver System
CDCP	Call Data Collection Point

CDGP	Call Data Generation Point
CDIS	Call Data Information Source
CDMA	Code Division Multiple Access
CDRP	Call Data Rating Point
CNAP	Calling Name Presentation
CNAR	Calling Name Restriction
CNIP	Calling Number Identification Presentation
CSC	Customer Service Centre
CWTS	China Wireless Telecommunication Standard Group
DCCH	Dedicated Control CHannel
DMH	Data Message Handler
DP	Detection Point
DTMF	Dual Tone Multi-Frequency
EIA	Electronics Industry Association
EIR	Equipment Identity Register
ESN	Electronic Serial Number
ESP	Encapsulating Security Payload
FCC	Federal Communications Commission
FPH	FreePHone
FPLMTS	Future Public Land Mobile Telecommunication Systems (now IMT-2000)
GECO	Global Emergency Call Origination
GSM	Global System for Mobile Communications (Formerly: Group Special Mobile)
HA	Home Agent
HLR	Home Location Register
IETF	Internet Engineering Task Force
IMSI	International Mobile Subscriber Identity
IMT	International Mobile Telecommunications
IMT-2000	International Mobile Telecommunications-2000
IP	Intelligent Peripheral
IP	Internet Protocol
IPE	In Path Equipment
IS	Interim Standard
ISDN	Integrated Services Digital Network
ISLP	InterSystem Link Protocol
ISO	International Standards Organization
ITU	International Telecommunication Union
ITU-R	International Telecommunication Union – Radiocommunication Sector

ITU-T	International Telecommunication Union – Telecommunication Standardization Sector
IWF	InterWorking Function
LBSS	Location-Based Services System
MAP	Mobile Application Part
MC	Message Centre
MC	Multi-Carrier
MDN	Mobile Directory Number
MHz	Megahertz (10 ⁶ Hertz)
MS	Mobile Station
MSC	Mobile Switching Centre
MSID	Mobile Station Identifier
NAM	Number Assignment Module
NAMPS	Narrowband Advanced Mobile Phone Service
NDSS	Network Directed System Selection
NRM	Network Reference Model
OAM&P	Operations, Administration, Maintenance and Provisioning
OTAF	Over-the-Air Function
OTAPA	Over-the-Air Parameter Administration
OTASP	Over-the-Air Service Provisioning
PCF	Packet Control Function
PCS	Personal Communications Service
PCS	Personal Communications System
PDE	Positioning Determining Element
PDSN	Packet Data Serving Node
PL	Preferred Language
PN	Project Number
PPC	Pre-Paid Charging
PPP	Point-to-Point Protocol
PRC	Premium Rate Charging
RAN	Radio Access Network
RUAC	Rejection of Undesired Annoying Calls
R-UIM	Removable User Identity Module
SC	Subscriber Confidentially
SCF	Service Call Forwarding
SCP	Service Control Point
SID	System Identifier
SME	Short Message Entity

SMS	Service Management System
SMS	Short Message Service
SN	Service Node
SS7	Signalling System No. 7
SSG	Special Study Group
TFO	Tandem Free Operation
TIA	Telecommunications Industry Association
TMSI	Temporary Mobile Station Identification
TR	Transmit-Receive (as in TR45)
TRAU	Transcoder and Rate Adaptor Unit
TSB	Telecommunications Systems Bulletin
TTA	Telecommunications Technology Association (Korea)
TTC	Telecommunication Technology Committee (Japan)
UIM	User Identity Module
USCF	User Selective Call Forwarding
VLR	Visitor Location Register
WIN	Wireless Intelligent Network
WLL	Wireless Local Loop
WNP	Wireless Number Portability

5 Introduction

The Core Network for cdma2000 is based on an evolved ANSI-41 2nd generation mobile system. The core network technical specifications have been developed in a third generation partnership project (approved in 3GPP2 as of 11 July 2002) and transposed to the involved regional Standards Development Organizations (SDOs). The system will support different applications ranging from narrow-band to wide-band communications capability with integrated personal and terminal mobility to meet the user and service requirements.

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

The descriptions in clauses 6, 7 and 8 and the descriptions of the technical specifications listed in clause 10 are for informative purposes only. Normative information is in the tables for the respective specification.

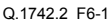
6 Basic architecture for the ANSI-41 evolved core network with cdma2000 access network family member




The basic architecture for the ANSI-41 evolved core network with cdma2000 access network family member includes a circuit-based and packet-based core network and an all-IP multimedia domain.

The following text is based on references [12a] to [12d].

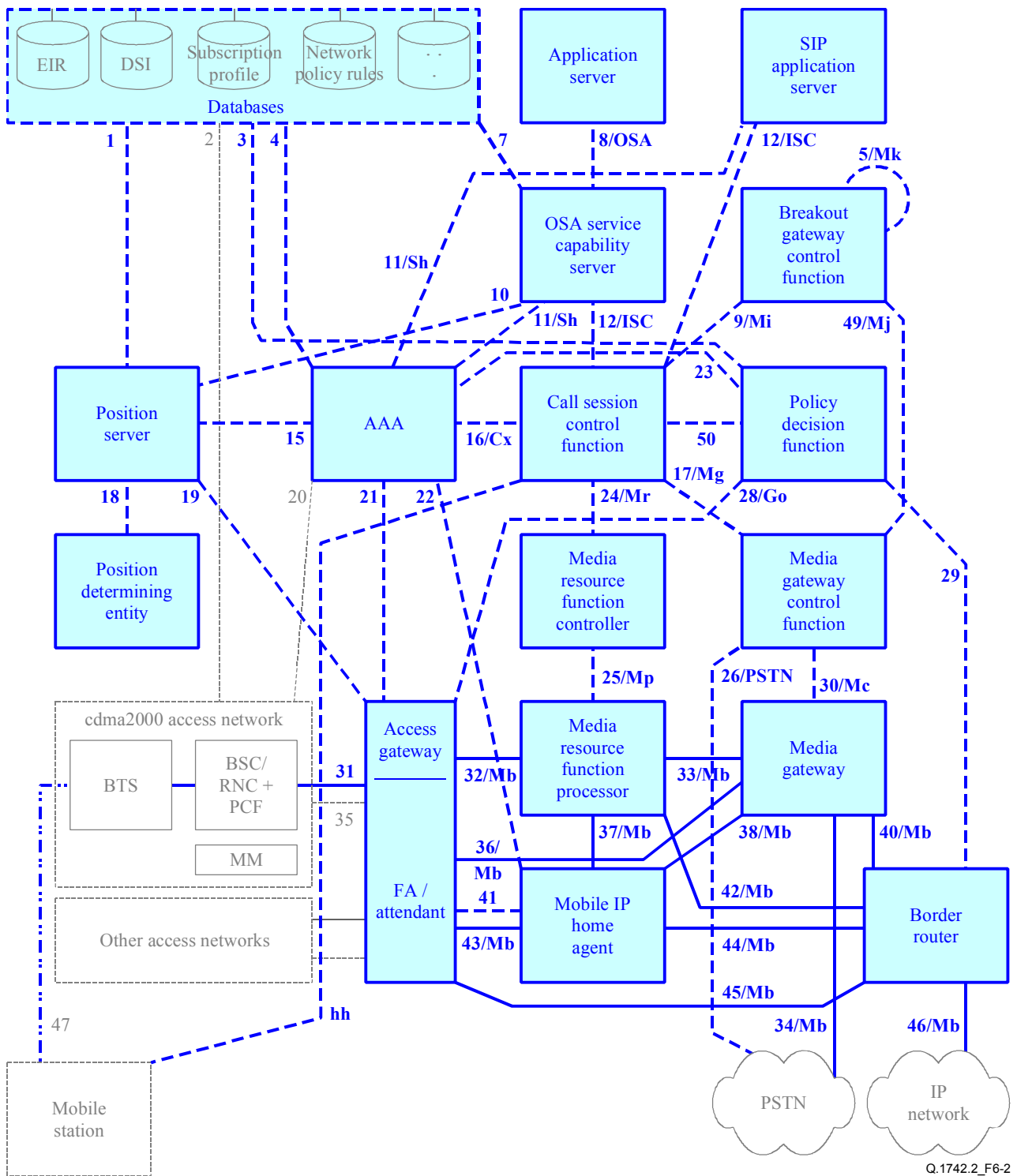
Figure 6-1 presents the network entities and associated reference points that comprise the ANSI-41 evolved core network with cdma2000 access network. The network entities are represented by squares, triangles and rounded corner rectangles; circles represent the reference points. The network reference model in this Recommendation is the compilation of several reference models currently in use.

- The network reference model is a functional block diagram.
- A network entity represents a group of functions, not a physical device. For example, a Mobile Switching Centre (MSC) is a physical device; it comprises frames, shelves, circuit packs, etc. The physical device may comprise a single network entity such as the MSC, or it may comprise some combination such as the MSC, the Visitor Location Register (VLR), the Home Location Register (HLR) and the Authentication Centre (AC). The physical realization is an implementation issue; a manufacturer may choose any physical implementation of network entities, either individually or in combination, as long as the implementation meets the functional requirements. Sometimes, for practical reasons, the functional network entity is a physical device. The Mobile Station (MS) is an excellent example.
- A reference point is a conceptual point that divides two groups of functions. It is not necessarily a physical interface. A reference point only becomes a physical interface when the network entities on either side of it are contained in different physical devices.
- A "Collective Entity" contains encompassed network entities that are an instance of the collective.
- A "Composite Entity" contains encompassed network entities that are part of the composite.



	Interface Reference Point
	Interface to Another Instance of Same Network Entity
	Line Intersection

10 ITU-T Rec. Q.1742.2 (07/2003)

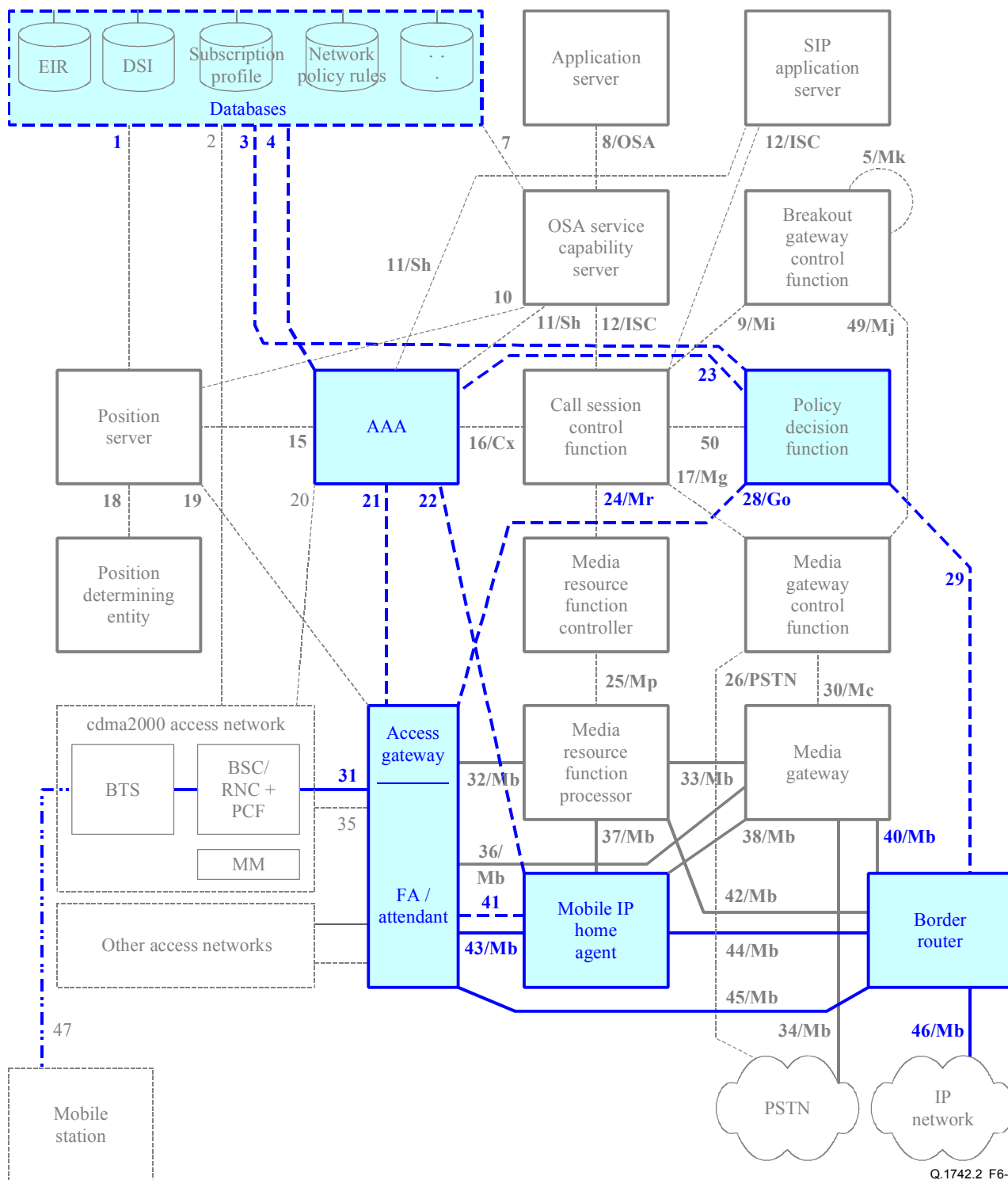


NOTE – In Figure 6-2 the network elements and reference points, in bold and shaded (in "blue"), identify the "IP MMD Core Network".

Figure 6-2/Q.1742.2 – ANSI-41 evolved core network with cdma2000 access network IP MMD core network architecture model

The MMD of the All-IP network offers both general packet data support and multimedia session capabilities. The multimedia session capabilities are built on top of the general packet data support capabilities. The general packet data capabilities may be deployed without the multimedia session capabilities. Some network entities are common to providing both capabilities.

Figure 6-3 shows the entities that comprise the general packet data support portion of the MMD core network. These are known collectively as the Packet Data Subsystem (PDS). Figure 6-3 includes several reference points that have dual labels. Either of these labels may be used in the specifications relating to these reference points.



Q.1742.2_F6-3

NOTE – In Figure 6-3 the network elements and reference points, in bold and shaded (in blue), identify the "Packet Data Subsystem".

Figure 6-3/Q.1742.2 – ANSI-41 evolved core network with cdma2000 access network packet data subsystem core network architecture model

Figure 6-4 shows the entities that comprise the multimedia session capabilities of an All-IP network. These entities are known collectively as the IP Multimedia Session Subsystem (IMS). Figure 6-4 includes several reference points that have dual labels. Either of these labels may be used in the specifications relating to these reference points.

NOTE – In Figure 6-4 the "IP Multimedia Session Subsystem" is identified by the network elements and reference points, in bold and shaded (in "blue").

The session control functions within the IMS are logically interconnected in various ways in the session scenarios. Figure 6-5 identifies the reference points within the IMS between these session control entities. In many cases, there are dual labels for these reference points either of which may be used in the applicable specifications.

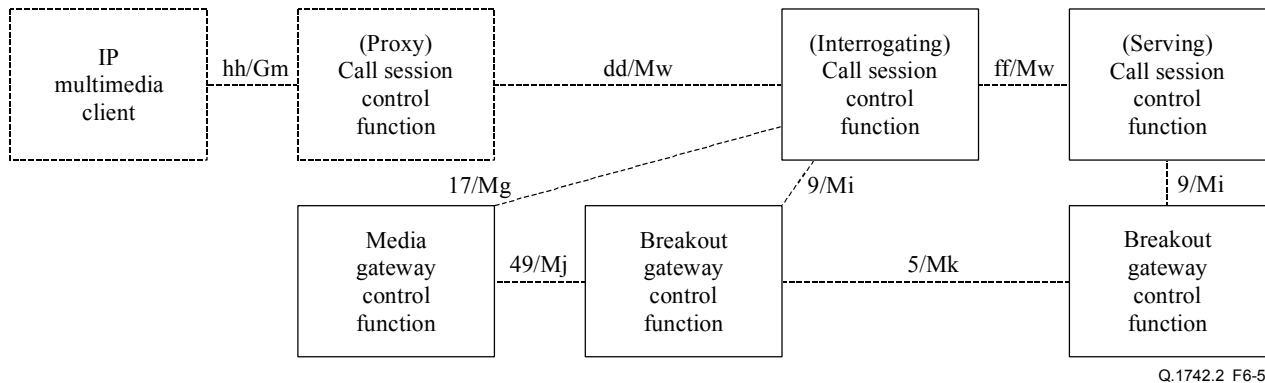


Figure 6-5/Q.1742.2 – Session control reference model

7 Network entities

The following text is based on references [12a] to [12d].

7.1 Authentication, Authorization and Accounting (AAA)

The AAA is an entity that provides IP-based authentication, authorization, and accounting. The AAA maintains security associations with peer AAA entities to support intra- and/or inter-administrative domain AAA functions.

- The Authentication Function provides Authentication of users.
- The Authorization Function of AAA provides authorization of service requests based on subscriber profiles, and network policy. It also generates keys required for establishing security associations between PDSNs in access provider networks and HAs in home IP networks.
- The Accounting Function gathers accounting data concerning the services used by individual subscribers.

7.2 Authentication Centre (AC)

The AC is an entity that manages the authentication information related to the MS. The AC may or may not be located within and be indistinguishable from an HLR. An AC may serve more than one HLR.

7.3 Call Data Collection Point (CDCP)

The CDCP is the entity that collects the call detail information.

7.4 Call Data Generation Point (CDGP)

The CDGP is an entity which provides call detail information to the CDCP (in ANSI-124 format). This may be the entity that converts call detail information from a proprietary format into a standard format. All information from the CDGP to the CDCP must be in this standard format.

7.5 Call Data Information Source (CDIS)

The CDIS is an entity that can be the source of call detail information. This information may be in proprietary format. It is not required to be in the standard format.

7.6 Call Data Rating Point (CDRP)

The CDRP is the entity that takes the unrated call detail information and applies the applicable charge and tax-related information. The charge and tax information is added using the standard format.

7.7 Collection Function (CF) – [Intercept]

The CF is an entity that is responsible for collecting intercepted communications for a lawfully authorized law enforcement agency.

The CFs typically include:

- the ability to receive and process call contents information for each intercept subject;
- the ability to receive information regarding each intercept subject (e.g., call associated or non-call associated) from the Delivery function and process it.

7.8 Coordinate Routing Data Base (CRDB)

The CRDB is an entity that stores information to translate a given position expressed as a latitude and longitude to a string of digits.

7.9 Customer Service Centre (CSC)

The CSC is an entity where service provider representatives receive telephone calls from customers wishing to subscribe to initial wireless service or request a change in the customer's existing service. The CSC interfaces proprietarily with the OTAF to perform network and MS-related changes necessary to complete the service provisioning request.

7.10 Delivery Function (DF) – [Intercept]

The DF is an entity that is responsible for delivering intercepted communications to one or more collection functions.

The DFs typically include:

- the ability to accept call contents for each intercept subject over one or more channels from each Access function;
- the ability to deliver call contents for each intercept subject over one or more channels to a Collection function as authorized for each law enforcement agency;
- the ability to accept information over one or more data channels and combine that information into a single data flow for each intercept subject;
- the ability to filter or select information on an intercept subject before delivery to a Collection function as authorized for a particular law enforcement agency;
- the optional ability to detect audio in-band DTMF digits for translation and delivery to a Collection function as authorized for a particular law enforcement agency;
- the ability to duplicate and deliver information on the intercept subject to one or more Collection functions as authorized for each law enforcement agency;
- the ability to provide security to restrict access.

7.11 Equipment Identity Register (EIR)

The EIR is an entity that is the register to which user equipment identity may be assigned for record purposes. The nature, purpose, and utilization of this information is an area for further study.

7.12 Home Agent (HA)

The HA is an entity that:

- authenticates Mobile IP registrations from the MS;
- redirects packets to the foreign agent component of the PDSN, and optionally receives and routes reverse packets from the foreign agent component of the PDSN;
- may establish, maintain and terminate secure communications to the PDSN;
- receives provisioning information from the AAA Function for users;
- may assign a dynamic home IP address.

7.13 Home Location Register (HLR)

The HLR is the location register to which a user identity is assigned for record purposes such as subscriber information (e.g., Electronic Serial Number (ESN), Mobile Directory Number (MDN), Profile Information, Current Location, Authorization Period).

7.14 Intelligent Peripheral (IP)

The IP is an entity that performs specialized resource functions such as playing announcements, collecting digits, performing speech-to-text or text-to-speech conversion, recording and storing voice messages, facsimile services, data services, etc.

7.15 Intercept Access Point (IAP)

The IAP is an entity that provides access to the communications to or from, the equipment, facilities or services of an intercept subject.

7.16 Interworking Function (IWF)

The IWF is an entity that provides information conversion for one or more WNEs. An IWF may have an interface to a single WNE providing conversion services. An IWF may augment an identified interface between two WNEs, providing conversion services to both WNEs.

7.17 Local Position Determining Entity (LPDE)

The LPDE facilitates the determination of the position or geographical location of a wireless terminal. Each LPDE supports one or more position determining technologies. Multiple LPDEs using the same technology may serve the coverage area of a Mobile Position Center (MPC) and the multiple LPDEs each using a different technology may serve the same coverage area of an MPC. Local PDEs (LPDEs) reside at the Base Station (BS).

7.18 Managed Wireless Network Entity (MWNE)

A MWNE (within the Collective Entity) or any specific network entity having Operation System wireless management needs, including another Operations System.

7.19 Message Centre (MC)

The MC is an entity that stores and forwards short messages. The MC may also provide supplementary services for Short Message Service (SMS).

7.20 Mobile Position Centre (MPC)

The MPC selects a PDE to determine the position of a mobile station. The MPC may restrict access to position information (e.g., require that the MS be engaged in an emergency call or only release position information to authorized network entities).

7.21 Mobile Switching Centre (MSC)

The MSC switches circuit mode MS originated or MS terminated traffic. An MSC is usually connected to at least one BS. It may connect to the other public networks (PSTN, ISDN, etc.), other MSCs in the same network or MSCs in different networks. The MSC may store information to support these capabilities.

7.22 Number Portability DataBase (NPDB)

The NPDB is an entity which provides portability information for portable Directory Numbers.

7.23 Over-The-Air Service Provisioning Function (OTAF)

The OTAF is an entity that interfaces proprietarily to CSCs to support service provisioning activities. The OTAF interfaces with the MSC to send MS orders necessary to complete service provisioning requests.

7.24 Packet Data Network (PDN)

A PDN, such as the Internet, provides a packet data transport mechanism between processing network entities capable of using such services.

7.25 Packet Data Serving Node (PDSN)

The PDSN routes MS originated or MS terminated packet data traffic. The PDSN establishes, maintains and terminates link layer sessions to MSs. The PDSN may interface to one or more MSs and may interface to one or more PDNs.

7.26 Position Determining Entity (PDE)

A PDE facilitates determination of the position or geographical location of a wireless terminal. Each PDE supports one or more position determining technologies. Multiple PDEs using the same technology may serve the coverage area of an Mobile Position Centre (MPC) and the multiple PDEs each using a different technology may serve the same coverage area of an MPC.

7.27 Service Control Point (SCP)

The SCP is an entity that acts as a real-time database and transaction processing system that provides service control and service data functionality.

7.28 Service Node (SN)

The SN is an entity that provides service control, service data, specialized resources and call control functions to support bearer-related services.

7.29 Short Message Entity (SME)

The SME is an entity that composes and decomposes short messages. A SME may or may not be located within and be indistinguishable from, an HLR, MC, VLR, MS or MSC.

7.30 Visitor Location Register (VLR)

The VLR is the location register other than the HLR used by an MSC to retrieve information for handling of calls to or from a visiting subscriber. The VLR may, or may not be located within, and be indistinguishable from an MSC. The VLR may serve more than one MSC.

7.31 Voice Message Centre (VMS)

A VMS stores received voice messages, data messages e.g., email, or both message types and supports a method to retrieve previously stored messages. A VMS may also support (on a Directory Number basis) notification of the presence of stored messages and notification of a change in the number of voice messages, data messages or both message types that are waiting retrieval.

7.32 Wireless Network Entity (WNE)

A Network Entity in the wireless Collective Entity.

The remaining text in this clause is based on references [13a] to [13c].

7.33 Access Gateway (AGW)

The CDMA2000 AGW consists of the PDSN and other logical functions required to interface the core network to the CDMA2000 RAN.

- The PDSN routes MS originated or MS terminated packet data traffic. The PDSN establishes, maintains and terminates link layer sessions to MSs. The PDSN may interface to one or more MSs and may interface to one or more PDNs.

7.34 Application server

Application servers provide value-added network-based services for wireless subscribers. These services may be accessed via the OSA Service Capability Server (OSA-SCS) or accessed directly from the user's mobile station via other network entities, by-passing the OSA-SCS.

7.35 Authentication, Authorization and Accounting (AAA)

The AAA is an entity that provides IP-based authentication, authorization and accounting. The AAA maintains security associations with peer AAA entities to support intra- and/or inter-administrative domain AAA functions.

- The Authentication Function is an entity that provides Authentication of terminal devices and subscribers.
- The Authorization Function of AAA provides authorization of requests for services and/or bandwidth, etc. and has access to the Policy Repository, the Directory Services, Subscriber Profiles and the Device Register.
- The Accounting Function gathers data concerning the services, QoS and multimedia resources requested and used by individual subscribers.

7.36 Border Router (BR)

The BR connects the Core Network with peer networks (e.g., other service providers, corporate networks, Internet). The BR performs IP packet routing, exterior gateway routing protocols, and policing of incoming and outgoing traffic, ensuring traffic complies with defined Service Level Agreements established with peer networks. The BR may intercept any QoS allocation request and issue a request to the Policy Decision Function (PDF), which shall verify that the requested inbound and/or outbound QoS is available. A successful response from the PDF may cause the BR to forward the bandwidth allocation request to its final destination.

7.37 Breakout Gateway Control Function (BGCF)

The BGCF selects the network in which PSTN breakout is to occur and, within the network where the breakout is to occur, selects the MGCF.

7.38 Call Session Control Function (CSCF)

The CSCF establishes, monitors, supports, releases Multimedia sessions and manages the user's service interactions.

7.39 Databases (DB)

The information in the core network DBs may include but is not limited to EIR, Dynamic Subscriber Information, Network Policy Rules and Subscriber Profile data.

7.40 IP Multimedia Client

The IP Multimedia Client communicates with Application Servers, P-CSCFs and other IP Multimedia Clients. The IP Multimedia Client is an application that resides in the MS.

7.41 IP Network

The IP network corresponds to IP-based packet data networks that provide a transport mechanism between the core network and external IP networks. IP Network represents packet networks connected to the core network including the public Internet, private IP backbone networks and private IP networks such as a corporate Intranets.

7.42 Media Gateway (MGW)

The MGW provides an interface between the packet environment of the Core Network and the circuit switched environment of the PSTN for bearer traffic, when equipped with circuit capabilities. The MGW may provide vocoding and/or transcoding functions to the bearer traffic. The MGW may also provide modem functions to convert digital byte streams to and from audio modem tones placed on circuits, and may provide the capability to terminate PPP (Point-to-Point Protocol) connections. It also provides policy enforcement relative to its activities and resources.

7.43 Media Gateway Control Function (MGCF)

The MGCF provides the ability to control a Media Gateway through standardized interfaces. Such control includes allocation and deallocation of resources of the Media Gateway, as well as modification of the usage of those resources.

7.44 Media Resource Function Controller (MRFC)

The MRFC, in conjunction with the MRFP, provides a set of resources within the core network that are useful in supporting services to subscribers. The MRFC, in conjunction with the MRFP, provides multi-way conference bridges, announcement playback services, tone playback services, etc.

7.45 Media Resource Function Processor (MRFP)

The MRFP, in conjunction with the controlling entity, provides multi-way conference bridges, announcement playback services, tone playback services, etc.

7.46 Mobile IP Home Agent (HA)

The HA provides two major functions: registering the current point of attachment of the user and forwarding of IP packets to and from the current point of attachment (IPv4 Care of Address (CoA) and/or IPv6 Co-located CoA) of the user. The HA accepts registration requests using the Mobile

IP protocol and uses the information in those requests to update internal information about the current point of attachment of the user, i.e., the current IP address to be used to transmit and receive IP packets to and from that user. The HA interacts with the AAA to receive Mobile IP registration requests that have been authenticated, and to return Mobile IP registration responses. The HA also interacts with the Access Gateway to receive subsequent Mobile IP registration requests. The HA may interact with several network entities in performing its work of forwarding IP packets to the current point of attachment of the user.

7.47 Mobile Station (MS)

The MS is a wireless terminal used by subscribers to access the Legacy MS Domain or the IP Multimedia Domain services over a radio interface. MSs include portable units (e.g., hand-held units), units installed in vehicles, and somewhat paradoxically, fixed location MSs. The MS is the interface equipment used to terminate the radio path at the subscriber. A MS is a ME with a programmed UIM.

7.48 OSA Service Capability Server (OSA-SCS)

The OSA-SCS provides access to network resources needed during service application execution. The interface towards the Application Server uses application programming interfaces such as Open Service Architecture (OSA). The interfaces towards other network entities use the relevant protocols.

7.49 Policy Decision Function (PDF)

The PDF provides management of core network QoS resources within its own core network necessary to support services to network users. It communicates with the Access Gateway to provide authorization of resource allocations. The PDF makes policy decisions with regard to use of core network QoS resources within its own network, including consideration of Service Level Agreements (SLAs).

NOTE – The maintenance of SLAs is for further study.

QoS policy information for network resource utilization may be forwarded to and cached by the PDF.

7.50 Position Determining Entity (PDE)

The PDE communicates with the Position Server to determine the precise geographic position of the MS based on input data provided by the Position Server.

7.51 Position Server

The Position Server provides geographic position information to requesting entities.

7.52 Public Switched Telephone Network (PSTN)

The PSTN is defined in accordance with the appropriate applicable national and regional standards.

8 Reference Points

The following text is based on references [12a] to [12d].

8.1 Reference Point B

Reference Point B is the interface between MSC and the VLR.

8.2 Reference Point C

Reference Point C is the interface between the MSC and the HLR.

8.3 Reference Point D

Reference Point D is the interface between the VLR and HLR.

8.4 Reference Point d

Reference Point d is the interface between an IAP and the DF.

8.5 Reference Point D₁

Reference Point D₁ is the interface between the OTAF and the VLR.

8.6 Reference Point D_i

Reference Point D_i is the interface between:

- The IP and the ISDN;
- The IWF and the ISDN;
- The MSC and the ISDN (ESBE);
- The SN and the ISDN.

8.7 Reference Point E

Reference Point E is the interface between the MSC and MSC.

8.8 Reference Point E₃

Reference Point E₃ is the interface between MPC and the MSC.

8.9 Reference Point E₅

Reference Point E₅ is the interface between the MPC and the PDE.

8.10 Reference Point E₉

Reference Point E₉ is the interface between the MPC and the SCP.

8.11 Reference Point E₁₁

Reference Point E₁₁ is the interface between the CRDB and the MPC.

8.12 Reference Point E₁₂

Reference Point E₁₂ is the interface between MSC and the PDE.

8.13 Reference Point e

Reference Point e is the interface between the CF and the DF.

8.14 Reference Point F

Reference Point F is the interface between the MSC and the EIR.

8.15 Reference Point G

Reference Point G is the interface between the VLR and the VLR.

8.16 Reference Point H

Reference Point H is the interface between the HLR and the AC.

8.17 Reference Point I

Reference Point I is the interface between the CDIS and the CDGP.

8.18 Reference Point J

Reference Point J is the interface between the CDGP and the CDCP.

8.19 Reference Point K

Reference Point K is the interface between the CDGP and the CDRP.

8.20 Reference Point L

Reserved.

8.21 Reference Point M₁

Reference Point M₁ is the interface between the SME and the MC.

8.22 Reference Point M₂

Reference Point M₂ is the MC to MC interface.

8.23 Reference Point M₃

Reference Point M₃ is the SME to SME interface.

8.24 Reference Point N

Reference Point N is the interface between the HLR and the MC.

8.25 Reference Point N₁

Reference Point N₁ is the interface between the HLR and the OTAF.

8.26 Reference Point O₁

Reference Point O₁ is the interface between an MWNE and the OSF.

8.27 Reference Point O₂

Reference Point O₂ is the interface between an OSF and the OSF.

8.28 Reference Point P_i

Reference Point P_i is the interface between:

- The AAA and the AAA;
- The AAA and the PDN;
- The IWF and the PDN;
- The MSC and the PDN; plus
- The PDSN and the PDN.

8.29 Reference Point Q

Reference Point Q is the interface between the MC and the MSC.

8.30 Reference Point Q₁

Reference Point Q₁ is the interface between the MSC and the OTAF.

8.31 Reference Point T₁

Reference Point T₁ is the interface between the MSC and the SCP.

8.32 Reference Point T₂

Reference Point T₂ is the interface between the HLR and the SCP.

8.33 Reference Point T₃

Reference Point T₃ is the interface between the IP and the SCP.

8.34 Reference Point T₄

Reference Point T₄ is the interface between the HLR and the SN.

8.35 Reference Point T₅

Reference Point T₅ is the interface between the IP and the MSC.

8.36 Reference Point T₆

Reference Point T₆ is the interface between the MSC and the SN.

8.37 Reference Point T₇

Reference Point T₇ is the interface between the SCP and the SN.

8.38 Reference Point T₈

Reference Point T₈ is the interface between the SCP and the SCP.

8.39 Reference Point T₉

Reference Point T₉ is the interface between the HLR and the IP.

8.40 Reference Point V

Reference Point V is the interface between the OTAF and the OTAF.

8.41 Reference Point X

Reference Point X is the interface between the CSC and the OTAF.

8.42 Reference Point Y

Reference Point Y is the interface between a Wireless Network Entity (WNE) and the IWF.

8.43 Reference Point Z

Reference Point Z is the interface between the MSC and the NPDB.

8.44 Reference Point Z₁

Reference Point Z₁ is the interface between the MSC and the VMS.

8.45 Reference Point Z₂

Reference Point Z₂ is the interface between the HLR and the VMS.

8.46 Reference Point Z₃

Reference Point Z₃ is the interface between the MC and the VMS

The remaining text in this section is based on references [13a] to [13c].

An interface exists when two Network Entities are interconnected through exactly one signalling or bearer stream Reference Point. The Reference Points and their associated Network Entities are:

8.47 Reference Point 1

Reference Point 1 is the signalling interface between the Databases and the Position Server (Multimedia Domain only).

8.48 Reference Point 2

Reference Point 2 is the signalling interface between the Databases and the cdma2000 Access Network.

8.49 Reference Point 3

Reference Point 3 is the signalling interface between the Databases and the Policy Decision Function (Multimedia Domain only).

8.50 Reference Point 4

Reference Point 4 is the signalling interface between the Databases and the AAA.

8.51 Reference Point 5/Mk

Reference Point 5/Mk is the signalling interface between Breakout Gateway Control Functions (Multimedia Domain only).

8.52 Reference Point 6

Reference Point 6 is the signalling interface between the Databases and the Legacy MS Domain Support (Legacy MS Domain only).

8.53 Reference Point 7

Reference Point 7 is the signalling interface between the OSA Service Capability Server and the Databases.

8.54 Reference Point 8/OSA

Reference Point 8/OSA is the signalling interface between the OSA Application Server and the OSA Service Capability Server. Reference Point 8/OSA may employ interfacing techniques that support a wide spectrum of capabilities, ranging from secure (e.g., application programming interfaces such as Parlay, used for untrusted parties) to non-secure (e.g., used for trusted parties).

8.55 Reference Point 9/Mi

Reference Point 9/Mi is the signalling interface between the Visited Network's BGCF and the Home Service Network's Serving-CSCF.

8.56 Reference Point 10

Reference Point 10 is the signalling interface between the Position Server and the OSA Service Capability Server (Multimedia Domain only).

8.57 Reference Point 11/Sh

Reference Point 11/Sh is the signalling interface between the SIP Application Server and the AAA and between the OSA Service Capability Server and the AAA for user's service authentication and/or authorization, and for retrieving information from the MMD database (Multimedia Domain only).

8.58 Reference Point 12/ISC

Reference Point 12/ISC is the signalling interface between the SIP Application Server and Call Session Control Function and between the OSA Service Capability Server and the Call Session Control Function for service control (Multimedia Domain only).

8.59 Reference Point 13

Reference Point 13 is the signalling interface between the Legacy MS Domain Support and the PSTN (Legacy MS Domain only).

8.60 Reference Point 14

Reference Point 14 is the signalling interface between the Legacy MS Domain Support and the MAP (TIA/EIA-41 and GSM) (Legacy MS Domain only).

8.61 Reference Point 15

Reference Point 15 is the signalling interface between the Position Server and AAA.

8.62 Reference Point 16/Cx

Reference Point 16/Cx is the signalling interface between the AAA and the Call Session Control Function (Multimedia Domain only).

8.63 Reference Point 17/(Mg)

Reference Point 17/(Mg) is the signalling interface between the Call Session Control Function and the Media Gateway Control Function (Multimedia Domain only).

8.64 Reference Point 18

Reference Point 18 is the signalling interface between the Position Server and the Position Determining Entity.

8.65 Reference Point 19

Reference Point 19 is the signalling interface between the Position Server and the Access Gateway (Multimedia Domain only).

8.66 Reference Point 20

Reference Point 20 is the signalling interface between the AAA and the cdma2000 Access Network (Multimedia Domain only).

8.67 Reference Point 21

Reference Point 21 is the signalling interface between the AAA and Access Gateway.

8.68 Reference Point 22

Reference Point 22 is the signalling interface between the AAA and the Mobile IP Home Agent.

8.69 Reference Point 23

Reference Point 23 is the signalling interface between the AAA and the Policy Decision Function (Multimedia Domain only).

8.70 Reference Point 24/Mr

Reference Point 24/Mr is the signalling interface between the Call Session Control Function and the Media Resource Function Controller (Multimedia Domain only).

8.71 Reference Point 25/Mp

Reference Point 25/Mp is the signalling interface between the Media Resource Function Controller and the Media Resource Function Processor.

8.72 Reference Point 26/PSTN

Reference Point 26/PSTN is the signalling interface between the Media Gateway Control Function and the PSTN (Multimedia Domain only).

8.73 Reference Point 27

Reference Point 27 is the bearer stream interface between the cdma2000 Access Network and the Media Gateway (Legacy MS Domain only).

8.74 Reference Point 28/Go

Reference Point 28/Go is the signalling interface between the Policy Decision Function and Access Gateway.

8.75 Reference Point 29

Reference Point 29 is the signalling interface between Policy Decision Function and the Border Router.

8.76 Reference Point 30/Mc

Reference Point 30/Mc is the signalling interface between the Media Gateway Control Function and the Media Gateway (Multimedia Domain only).

8.77 Reference Point 31

Reference Point 31 is the bearer stream interface between cdma2000 Access Network and the Access Gateway.

8.78 Reference Point 32/Mb

Reference Point 32/Mb is the bearer stream interface between the Access Gateway and the Media Resource Function Processor (Multimedia Domain only).

8.79 Reference Point 33/Mb

Reference Point 33/Mb is the bearer stream interface between the Media Resource Function Processor and the Media Gateway.

8.80 Reference Point 34/Mb

Reference Point 34/Mb is the bearer stream interface between the Media Gateway and the PSTN.

8.81 Reference Point 35

Reference Point 35 is the signalling interface between the cdma2000 Access Network and the Access Gateway.

8.82 Reference Point 36/Mb

Reference Point 36/Mb is the bearer stream interface between the Access Gateway and the Media Gateway (Multimedia Domain only).

8.83 Reference Point 37/Mb

Reference Point 37/Mb is the bearer stream interface between the Media Resource Function Processor and the Mobile IP Home Agent (Multimedia Domain only).

8.84 Reference Point 38/Mb

Reference Point 38/Mb is the bearer stream interface between the Media Gateway and the Mobile IP Home Agent (Multimedia Domain only).

8.85 Reference Point 39

Reference Point 39 is the signalling interface between the Media Gateway and the Legacy MS Domain Support (Legacy MS Domain only).

8.86 Reference Point 40/Mb

Reference Point 40/Mb is the bearer streams interface between the Media Gateway and the Border Router.

8.87 Reference Point 41

Reference Point 41 is the signalling interface between the Access Gateway and the Mobile IP Home Agent.

8.88 Reference Point 42/Mb

Reference Point 42/Mb is the bearer streams interface between the Media Resource Function Processor and the Border Router.

8.89 Reference Point 43/Mb

Reference Point 43/Mb is the bearer streams interface between the Access Gateway and the Mobile IP Home Agent.

8.90 Reference Point 44/Mb

Reference Point 44/Mb is the bearer stream interface between the Mobile IP Home Agent and the Border Router.

8.91 Reference Point 45/Mb

Reference Point 45/Mb is the bearer stream interface between the Access Gateway and the Border Router.

8.92 Reference Point 46/Mb

Reference Point 46/Mb is the bearer stream interface between the Border Router and the IP Network.

8.93 Reference Point 47

Reference Point 47 is the Radio Link (air interface) between the Mobile Station and the cdma2000 Access Network.

8.94 Reference Point 48

Reference Point 48 is the signalling interface between the cdma2000 Access Network and the Legacy MS Domain Support (Legacy MS Domain only).

8.95 Reference Point 49/(Mj)

Reference Point 49/(Mj) is the signalling interface between the Breakout Gateway Control Function and the Media Gateway Control Function (Multimedia Domain only).

8.96 Reference Point 50

Reference Point 50 is the signalling interface between the Policy Decision Function and the P-CSCF (Multimedia Domain only).

9 Technical specifications structure

This clause provides an overview of the specifications for this IMT-2000 family member based on ANSI-41 evolved core network with cdma2000 access 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 3GPP2 3rd Generation Mobile System.

The 3GPP2 document-numbering scheme is indicated as follows:

A.Bcccc-w-x version y.z

Where:

- 1) A denotes the TSG (A, C, N, P, S) which developed the specification where:
 - TSG-A develops RAN (i.e., A-interface) specifications;
 - TSG-C develops air interface specifications;
 - TSG-N develops intersystem interface specifications;
 - TSG-P develops packet data specifications;
 - TSG-S develops service and system aspects specifications including Stage 1 requirements descriptions and OAM&P specifications.
- 2) B denotes project, report, specification (P, R, S).
- 3) cccc denotes a four (4)-digit number which identifies the specific specification.
- 4) w denotes revision:
 - 0 is the first release (0th revision);
 - A is the first revision;
 - and so on.
- 5) x denotes whether this is the prime revision or an addendum:
 - 0 is the prime revision, and is used when the document is first created;
 - 1 is the first addendum;
 - is the second addendum;
 - and so on.

- 6) y is the "point release" indicator – 0 is used when the document is first created; the number is incremented whenever approved for publishing by the plenary of a TSG (e.g., 1 is the first approval by the plenary for publishing).
- 7) z is an internal edit level. The internal edit level z, is always reset to 0 when the document is approved by the applicable plenary. It is incremented by the entity (e.g., working group) that is developing the document for each new edit release.

NOTE 1 – If the designator w and the designator x are both equal to 0, then neither designator needs to be included.

NOTE 2 – The document reference section does not need to include "version y.z" unless specifically needed to resolve a technical incompatibility that would exist.

10 Technical specifications

All dates in the tables of clause 10 are formatted day-month-year. If no day is shown for the document, then the format is -month-year.¹

10.1 A series RAN specifications

The 3GPP2 A Series RAN specifications are outside of the scope of this Recommendation. The radio access network to core network interface specifications for the cdma2000 (ANSI-41 evolved core network with cdma2000 access network) system family will be referenced in a new issue of Rec. ITU-R M.1457-1.

10.2 Intersystem specifications

10.2.1 N.S0003-0 v.1.0 User Identity Module (April 2001)

This standard defines the enhancements required for the support of mobile stations equipped with User Identification Modules (UIM). The UIM provides functionality to certain types of mobile stations to enable them to operate in the wireless network.

This document defines requirements for the wireless network to support operation of UIM equipped mobile stations. A UIM provides compatible mobile stations with the parameters required of mobile stations operating in the TIA/EIA-41 environment and specific additional functionality unique to UIM-equipped mobile stations.

The UIM can be in one of two forms, either as integrated within the mobile, or removable so that it can be inserted or removed from the mobile equipment. This document addresses Removable UIM (R-UIM) only.

¹ Note on nomenclature of TIA documents: before TIA was accredited, documents were created under EIA. After TIA was accredited as a standards development organization, documents were named beginning with TIA/EIA. TIA documents can now stand by themselves, so since 2000, documents are now titled TIA only. The IS was an interim standard valid for 3 years and that naming system is no longer used for new documents.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0003-0	1.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TIA/EIA/IS-808		Published	01-12-2000	http://www.tiaonline.org/standards/search_results2.cfm?document_no=TIA%2FEIA%2FIS%2D808
TTA	TTAE.3G-N.S0003	1	Approved	13-07-2000	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-N_S0003.zip
TTC	TS-3GB-N.S0003v1.0	1	TTC Published	29-05-2001	http://www.ttc.or.jp/imt2000/ts/tsn_s0003-v10.pdf

10.2.2 N.S0004-0 v 1.0 WIN Phase 2 (April 2001)

- Triggers for Preferred Language
- Advice of Charge – Rejection of Undesired Annoying Calls
- Premium Rate Charging
- Freephone

Premium Rate Charging (PRC), Freephone (FPH) and Advice of Charging (AoC) are charging related services that provide a set of advanced wireless charging capabilities. Rejection of Undesired Annoying Calls (RUAC) is a screening service that blocks undesired annoying calls to the subscriber. Enhanced Preferred Language (EPL) uses Wireless Intelligent Network (WIN) capabilities to provide announcements to the subscriber in the subscriber's preferred language. This specification presents a recommended plan for the implementation of WIN capabilities that support these features. The WIN capabilities are for use in the Wireless Radiotelephone Service.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0004-0	1.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TIA/EIA/IS-848		Published	01-12-2000	http://www.tiaonline.org/standards/search_results2.cfm?document_no=TIA%2FEIA%2FIS%2D848
TTA	TTAE.3G-N.S0004	1	Approved	13-07-2000	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-N_S0004.zip
TTC	TS-3GB-N.S0004-0v1.0	1	TTC Published	29-05-2001	http://www.ttc.or.jp/imt2000/ts/tsns0004-0v10.pdf

10.2.3 N.S0005-0 Version 1.0 Cellular Radiotelecommunications Intersystem Operations (no date)

(O) The purpose of this document is to identify those cellular services which require intersystem cooperation, to present the general background against which those services are to be provided and to summarize the principal considerations which have governed and directed the particular approaches taken in the procedural recommendations.

	Document No.	Version	Status	Issued date	Location
CWTS	YD/T 1031-1999	1.0	Published	-12-1999	http://www.cwts.org/itu/part2/MC1.htm
TIA	TIA/EIA-41-D		Published	01-12-1997	http://www.tiaonline.org/standards/search_results2.cfm?document_no=TIA%2FEIA%2D41%2DD
TTA	TTAE.3G-N.S0005	1	Approved	13-07-2000	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-N_S0005.zip

10.2.4 N.S0006 Version 1.0.0 PCS Multi-band Based on IS-41-C Revision: 0 (28 January 2000)

This document presents recommendations for supporting Multi-Band Handoffs (1800 MHz to 1800 MHz, 1800 MHz to 800 MHz, 800 MHz to 1800 MHz and 800 MHz to 800 MHz).

This Recommendation defines Multi-Band handoffs to include:

- intra-band intersystem handoffs (800 MHz Cellular to 800 MHz Cellular and 1800 MHz PCS to 1800 MHz PCS); plus
- inter-band intersystem handoffs (1800 MHz PCS to 800 MHz Cellular and 800 MHz Cellular to 1800 MHz PCS);
- handoffs for Mobile Stations (MS) supporting AMPS, CDMA, NAMPS and TDMA operating modes.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0006	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TSB76		Published	01-09-1996	http://www.tiaonline.org/standards/search_results2.cfm?document_no=TSB76
TTA	TTAE.3G-N.S0006 v1.0.0	1.0.0	Approved	28-10-2002	http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-N.S0006v1.0.0.pdf
TTC	JP-3GB-N.S0006	1	TTC Published	31-03-2000	http://www.ttc.or.jp/imt2000/std/jpn_s0006.pdf

10.2.5 N.S0008 Version 1.0 Circuit Mode Services (no date)

This Standard presents a recommended plan for the implementation of Uniform Features for use in the Cellular Radiotelephone Service. Its intent is to describe services and features so that the manner in which a subscriber may place calls using such features and services may remain reasonably consistent from system to system. It is not intended to require that specific service offerings be required of all service providers.

Services:

- Asynchronous Data Service (ADS);
- Data Privacy (DP);
- Group 3 Facsimile Service (G3 Fax);
- Service Negotiation (SN);
- Mobile Termination Functions.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0008	1.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TIA-737		Published	01-01-2002	http://www.tiaonline.org/standards/search_results2.cfm?document_no=TIA%2D737
TTA	TTAE.3G-N.S0008 v1.0	1.0	Approved	28-10-2002	http://www.tta.or.kr/standardDB/snfile/TTAE.3G-N.S0008v1.0.pdf
TTC	JP-3GB-N.S0008	1	TTC Published	31-03-2000	http://www.ttc.or.jp/imt2000/std/jpns0008.pdf

10.2.6 N.S0009-0 Version 1.0 IMSI (no date)

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0009-0	1.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TIA-751		Published	01-01-2002	http://www.tiaonline.org/standards/search_results2.cfm?document_no=TIA%2D751
TTA	TTAE.3G-N.S0009	1	Approved	13-07-2000	http://www.tta.or.kr/standardDB/snfile/TTAE_3G-N_S0009.zip
TTC	JP-3GB-N.S0009	1	TTC Published	31-03-2000	http://www.ttc.or.jp/imt2000/std/jpns0009.pdf

10.2.7 N.S0010-0 Version 1.0 Advanced features in Wideband Spread Spectrum Systems (no date)

For this revision of this Standard, the advanced CDMA features include: Network Directed System Selection (NDSS) and Subscriber Confidentiality (SC) supported by TMSI.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0010-0	1.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TIA-735		Published	01-01-2002	http://www.tiaonline.org/standards/search_results2.cfm?document_no=TIA%2D735
TTA	TTAE.3G-N.S0010 v1.0	1.0	Approved	28-10-2002	http://www.tta.or.kr/standardDB/snfile/TTAE.3G-N.S0010-0v1.0.pdf
TTC	JP-3GB-N.S0010-0	1	TTC Published	31-03-2000	http://www.ttc.or.jp/imt2000/std/jpns0010.pdf

10.2.8 N.S0011-0 Version 1.0 OTASP and OTAPA (no date)

This document presents recommendations for supporting the Over-The-Air "Service Provisioning" (OTASP) and "Parameter Administration" (OTAPA) capability.

Specifically, this document includes Stage-1 recommendations for OTASP Subscriber Feature and OTAPA Network Feature Descriptions. It also provides intersystem operation recommendations for supporting the OTASP & OTAPA capability for the CDMA and TDMA air interfaces, with Stage-2 operations and scenarios, Stage-3 operations and parameter definitions plus Stage-3 procedures.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0011-0	1.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TIA/EIA/IS-725-A		Published	01-07-1999	http://www.tiaonline.org/standards/search_results2.cfm?document_no=TIA%2FEIA%2FIS%2D725%2DA
TTA	TTAE.3G-N.S0011	1	Approved	13-07-2000	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-N_S0011.zip
TTC	JP-3GB.N.S0011	1	TTC Published	31-03-2000	http://www.ttc.or.jp/imt2000/std/jpns0011.pdf

10.2.9 N.S0012-0 CNAP/CNAR Revision: 0 (28 January 2000)

This document presents a recommended plan for the implementation of Calling Name Presentation (CNAP) and Calling Name Restriction (CNAR) for use in the Wireless Radiotelephone Service.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0012-0	1.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TIA-764		Published	01-01-2002	http://www.tiaonline.org/standards/search_results2.cfm?document_no=TIA%2D764
TTA	TTAE.3G-N.S0012	1	Approved	13-07-2000	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-N_S0012.zip
TTC	JP-3GB-N.S0012	1	TTC Published	31-03-2000	http://www.ttc.or.jp/imt2000/std/jpns0012.pdf

10.2.10 N.S0013-0 Version 1.0 WIN Phase 1 (no date)

The Wireless Intelligent Network (WIN) is a network which supports the use of intelligent network capabilities to provide seamless terminal services, personal mobility services and advanced network services in mobile environment.

This document presents a recommended plan for the implementation of the Wireless Intelligent Network (WIN) for use in the Wireless Radiotelephone Service.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0013-0	1.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TIA/EIA/IS-771 TIA/EIA/IS-771-1	Addendum 1	Published Published	01-07-1999 01-08-2001	http://www.tiaonline.org/standards/search_results2.cfm?document_no=TIA%2FEIA%2FIS%2D771
TTA	TTAE.3G-N.S0013	1	Approved	13-07-2000	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-N_S0013.zip
TTC	JP-3GB-N.S0013	1	TTC Published	31-03-2000	http://www.ttc.or.jp/imt2000/std/jpns0013.pdf

10.2.11 N.S0014-0 Version 1.0 Authentication Enhancements (no date)

This Standard presents a recommended plan for the implementation of authentication enhancements for use in the Wireless Radiotelephone Service. Its intent is to describe the authentication enhancements so that the manner in which a system implements them may remain reasonably consistent from system to system.

The authentication enhancements include:

- Count Update after Handoff;
- Obtaining subscriber profile before authentication on initial system access;
- Handling of suspicious call originations;
- Identify the Serving MSC when reporting the outcome of a requested authentication operation;
- Handling of authentication capable mobile stations when the home system is not authentication capable;
- Clarification and editorial correction of authentication procedures;
- Miscellaneous authentication enhancements.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0014-0	1.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TIA/EIA/IS-778		Published	01-03-1999	http://www.tiaonline.org/standard/s/search_results2.cfm?document_no=TIA%2FEIA%2FIS%2D778
TTA	TTAE.3G-N.S0014	1	Approved	13-07-2000	http://www.tta.or.kr/standardDB/snfile/TTAE_3G-N_S0014.zip
TTC	JP-3GB-N.S0014	1	TTC Published	31-03-2000	http://www.ttc.or.jp/imt2000/std/jpns0014.pdf

10.2.12 N.S0015 Version 1.0.0 ANSI-41-D Miscellaneous Enhancements (28 January 2000)

This document is intended to justify TIA/EIA-41-D technical enhancement or technical correction contributions that have been supported for incorporation into PN-3590 (TIA/EIA-41-E) but are not expected to be published in a TIA/EIA-41-D enhancement Interim Standard (IS).

This document is for tracking purposes only, there is no intention of publishing the contents of this document independent of ANSI/TIA/EIA-41-E.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0015	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-N.S0015 v1.0.0	1.0.0	Approved	28-10-2002	http://www.tta.or.kr/standardDB/snfile/TTAE.3G-N.S0015v1.0.0.pdf

10.2.13 N.S0016-0 Version 1.0 TIA/EIA-41-D Internationalization (no date)

This document specifies the ANSI/TIA/EIA-41-D Chapters 1, 3, 5 and 6 enhancements that are necessary to support international intersystem operations.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0016-0	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TIA/EIA/IS-807 TIA/EIA/IS-807-1	Addendum 1	Published Published	01-08-1999 01-03-2000	http://www.tiaonline.org/standards/search_results2.cfm?document_no=TIA%2FEIA%2FIS%2D807
TTA	TTAE.3G-N.S0016	1	Approved	13-07-2000	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-N_S0016.zip
TTC	JP-3GB-N.S0016	1	TTC Published	31-03-2000	http://www.ttc.or.jp/imt2000/std/jpns0016.pdf

10.2.14 N.S0017-A Version 1.0.0 International Implementation of Wireless Telecommunication Systems Compliant with TIA/EIA-41 Revision: A (16 March 2001)

When the first edition of Mobile Station – Land Station Compatibility Specification (IS-3, now TIA/EIA-553-A) was issued, it was envisioned that it would be adopted for use within Northern America. Provisions were included for international implementation; however, detailed guidelines to assist with such implementations were not included. Subcommittee TR-45.2 recognized the need to provide such guidance, and charted a Working Group (Working Group VI) with this responsibility. The result of this Working Group's deliberations has been the production of TSB-29 as well as ongoing internationalization of other TIA standards, such as TIA/EIA-41-D, TIA/EIA/IS-751, TIA/EIA/IS-807, TIA/EIA-124, TIA/EIA-136, IS-95, IS-91 and TIA/EIA-2000.

The principle aspects of international implementation addressed by this document are:

- The administration and assignment of System Identification Numbers (SIDs);
- The administration and assignment of Mobile Identification Numbers (MINs);
- Format of International Mobile Subscriber Identifiers (IMSI)s;
- Configuration and inter-operation of national SS7 networks in support of international roaming.

The goal of this publication is to provide the international wireless telecommunications industry with the framework permitting the coordinated implementation of Wireless Radio Telecommunication Systems in compliance with the provisions of the AMPS family of air interface standards (e.g., TIA/EIA-553, IS-54, IS-91, IS-95, TIA/EIA-2000 and TIA/EIA-136).

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0017	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TSB29-D		Published	01-12-2000	http://www.tiaonline.org/standards/search_results2.cfm?document_no=TSB29%2DD
TTA	TTAE.3G-N.S0017-A v1.0.0	1.0.0	Approved	28-10-2002	http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-N.S0017-Av1.0.0.pdf
TTC	TS-3GB-N.S0017-Av1.0	1	TTC Published	29-05-2001	http://www.ttc.or.jp/imt2000/ts/tsn_s0017-A-v10.pdf

10.2.15 N.S0018 Version 1.0.0 TIA/EIA-41-D Prepaid Charging (14 July 2000)

Pre-Paid Charging (PPC) allows the subscriber to pay for voice telecommunication services prior to usage. This document presents a recommended plan for the implementation of Wireless Intelligent Network (WIN) capabilities that support PPC. The WIN capabilities that support PPC are for use in the Wireless Radiotelephone Service.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0018-0	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TIA/EIA/IS-826		Published	01-09-2000	http://www.tiaonline.org/standards/search_results2.cfm?documentno=TIA%2FEIA%2FIS%2D826
TTA	TTAE.3G-N.S0018	1	Approved	13-07-2000	http://www.tta.or.kr/standardDB/s tnfile/TTAE_3G-N_S0018.zip
TTC	JP-3GB-N.S0018	2	TTC Published	14-05-2001	http://www.ttc.or.jp/imt2000/std/j pns0018.pdf

10.2.16 N.S0019 Version 1.0.0 Intersystem Link Protocol Revision: 0 (28 January 2000)

This document specifies an Intersystem Link Protocol (ISLP) for circuit-mode data services. These data services include Asynchronous Data (ADS) and Group-3 Fax as specified in IS-99 and IS-135. The ISLP adapts between air-interface data rates and higher-speed intersystem rates. The ISLP may be used between a serving system and an anchor system, possibly through one or more tandem systems.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0019-0	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TIA-728		Published	01-01-2000	http://www.tiaonline.org/standards/search_results2.cfm?documentno=TIA%2D728
TTA	TTAE.3G-N.S0019	1	Approved	13-07-2000	http://www.tta.or.kr/standardDB/s tnfile/TTAE_3G-N_S0019.zip
TTC	JP-3GB-N.S0019	1	TTC Published	31-03-2000	http://www.ttc.or.jp/imt2000/std/j pns0019.pdf

10.2.17 N.S0020 TIA/EIA-41-D Message Segmentation (August 1999)

This Standard presents needed text changes to ANSI/TIA/EIA-41-D to provide support of lower layer (i.e., SS7 SCCP) segmentation and reassembly of ANSI-41 MAP messages.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0020		Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TIA/EIA/IS-812		Published	01-08-1999	http://www.tiaonline.org/standards/search_results2.cfm?documentno=TIA%2FEIA%2FIS%2D812
TTA	TTAE.3G-N.S0020	1	Approved	13-07-2000	http://www.tta.or.kr/standardDB/s tnfile/TTAE_3G-N_S0020.zip

10.2.18 N.S0021 Version 1.0.0 User Selective Call Forwarding Revision: 1 (14 July 2000)

This document specifies the wireless intersystem network operation enhancements required for supporting roaming subscribers with the User Selective Call Forwarding (SCF) feature.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0021-0	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TIA/EIA/IS-838		Published	01-07-2000	http://www.tiaonline.org/standards/search_results2.cfm?document_no=TIA%2FEIA%2FIS%2D838
TTA	TTAE.3G-N.S0021 v1.0.0	1.0.0	Approved	28-10-2002	http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-N.S0021v1.0.0.pdf
TTC	JP-3GB-N.S0021	1	TTC Published	14-05-2001	http://www.ttc.or.jp/imt2000/std/jpns0021.pdf

10.2.19 N.S0022 Version 1.0.0 Answer Hold (14 July 2000)

This document specifies the wireless intersystem network operation enhancements required for supporting roaming subscribers with the Answer Hold (AH) feature.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0022	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TIA/EIA/IS-837		Published	01-09-2000	http://www.tiaonline.org/standards/search_results2.cfm?document_no=TIA%2FEIA%2FIS%2D837
TTA	TTAE.3G-N.S0022 v1.0.0	1.0.0	Approved	28-10-2002	http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-N.S0022v1.0.0.pdf
TTC	JP-3GB-N.S0022	1	TTC Published	14-05-2001	http://www.ttc.or.jp/imt2000/std/jpns0022.pdf

10.2.20 N.S0023-0 Version 1.0 Automatic Code Gapping (no date)

This document presents a recommended plan for the implementation of Automatic Code Gapping (ACG) for use in the Wireless Radiotelephone Service. ACG is used to reduce the rate at which a network entity, typically an MSC, sends service request messages to a service control function (SCF) network entity. ACG controls can be applied automatically by the SCF when it is in overload. ACG controls can also be applied by an SCF for purposes of SCF service management.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0023-0	1.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TIA/EIA/IS-786		Published	01-11-2000	http://www.tiaonline.org/standards/search_results2.cfm?document_no=TIA%2FEIA%2FIS%2D786
TTA	TTAE.3G-N.S0023-0 v1.0	1.0	Approved	28-10-2002	http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-N.S0023-0v1.0.pdf
TTC	JP-3GB-N.S0023	1	TTC Published	14-05-2001	http://www.ttc.or.jp/imt2000/std/jpns0023.pdf

10.2.21 N.S0024-0 Version 1.0 Network support for MDN-Based Message Centres (November 2000)

This document is intended to identify TIA/EIA-41-D WNP-PH3 (Wireless Number Portability – Phase III) technical enhancements required to support SMS (Short Message Service) delivery to MDN (Mobile Directory Number) based MCs (Message Centres). These enhancements have been supported for incorporation into PN-3590 (TIA/EIA-41-E) and are being published as a TIA/EIA-41-D enhancement Interim Standard (IS).

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0024-0	1.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TIA/EIA/IS-841		Published	01-09-2000	http://www.tiaonline.org/standards/search_results2.cfm?document_no=TIA%2FEIA%2FIS%2D841
TTA	TTAE.3G-N.S0024-0 v1.0	1.0	Approved	28-10-2002	http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-N.S0024-0v1.0.pdf
TTC	TS-3GB-N.S0024v1.0	1	TTC Published	29-08-2001	http://www.ttc.or.jp/imt2000/ts/tsn_s0024-v10.pdf

10.2.22 N.S0025 Version 1.0.0 Roamer Database Verification (January 2001)

This document presents a recommended plan for the implementation of Roamer Database Verification (RDV) for use in the Wireless Radiotelephone Service. RDV enables a home system to verify that a roaming partner's VLF database is correctly loaded for the MSID number ranges that "belong" to the home service provider. At the request of the HLR, the VLR examines its roamer database to verify that subscribers within the requested MSID range are allowed to roam in the visited system.

RDV provides a tool to assist in resolving problems experienced by home system subscribers when roaming in the visited system.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0025	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TIA/EIA/IS-847		Published	01-03-2000	http://www.tiaonline.org/standards/search_results2.cfm?document_no=TIA%2FEIA%2FIS%2D847
TTA	TTAE.3G-N.S0025 v1.0.0	1.0.0	Approved	28-10-2002	http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-N.S0025v1.0.0.pdf
TTC	TS-3GB-N.S0025v1.0	1	TTC Published	29-05-2001	http://www.ttc.or.jp/imt2000/ts/tsn_s0025-v10.pdf

10.2.23 N.S0025-A Version 1.0.0 Roamer Database Verification Revision: A (June 2002)

This document presents a recommended plan for the implementation of Roamer Database Verification (RDV) for use in the Wireless Radiotelephone Service.

Several types of network entities (NE) can initiate RDV service queries to verify the contents of databases relating to roaming in other network entities.

RDV enables a home system to verify that a roaming partner's VLF database is correctly loaded for the MSID number ranges that "belong" to the home service provider. At the request of the HLR, the

VLR examines its roamer database to verify that subscribers within the requested MSID range are allowed to roam in the visited system.

RDV provides a tool to assist in resolving problems experienced by home system subscribers when roaming in the visited system.

RDV may also be used to verify other message routing databases that may be used to support newer capabilities introduced in IS-41-C or in subsequent intersystem standards, including three message routing databases that may be maintained at an MSC and two message routing databases that may be maintained at an MC.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0025-A	1.0.0	Published	-09-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TIA/EIA/IS-847-A		Published	01-07-2000	http://www.tiaonline.org/standards/search_results2.cfm?document_no=TIA/EIA/IS-847-A
TTA	TTAT.3G-N.S0025-A v1.0.0	1.0.0	Approved	21-03-2003	http://www.tta.or.kr/imt2000/TTAT.3G-N.S0025-A v1.0.0.zip

10.2.24 N.S0026 Version 1.0.0 Wireless Radio Telecommunication Intersystem Non-Signalling Data Communication DMH (August 2000)

This standard is complementary to the ANSI-41, Cellular Radiotelecommunications Intersystem Operations, series of standards and identifies wireless services specifically involving non-signalling data communications which require intersystem cooperation, presents the general background against which those services are to be provided and summarizes the principal considerations which have governed and directed the particular approaches taken in the procedural recommendations.

This standard describes the messages and procedures required to perform call detail record data transmission between systems.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0026	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TIA/EIA-124-D		Published	01-12-2001	http://www.tiaonline.org/standards/search_results2.cfm?document_no=TIA%2FEIA%2D124%2DD
TTA	TTAE.3G-N.S0026 v1.0.0	1.0.0	Approved	28-10-2002	http://www.tta.or.kr/standardD B/stnfile/TTAE.3G-N.S0026v1.0.0.pdf

10.2.25 N.S0027 Version 1.0.0 Enhanced International Dialing, Calling Number Identification & Callback, Calling Party Category Identification (April 2001)

This document presents a recommended plan for the implementation of enhanced international dialing, calling number identification and callback and calling party category identification for use in the Wireless Radiotelephone Service.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0027	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TIA/EIA/IS-875		Published	01-05-2001	http://www.tiaonline.org/standards/search_results2.cfm?document_no=TIA%2FEIA%2FIS%2D875
TTA	TTAE.3G-N.S0027 v1.0.0	1.0.0	Approved	28-10-2002	http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-N.S0027v1.0.0.pdf
TTC	TS-3GB-N.S0027v1.0	1	TTC Published	29-05-2001	http://www.ttc.or.jp/imt2000/ts/tsns0027-v10.pdf

10.2.26 N.S0028 Version 1.0.0 Network Interworking Between GSM MAP and ANSI-41 MAP Rev. B Revision: 0 (April 2002)

The purpose of this standard is to define and describe the functions necessary for roaming between ANSI-41 MAP and GSM MAP-based networks in the support of roaming subscribers. This includes a capability to allow a subscriber to an ANSI-41-based network (e.g., a TDMA or CDMA native subscriber) with a mobile terminal supporting GPRS service to roam to a GPRS network in GSM Foreign Mode.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0028	1.0.0	Published	-06-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	J-STD-038A	1	Published	-01-2002	http://www.tiaonline.org/standards/search_results2.cfm?document_no=J-STD-038
TTA	TTAT.3G-N.S0028-0 v1.0	1.0	Approved	21-03-2003	http://www.tta.or.kr/imt2000/TTAT.3G-N.S0028-0 v1.0.zip
TTC	TS-3GB-N.S0028-0v1.0	1	TTC Published	27-08-2002	http://www.ttc.or.jp/imt2000/ts/tsns0028-0v10.pdf

10.2.27 N.S0029 Version 1.0.0 TIA/EIA-41 Based Network Enhancements for CDMA Packet Data Service (C-PDS), Phase 1 Revision: 0 (June 2002)

This document specifies the wireless intersystem network operation enhancements required for supporting roaming subscribers with Packet Data Service.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0029	1.0.0	Published	-12-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TIA/EIA-IS-880		Published	-07-2002	http://www.tiaonline.org/standards/search_results2.cfm?document_no=TIA/EIA/IS-880
TTA	TTAT.3G-N.S0029-0 v1.0	1.0	Approved	21-03-2003	http://www.tta.or.kr/imt2000/TTAT.3G-N.S0029-0 v1.0.zip
TTC	TS-3GB-N.S0029-0v1.0	1	TTC Published	27-08-2002	http://www.ttc.or.jp/imt2000/ts/tsns0029-0v10.pdf

10.2.28 N.S0030 Version 1.0.0 Enhanced Wireless 9-1-1 Phase 2 Revision: 0 (April 2002)

This standard defines the messaging required to support information transfer to identify and locate wireless emergency services callers.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-N.S0030	1.0.0	Published	-06-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	J-STD-036-A		Published	28-06-2002	http://www.tiaonline.org/standards/search_results2.cfm?document_no=J-STD-036-A
TTA	TTAT.3G-N.S0030-0 v1.0	1.0	Approved	21-03-2003	http://www.tta.or.kr/imt2000/TTAT.3G-N.S0030-0 v1.0.zip

10.3 Packet data specifications

10.3.1 P.S0001-A Version 3.0.0 Wireless IP Network Standard (16 July 2001)

This standard defines requirements for support of wireless packet data networking capability on a third generation wireless system based on cdma2000. This specification is based on P.R0001; cdma2000 Wireless IP Network Architecture based on IETF protocols.

This standard defines the two methods for accessing Public networks (Internet) and Private networks (Intranets): Simple IP and Mobile IP, and the required Quality of Service and Accounting support. IETF protocols are widely employed whenever possible, to minimize the number of new protocols required, and to maximize the utilization of well-accepted standards and hence the speed to market. Reference to the required IETF protocols is provided in Section 3 of this standard.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-P.S0001-A	3.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TIA/EIA/IS-835-A		Published	01-05-2001	http://www.tiaonline.org/standards/search_results2.cfm?document_no=TIA%2FEIA%2FIS%2D835%2DA
TTA	TTAE.3G-P.S0001-A v3.0.0	3.0.0	Approved	28-10-2002	http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-P.S0001-Av3.0.0.pdf
TTC	TS-3GB-P.S0001-Av3.0	1	TTC Published	29-08-2001	http://www.ttc.or.jp/imt2000/ts/tsps0001-A-v30.pdf

10.4 Services and system aspects specifications

10.4.1 S.R0003 Version 1.0.0 3GPP2 System Capability Guide Release A (20 January 2000)

This document is the 3GPP2 System Capability Guide (SCG) for 3GPP2 wireless telecommunication systems. It is developed and maintained under the auspices of 3GPP2 TSG-S, the TSG for Services and Systems Aspects for 3GPP2.

	Document No.	Version	Status	Issued date	Location
ARIB	TR-T13-S.R0003	1.3	ARIB Published	31-05-2001	http://www.arib.or.jp/IMT-2000/ARIB-STD/ITU-T/ARIB-TR-T13-S.R0003.pdf
CWTS	CWTS-MC-S.R0003	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0003-A	1	Approved	19-12-2001	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-S_R0003-A.zip

10.4.1.1 S.R0003-A Version 1.0 3GPP2 System Capability Guide Release B (14 June 2001)

This document is the 3GPP2 System Capability Guide (SCG) for 3GPP2 wireless telecommunication systems. It is developed and maintained under the auspices of 3GPP2 TSG-S, the TSG for Services and Systems Aspects for 3GPP2.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0003-A	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0003-A	1	Approved	19-12-2001	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-S_R0003-A.zip

10.4.2 S.R0004 Version 1.0.0 Service Implementation Guide Revision: 0 (20 January 2000)

This Service Implementation document describes and defines features adopted by 3GPP2 TSG-S. The features descriptions may include both stage 1 and stage 2 functional levels.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0004	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0004v1.0.0	1.0.0	Approved	28-10-2002	http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-S.R0004v1.0.0.pdf

10.4.3 S.R0005-B Version 1.0 Network Reference Model for cdma2000 Spread Spectrum Systems Revision: B (16 April 2001)

This document recommends the basic 3GPP2 Wireless Network Reference Model.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0005-B	1.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TSB100-A		Published	2001-03-01	http://www.tiaonline.org/standards/search_results2.cfm?document_no=TSB100%2DA
TTA	TTAE.3G-S.R0005-B	1	Approved	2001-12-19	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-S_R0005-B.zip
TTC	TS-3GB-S.R0005-Bv1.0	1	TTC Published	29-05-2001	http://www.ttc.or.jp/imt2000/ts/tssr0005-B-v1.0.pdf

10.4.4 S.R0006 Version 1.0.0 Wireless Features Description Revision: 0 (13 December 1999)

This Standard presents a recommended plan for the implementation of Uniform Features for use in the Wireless Radiotelephone Service. Its intent is to describe services and features so that the manner in which a subscriber may place calls using such features and services may remain reasonably consistent from system to system. It is not intended to require that specific service offerings be required of all service providers.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0006	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	TIA/EIA-664-A		Published	01-12-2000	http://www.tiaonline.org/standards/search_results2.cfm?document_no=TIA%2FEIA%2D664
TTA	TTAE.3G-S.R0006 v1.0.0	1.0.0	Approved	28-10-2002	http://www.tta.or.kr/standardDB/standardfile/TTAE.3G-S.R0006v1.0.0.pdf
TTC	JP-3GB-S.R.0006	1	TTC Published	31-03-2000	http://www.ttc.or.jp/imt2000/std/jpsr0006.pdf

10.4.5 S.R0007 Version 1.0.0 User Selective Call Forwarding (Stage 1) Revision: 0 (13 December 1999)

This Interim Standard (IS) presents Stage-1 (new chapter TIA/EIA-664-B), Stage-2 (TIA/EIA-41.3-D enhancements) and Stage-3 (TIA/EIA-41.5-D and TIA/EIA-41.6-D enhancements) recommendations for supporting the User Selective Call Forwarding (USCF) feature use in the Wireless Radiotelephone Service.

This document specifies the wireless intersystem network operation enhancements required for supporting roaming subscribers with the User Selective Call Forwarding (USCF) feature.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0007	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.1.htm
TTA	TTAE.3G-S.R0007(v.1.0)	1.0	Approved	19-12-2001	http://www.tta.or.kr/standardDB/standardfile/TTAE_3G-S_R0007_v1.0.zip

10.4.5.1 S.R0007 Version 2.1 User Selective Call Forwarding (Stage 1) (31 January 2001)

This Interim Standard (IS) presents Stage-1 (new chapter TIA/EIA-664-B), Stage-2 (TIA/EIA-41.3-D enhancements), and Stage-3 (TIA/EIA-41.5-D and TIA/EIA-41.6-D enhancements) recommendations for supporting the User Selective Call Forwarding (USCF) feature use in the Wireless Radiotelephone Service.

This document specifies the wireless intersystem network operation enhancements required for supporting roaming subscribers with the User Selective Call Forwarding (USCF) feature.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0007	2.1	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0007(v2.1)	2.1	Approved	19-12-2001	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-S_R0007v2.1.zip
TTC	TS-3GB-S.R0007v2.1	1	TTC Published	29-05-2001	http://www.ttc.or.jp/imt2000/ts/tssr0007-v21.pdf

10.4.6 S.R0008 Version 1.0.0 Answer Hold (Stage 1) Revision: 0 (13 December 1999)

This Interim Standard (IS) presents Stage-1 (new chapter TIA/EIA-664-B), Stage-2 (TIA/EIA-41.3-D enhancements) and Stage-3 (TIA/EIA-41.5-D and TIA/EIA-41.6-D enhancements) recommendations for supporting the Answer Hold (AH) feature use in the Wireless Radiotelephone Service.

This document specifies the wireless intersystem network operation enhancements required for supporting roaming subscribers with the Answer Hold (AH) feature.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0008	2.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0008(v1.0)	1.0	Approved	19-12-2001	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-S_R0008v1.0.zip

10.4.6.1 S.R0008 Version 2.0 Answer Hold (Stage 1) Revision: 0 (8 December 2000)

This Interim Standard (IS) presents Stage-1 (new chapter TIA/EIA-664-B), Stage-2 (TIA/EIA-41.3-D enhancements) and Stage-3 (TIA/EIA-41.5-D and TIA/EIA-41.6-D enhancements) recommendations for supporting the Answer Hold (AH) feature use in the Wireless Radiotelephone Service.

This document specifies the wireless intersystem network operation enhancements required for supporting roaming subscribers with the Answer Hold (AH) feature.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0008	2.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0008(v2.0)	2.0	Approved	19-12-2001	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-S_R0008v2.0.zip
TTC	JP-3GB-S.R0008	2	TTC Published	14-05-2001	http://www.ttc.or.jp/imt2000/std/jpsr0008.pdf

10.4.7 S.R0009-0 v1.0 User Identity Module (Stage 1) Revision: 0 (13 December 1999)

This standard defines the enhancements required for the support of mobile stations equipped with User Identification Modules (UIM). The UIM provided functionality to certain types of mobile stations to enable them to operate in the wireless network.

This document defines requirements for the wireless network to support operation of UIM-equipped mobile stations. A UIM provides compatible mobile stations with the parameters required of Mobile

stations operating in the TIA/EIA-41 environment and specific additional functionality unique to UIM-equipped mobile stations.

The UIM can be in one of two forms; either as integrated within the mobile, or removable so that it can be inserted or removed from the mobile equipment. This document address Removable UIM (R-UIM) only.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0009-0	1.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0009	1	Approved	13-07-2000	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-S_R0009.zip
TTC	TS-3GB-S.R0009	1	TTC Published	29-05-2001	http://www.ttc.or.jp/imt2000/ts/tssr0009-v10.pdf

10.4.8 S.R0010 Version 1.0.0 Preferred Language (Stage 1) Revision: 0 (13 December 1999)

Preferred Language (PL) provides the subscriber the ability to specify the language for network services.

Network services which could be offered in the subscriber's preferred language include:

- Recorded announcements;
- Directory assistance;
- Operator services;
- Emergency services;
- "Help" lines;
- Message Waiting Notification;
- CNIP *number not available*;
- CNIP *number restricted*.

If the subscriber's preferred language is not available, service shall be provided in the default language, which shall be determined by the wireless network operator.

PL does not impact a subscriber's ability to originate calls or to receive calls.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0010	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0010	1	Approved	13-07-2000	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-S_R0010.zip
TTC	JP-3GB-S.R0010	1	TTC Published	31-03-2000	http://www.ttc.or.jp/imt2000/std/jpsr0010.pdf

10.4.9 S.R0011 Version 1.0.0 Advice of Charge (Stage 1) Revision: 0 (13 December 1999)

This specification presents Stage-1 for supporting the Advice of Charge feature for use in the Wireless Radiotelephone Service.

This document specifies the wireless intersystem network operation enhancements required for supporting roaming subscribers with the Advice of Charge (AoC) feature.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0011	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0011	1	Approved	13-07-2000	http://www.tta.or.kr/standardD/B/stnfile/TTAE_3G-S_R0011.zip
TTC	JP-3GB-S.R0011	1	TTC Published	31-03-2000	http://www.ttc.or.jp/imt2000/std/jpsr0011.pdf

10.4.10 S.R0012 Version 1.0.0 Rejection of Undesired Annoying Calls (Stage 1) Revision: 0 (13 December 1999)

This specification presents Stage-1 for supporting Rejection of Undesired Annoying Calls feature for use in the Wireless Radiotelephone Service.

This document specifies the wireless intersystem network operation enhancements required for supporting roaming subscribers with the Rejection of Undesired Annoying Calls (RUAC) feature.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0012	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0012	1	Approved	13-07-2000	http://www.tta.or.kr/standardD/B/stnfile/TTAE_3G-S_R0012.zip
TTC	JP-3GB-S.R0012	1	TTC Published	31-03-2000	http://www.ttc.or.jp/imt2000/std/jpsr0012.pdf

10.4.11 S.R0013 Version 1.0.0 Global Emergency Call Origination (GECO) Revision: 0 (13 December 1999)

This document presents a Stage 1 description for a Global Emergency Call Origination (GECO) which will increase the probability that any user can originate a call to a Public Service Access Point (PSAP) even in those service areas where the Emergency Service Access Number (ESAN) is not known to the user.

The intent of GECO is described as follows:

- The MS may provide a means for the user to initiate an emergency call.
- A special form of the call origination message defined as a Global Emergency Call Origination Message (GECO_MSG) may be issued by the MS in lieu of the normal call origination message to indicate that the call origination being requested is an emergency call origination. GECO_MSGs may be accepted and the GECO call connected by the network from both subscribed and unsubscribed mobiles. The system may support "implicit registration" for GECO calls such that the use of registration request/acceptance protocol is not required prior to the issuance of a GECO_MSG.
- If the MS is currently registered on and accessing an operating network when the GECO call is initiated by the user, the MS may use that system to initiate the GECO call. If the MS is not currently accessing a system, the MS may attempt to access its preferred service as indicated by its internal system selection and system access restriction programming to maximize the probability that the GECO call will be accepted by the system. If no preferred system is available, the MS may override its internal system selection and system access restriction programming in an attempt to access any available system.

- Initiation of GECO call by the MS shall in no way degrade the user's access to any other feature/service which would normally be available to him from the accessed service provider's network.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0013	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0013	1	Approved	13-07-2000	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-S_R0013.zip
TTC	JP-3GB-S.R0013	1	TTC Published	31-03-2000	http://www.ttc.or.jp/imt2000/std/jpsr0013.pdf

10.4.12 S.R0014 Version 1.0.0 Tandem Free Operation (Stage 1) Revision: 0 (13 December 1999)

It is expected that the need for Tandem Free Operations will be driven by the increasing market penetration of digital technologies which will result in an increase in the percentage of mobile-to-mobile calls. In addition, given that the effects of tandem vocoding are greater for lower bit rate vocoders, the need for this feature becomes greater as the use of low bit rate vocoders increases. The Tandem Free Operation (TFO) feature, also known as Vocoder Bypass, improves the end-to-end voice equality observed in mobile-to-mobile voice calls in wireless networks.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0014	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0014	1	Approved	13-07-2000	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-S_R0014.zip
TTC	JP-3GB-S.R0014	1	TTC Published	31-03-2000	http://www.ttc.or.jp/imt2000/std/jpsr0014.pdf

10.4.13 S.R0015 Version 1.0.0 ISDN Interworking (Stage 1) Release A (13 December 1999)

This document presents Stage-1 (new chapter TIA/EIA-664-B) recommendations for supporting the ISDN Interworking feature for use in Wireless Radiotelephone Service.

This document specifies the wireless intersystem network operation enhancements required for supporting subscribers with the ISDN Interworking feature. This document defines the functional characteristics for interconnecting to ISDN in circuit switched mode. The interworking function in ISDN packet mode, i.e., B-channel Packet is out of the scope of this document at present.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0015	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0015	1	Approved	13-07-2000	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-S_R0015.zip
TTC	JP-3GB-S.R0015	1	TTC Published	31-03-2000	http://www.ttc.or.jp/imt2000/std/jpsr0015.pdf

10.4.14 S.R0016 Version 1.0.0 Automatic Code Gapping (Stage 1) Revision: 0 (13 December 1999)

Automatic Code Gapping (ACG) is intended to provide a Network Entity, such as a Service Control Point (SCP) or Service Control Function (SCF), the ability to turn off selected types of traffic that may be passing through its domain of operation. The purpose for ACG may be load related, or in response to a traffic engineering command as from a Service Management System (SMS). This report provides a general description of ACG as it applies to 3G network operations. Specific applications will be defined in other documents or later versions of this document.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0016	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0016 (v1.0)	1	Approved	19-12-2001	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-S_R0016.zip

10.4.14.1 S.R0016 Version 2.0 Automatic Code Gapping (Stage 1) Revision: 0 (8 December 2000)

Automatic Code Gapping (ACG) is intended to provide a Network Entity, such as a Service Control Point (SCP) or Service Control Function (SCF), the ability to turn off selected types of traffic that may be passing through its domain of operation. The purpose for ACG may be load related, or in response to a traffic engineering command as from a Service Management System (SMS). This report provides a general description of ACG as it applies to 3G network operations. Specific applications will be defined in other documents or later versions of this document.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0016	2.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0016(v2.0)	2.0	Approved	19-12-2001	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-S_R0016_v2.0.zip
TTC	JP-3GB-S.R0016	2	TTC Published	14-05-2001	http://www.ttc.or.jp/imt2000/std/jpsr0016.pdf

10.4.15 S.R0017 3G Wireless Network Management System High Level Requirements Revision: 0 (13 December 1999)

This report specifies the 3G Wireless Network Management System High Level Requirements Including: OAM&P TMN Applications Required Network and Systems Management Processes and Network Reference Model (NRM).

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0017		Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0017	1	Approved	13-07-2000	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-S_R0017.zip
TTC	TR-3GB-S.R0017-0v1.0	1	TTC Published	26-02-2002	http://www.ttc.or.jp/imt2000/tr/trsr0017-0v10.pdf

10.4.16 S.R0018 Version 1.0.0 Pre-Paid Charging (Stage 1) Revision: 0 (13 December 1999)

PPC allows the subscriber to pay for voice telecommunication services prior to usage.

A PPC subscriber establishes an account with the service provider to access voice telecommunication services in home and roaming networks. Charges for voice telecommunication services are applied to the PPC account by decrementing the account in real time. The PPC subscriber may be notified about the account information at the beginning, during, or at the end of the voice telecommunication service. When the account balance is low, the subscriber may be notified so that the subscriber may refill the account. When the account balance is below a pre-defined threshold, the subscriber's use of voice telecommunication services may be de-authorized.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0018	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0018	1	Approved	13-07-2000	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-S_R0018.zip
TTC	JP-3GB-S.R0018	1	TTC Published	31-03-2000	http://www.ttc.or.jp/imt2000/std/jpsr0018.pdf

10.4.17 S.R0019 Version 1.0.0 Location-Based Services System (LBSS) Stage 1 Description (22 September 2000)

This document defines LBSS for implementation in 3GPP2 systems. The location services functionality has been adopted from existing TR-45 standards as defined, and also as described, in the following text.

The scope of this document includes 3GPP2 system support required to facilitate Location-Based services.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0019	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0019 v1.0.0	1.0.0	Approved	28-10-2002	http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-S.R0019v1.0.0.pdf
TTC	JP-3GB-S.R0019	1	TTC Published	14-05-2001	http://www.ttc.or.jp/imt2000/std/jpsr0019.pdf

10.4.18 S.R0021 Version 1.0 Video Streaming Service – Stage 1 (10 July 2000)

The objective is to define and standardize the functionality of Video Services that can be incorporated into the operations of wireless telecommunication networks. Audio-only streaming is a special case of video streaming. This document defines the functional characteristics and requirements of the video streaming services. The areas that must be defined are service features and system requirements necessary for video streaming services to be provided in wireless telecommunication networks.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0021	1.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0021 v1.0	1.0	Approved	28-10-2002	http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-S.R0021v1.0.pdf
TTC	JP-3GB-S.R0021	1	TTC Published	14-05-2001	http://www.ttc.or.jp/imt2000/std/jpsr0021.pdf

10.4.19 S.R0022 Version 1.0 Video Conferencing Service (10 July 2000)

The objective is to define and standardize the functionality of Video Services that can be incorporated into the operations of wireless telecommunication networks. This report defines the functional characteristics and the requirements of the video conferencing services. The areas that must be defined are service features and system requirements in order for voice conferencing services to be provided in wireless telecommunication networks.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0022	1.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0022 v1.0	1.0	Approved	28-10-2002	http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-S.R0022v1.0.pdf
TTC	JP-3GB-S.R0022	1	TTC Published	14-05-2001	http://www.ttc.or.jp/imt2000/std/jpsr0022.pdf

10.4.20 S.R0023 Version 1.0 High-Speed Data Enhancements for cdma2000 1x – Data Only (9 June 2000)

This document outlines the key operator requirements for the evolution of the cdma2000 1x (current versions of C.S0001 through C.S0005) standard. This document will refer to this evolution as 1x evolved high-speed data only (1xEVDO). These requirements are defined to drive improvements to the fundamental packet data capabilities and efficiencies of cdma2000 1x systems to better meet the rapidly evolving needs of subscribers. This report is intended as a guide for wireless operators in the implementation of high-speed data-only systems beyond cdma2000 1x, to provide increased spectral efficiency and the capability to satisfy customer demand for wireless packet data applications.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0023	1.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0023 v1.0	1.0	Approved	28-10-2002	http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-S.R0023v1.0.pdf

10.4.20.1 S.R0023 Version 2.0 High-Speed Data Enhancements for cdma2000 1x – Data Only Stage 1 Requirements (5 December 2000)

This document outlines the key operator requirements for the evolution of the cdma2000 1x (current versions of C.S0001 through C.S0005) standard. This document will refer to this evolution as 1x evolved high-speed data only (1xEVDO). These requirements are defined to drive improvements to the fundamental packet data capabilities and efficiencies of cdma2000 1x systems to better meet the rapidly evolving needs of subscribers. This report is intended as a guide for wireless operators in the

implementation of high-speed data-only systems beyond cdma2000 1x, to provide increased spectral efficiency and the capability to satisfy customer demand for wireless packet data applications.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0023	2.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0023 (v2.0)	1	Approved	19-12-2001	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-S_R0023_v2.0.zip

10.4.21 S.R0024 Version 1.0 Wireless Local Loop Stage 1 Description (22 September 2000)

Wireless Local Loop (WLL) is a feature implementation using a serving system that utilizes a wireless connection to a wireless device, such as a mobile station, or a network interface unit, to provide local loop service to an end user. WLL permits local loop service for subscriber call origination and for receipt of calls. WLL applies to voice and data services. WLL provides signalling mechanisms between the serving system and the mobile station or the network interface unit. This signalling mechanism permits the exchange of call control information.

The essential signalling elements of WLL are:

- Mobile Station or Network interface unit Device Type specification and request for WLL of the serving system or optional serving system Device Type specification.
- Mobile Station or Network interface unit Dial Tone or optional Dial Tone of the serving system.
- Mobile Station or Network interface unit Hook Status enabling WLL call control of the serving system.
- Serving system Autonomous Message Interval specification and request of the mobile station or the network interface unit or optional network interface unit Autonomous Message Interval specification.
- Serving system Call Waiting Indicator notification to the mobile station or the network interface unit.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0024	1.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0024 v1.0	1.0	Approved	28-10-2002	http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-S.R0024v1.0.pdf

10.4.22 S.R0025 Version 1.0 Wireless Pay Phone Stage 1 Description (22 September 2000)

Wireless Pay Phone is a public telecommunication service feature that allows mobile station support of pay phone applications. The Wireless Pay Phone feature is useful to subscribers that originate or receive calls at a pay phone.

The feature may be comprised of two signalling capabilities. The first signalling capability is that which allows a serving system to convey answer supervision. The second signalling capability is that which allows a serving system to meter calls.

NOTE – A serving system may convey answer supervision using alert-signalled or flash-signalled line control. A serving system may metre using alert-signalled or flash-signalled metre pulses.

Answer element of supervision is used by the mobile station to convey line polarity, which is useful as an answer supervision indication. Line control specification and notification of the mobile station enables specification of polarity included, toggle mode, reverse polarity and power denial time. These are specified in IS-95B section 7.7.5.15.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0025	1.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0025 v1.0	1.0	Approved	28-10-2002	http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-S.R0025v1.0.pdf

10.4.23 S.R0026 Version 1.0 High Speed Data Enhancements for cdma 2000 1x-Integrated Data and Voice Stage 1 Requirements (17 October 2000)

This document outlines the key operator requirements for the evolution of the cdma2000 1x (current versions of C.S0001 through C.S0005) standard. This document will refer to this evolution as 1x- evolved high-speed integrated data and voice (1xEV-DV). These requirements are defined to drive improvements to the fundamental packet data capabilities and efficiencies of cdma2000 1x systems to better meet the rapidly evolving needs of subscribers. This document is intended as a guide for 3GPP2 TSGs in the development of specifications for high-speed integrated data and voice systems beyond cdma2000 1x services (voice, fax, circuit switched data), to provide increased spectral efficiency and the capability to satisfy customer demand for wireless voice and packet data applications.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0026	1.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0026	1	Approved	19-12-2001	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-S_R0026.zip

10.4.24 S.R0027 Version 1 Personal Mobility Stage 1 Requirements (8 December 2000)

The objective is to define and standardize the functionality of personal mobility that can be incorporated into the operations of both 2G/3G TTA/EIA-41 and 2G/3G GSM-derived wireless telecommunication networks. This document defines the requirements of personal mobility features and services.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0027	1	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0027	1	Approved	19-12-2001	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-S_R0027.zip
TTC	JP-3GB-S.R0027	1	TTC Published	14-05-2001	http://www.ttc.or.jp/imt2000/std/jpsr0027.pdf

10.4.25 S.S0028 Version 1.0 OAM&P for cdma2000 (3GPP Delta Specification) (18 April 2001)

This document contains the OAM&P requirements and interface definitions for cdma2000-based systems. It is an extension of operations and maintenance requirements, per latest 3GPP 32-series specifications capabilities, to enable operation in a cdma2000 systems environment as part of the TIA/EIA/IS-2000 family of standards. They are in alignment with OAM&P Stage 1 IS-2000 requirements.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.S0028	1.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.S0028 (v1.0)	1.0	Approved	19-12-2001	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-S_S0028_v1.0.zip
TTC	JP-3GB-S.S0028v1.0	1	TTC Published	29-05-2001	http://www.ttc.or.jp/imt2000/ts/tsss0028-v10.pdf

10.4.25.1 S.S0028 Version 2.0 OAM&P for cdma2000 (3GPP Delta Specification) (23 July 2001)

This document is intended to define the OAM&P Stage 2 and 3 requirements and interface definitions for cdma2000-based systems.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.S0028	2.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.S0028 (v2.0)	2.0	Approved	19-12-2001	http://www.tta.or.kr/imt2000/TTAE_3G-S_S0028_v2.0.zip
TTC	TS-3GB-S.S0028-0v2.0	1	TTC Published	28-11-2001	http://www.ttc.or.jp/imt2000/ts/tsss0028-0v20.pdf

10.4.25.2 S.S0028 Version 3.0 OAM&P for cdma2000 (3GPP Delta Specification) (11 March 2002)

This document is intended to define the OAM&P Stage 2 and 3 requirements and interface definitions for cdma2000-based systems.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.S0028	3.0	Published	-06-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAT.3G-S.S0028-0 v3.0	3.0	Approved	21-03-2003	http://www.tta.or.kr/imt2000/TTAT.3G-S.S0028-0 v3.0.zip
TTC	TS-3GB-S.S0028-0v3.0	1	TTC Published	28-05-2002	http://www.ttc.or.jp/imt2000/ts/tsss0028-0v30.pdf

10.4.26 S.R0029 Version 1.0.0 Access Control Based on Call Type (22 September 2000)

This document defines requirements for the cdma2000 Air Interface to support Access Control based on Call Type (ACCT). ACCT provides the control of access attempt from mobile stations by service option or a set of service options.

Control for terminating calls to mobile stations are outside the scope of this feature description.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0029	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0029 v1.0.0	1.0.0	Approved	28-10-2002	http://www.tta.or.kr/standardDB/stnfile/TTAE.3G-S.R0029v1.0.0.pdf
TTC	TS-3GB-S.R0029v1.0	1	TTC Published	29-05-2001	http://www.ttc.or.jp/imt2000/ts/tssr0029-v10.pdf

10.4.27 S.R0030 Version 1.0 Broadcast/Multicast Services – Stage 1 (22 August 2001)

This objective is to define and standardize the functionality of Broadcast/Multicast Services that can be incorporated into the operations of cdma2000-based wireless telecommunication networks. This document defines the functional characteristics and requirements of Broadcast/Multicast services.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0030	1.0.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0030-0 v1.0	1.0	Approved	19-12-2001	http://www.tta.or.kr/imt2000/TAE.3G-S.R0030-0 v1.0.zip
TTC	TS-3GB-S.R0030-0v1.0	1	TTC Published	28-11-2001	http://www.ttc.or.jp/imt2000/ts/tssr0030-0v10.pdf

10.4.28 S.R0032 Version 1.0 Enhanced Subscriber Authentication (ESA) and Enhanced Subscriber Privacy (ESP) (6 December 2000)

This document defines requirements for the cdma2000 air interface to support Enhanced Subscriber Authentication (ESA) and Enhanced Subscriber Privacy (ESP). ESA provides enhanced security in authentication and ESP provides enhanced privacy of user data.

Selection of cryptographic algorithms is outside the scope of this feature description.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0032	1.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0032	1	Approved	19-12-2001	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-S_R0032.zip
TTC	JP-3GB-S.R0032	1	TTC Published	14-05-2001	http://www.ttc.or.jp/imt2000/std/jpsr0032.pdf

10.4.29 S.R0033 Version 1.0 Realm Configured Packet Data Session Dormancy Timer (6 December 2001)

This document specifies the requirements for the operations of the Realm Configured Packet Data Session Dormancy Timer (RC-PDSDT) feature from the perspective of the user(s) and/or the system operator. The RC-PDSDT is a timer which is used to measure the duration of dormancy of a packet data session. The purpose of this timer is similar to the packet data inactivity timer specified in the C.S0017 standard.

The objective is to define and standardize the functionality of this feature/service that can be incorporated into the operations of cdma2000-based wireless telecommunication networks.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0033	1.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAT.3G-S.R0033-0 v1.0	1.0	Approved	21-03-2003	http://www.tta.or.kr/imt2000/TAT.3G-S.R0033-0 v1.0.zip

10.4.30 S.R0034 Version 1.0 User Identification Module ID Manufacturer's Code Assignment Guidelines and Procedures (18 April 2001)

These guidelines are based on the content of the ANSI TIA/EIA-41 "family of Standards" (e.g., AMPS (EIA/TIA-535), CDMA (TIA/EIA-95 and TIA/EIA/IS-2000), and TDMA (IS-54, IS-136). It is recommended that systems which are based on the ANSI TIA/EIA-41 family of standards, and which are deployed outside of the United States, follow these guidelines.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0034	1.0	Published	-02-02	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0034	1.0	Approved	19-12-2001	http://www.tta.or.kr/standardD/B/stnfile/TTAE_3G-S_R0034.zip
TTC	TS-3GB-S.R0034v1.0	1	TTC Published	29-05-2001	http://www.ttc.or.jp/imt2000/ts/tssr0034-v10.pdf

10.4.31 S.R0035 Version 1.0 Quality of Service Stage 1 Requirements (29 October 2001)

This document specifies the requirements for and operations of the Quality of Service (QoS) feature from the perspective of the user(s) and/or the system operator. The objective is to define and standardize the functionality of this feature/service that can be incorporated into the operations of cdma2000-based wireless telecommunication networks.

This document provides the requirements for QoS in cdma2000 systems. Later revisions of this document will specify the requirements for QoS in the CDMA All-IP system as All-IP QoS is considered the natural evolution of second generation QoS to third generation QoS.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0035	1.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAT.3G-S.R0035-0 v1.0	1.0	Approved	21-03-2003	http://www.tta.or.kr/imt2000/TAT.3G-S.R0035-0 v1.0.zip
TTC	TS-3GB-S.R0035-0v1.0	1	TTC Published	26-02-2002	http://www.ttc.or.jp/imt2000/ts/tssr0035-0v10.pdf

10.4.32 S.R0037-0 Version 2.0 IP Network Architecture Model for cdma2000 Spread Spectrum Systems (14 May 2002)

This document recommends the basic 3GPP2 wireless IP network architecture model.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0037	2.0	Published	-12-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAT.3G-S.R0037-0 v2.0	2.0	Approved	21-03-2003	http://www.tta.or.kr/imt2000/TAT.3G-S.R0037-0 v2.0.zip
TTC	TS-3GB-S.R0037-0v2.0	2	TTC Published	26-11-2002	http://www.ttc.or.jp/imt2000/ts/tssr0037-0v20.pdf

10.4.33 S.R0048 Version 1.0 3G Mobile Equipment Identifier (MEID) (10 May 2001)

The objective is to define and standardize the structure of the 3G mobile equipment identifier.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0048	1.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0048-0(v1.0)	1.0	Approved	19-12-2001	http://www.tta.or.kr/standardDB/stnfile/TTAE_3G-S_R0048 v1.0.zip
TTC	TS-3GB-S.R0048v1.0	1	TTC Published	29-08-2001	http://www.ttc.or.jp/imt2000/ts/tssr0048-v10.pdf

10.4.34 S.R0051 Version 1.0 Enhanced Message Service (EMS) Stage 1 Description (25 July 2001)

This document specifies the system requirements for Enhanced Message Service (EMS).

The objective is to define and standardize the functionality of this capability that can be incorporated into the operation of cdma2000-based wireless telecommunication networks.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0051	1.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAE.3G-S.R0051-0(v1.0)	1.0	Approved	19-12-2001	http://www.tta.or.kr/imt2000/TAE_3G-S_R0051 v1.0.zip
TTC	TS-3GB-S.R0051-0v1.0	1	TTC Published	22-28-2001	http://www.ttc.or.jp/imt2000/ts/tssr0051-0v10.pdf

10.4.35 S.S0053 Version 1.0 Common Cryptographic Algorithms (21 January 2002)

This document describes detailed cryptographic procedures for wireless system applications. These procedures are used to perform the security services of mobile station authentication, subscriber message encryption, and encryption key and subscriber voice privacy key generation within wireless equipment.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.S0053	1.0	Published	-02-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	(none)	D.1	Published	13-09-2000	http://ftp.tiaonline.org/tr-45/tr45ahag/public/
TTA	TTAE.3G-S.S0053 v1.0	1.0	Approved	28-10-2002	http://www.tta.or.kr/imt2000/TAE.3G-S.S0053-0v1.0.pdf

10.4.36 S.S0054 Version 1.0 Interface Specification for Common Cryptographic Algorithms (21 January 2002)

This document describes the interfaces to cryptographic procedures for wireless system applications. These procedures are used to perform the security services of mobile station authentication, subscriber message encryption, and encryption key and subscriber voice privacy key generation within wireless equipment. The procedures are described in detail in Common Cryptographic Algorithms.

The purpose of this specification is to describe the cryptographic functions without revealing the technical details that are subject to export controls under regional laws. It is intended that developers of 3GPP2 specifications for systems using these cryptographic functions use the information in this document in standards that are not subject to export restrictions.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.S0054	1.0	Published	-12-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	(none)	D.1	Published	13-09-2000	http://ftp.tiaonline.org/tr-45/tr45ahag/public/
TTA	TTAE.3G-S.S0054 v1.0	1.0	Approved	28-10-2002	http://www.tta.or.kr/imt2000/TTAE.3G-S.S0054-0v1.0.pdf

10.4.37 S.S0055 Version 1.0 Enhanced Cryptographic Algorithms (21 January 2002)

This document describes detailed cryptographic procedures for wireless system applications. These procedures are used to perform the security services of mutual authentication between mobile stations and base stations, subscriber message encryption, and key agreement within wireless equipment.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.S0055	1.0	Published	-12-2002	http://www.cwts.org/itu/part2/MC1.htm
TIA	(none)	A	Published	13-11-2001	http://ftp.tiaonline.org/tr-45/tr45ahag/public/
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10.4.38 S.R0057 Version 1.0 IP-based Service Architecture System Requirements (9 July 2002)

This document specifies the system requirements for the "IP-based Service Architecture" from the perspective of the user(s) and/or the network operator for the support of IP multimedia applications.

IP multimedia applications are supported by IP multimedia sessions that use IP connectivity bearers of the All-IP network. This document identifies Stage 1 architectural requirements for the All-IP network to support the applications.

The objective is to define and standardize the "IP-based Service Architecture" that can be incorporated into the operations of cdma2000-based wireless telecommunication networks.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0057	1.0	Published	-12-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAT.3G-S.R0057-0 v1.0	1.0	Approved	21-03-2003	http://www.tta.or.kr/imt2000/TAT.3G-S.R0057-0 v1.0.zip
TTC	TS-3GB-S.R0057-0v1.0	1	TTC Published	26-11-2002	http://www.ttc.or.jp/imt2000/ts/tssr0057-0v10.pdf

10.4.39 S.R0059 Version 1.0 Legacy MS Domain – Step 1 System Requirements (16 May 2002)

This document specifies the system requirements for and operations of the initial release (step-1) of the Legacy MS Domain (LMSD) of the All-IP network. Each of the functional entities of the LMSD is described with respect to functionality, interfaces and the roles it plays in the functioning of the network.

The requirements contained in this document apply only to the initial step of the LMSD.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0059	1.0	Published	-12-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAT.3G-S.R0059-0 v1.0	1.0	Approved	21-03-2003	http://www.tta.or.kr/imt2000/TAT.3G-S.R0059-0 v1.0.zip

10.4.40 S.R0060 Version 1.0 Removable User Identity Module (R-UIM)/Mobile Equipment (ME) Interface Testing Stage 1 Description (14 March 2002)

This document specifies the product conformance objectives to be met by the Removable User Identity Module (R-UIM)/Mobile Equipment (ME) interface test specification. The overall objective of this activity is the development of an industry standard compliance test specification, which can be employed to ensure that R-UIM equipped handsets properly interface with various vendor-provided R-UIM cards.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0060	1.0	Published	-12-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAT.3G-S.R0060-0 v1.0	1.0	Approved	21-03-2003	http://www.tta.or.kr/imt2000/TAT.3G-S.R0060-0 v1.0.zip

10.4.41 S.R0065 Version 1.0 Fast Call Set-up System Requirements (15 April 2002)

This document specifies the system requirements for fast call setup. This feature allows accelerated process in call setup (bearer resource assignment), which is particularly beneficial when a connection is returned from dormancy as a result of a packet arrival to the wireless network. The feature can be considered as falling into the category of standing requirements for network performance improvement.

The objective is to define and standardize the functionality of this capability that can be incorporated into the operations of cdma2000-based wireless telecommunication networks.

The fast call setup feature is a set of enhancements/mechanisms that reduce the latency involved in MS terminated and MS originated call setup.

Call Setup involves a set of signalling messages exchanged between the mobile station, base station, and the network in order to allocate resources and allow user communication to proceed. Each step of this process introduces delays that contribute to the end-to-end call setup latency. Enhancements that reduce the delay in each step of this process, and enhancements that streamline this process, result in reduced call setup latency which is beneficial to cdma 2000 services.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0065	1.0	Published	-12-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAT.3G-S.R0065-0 v1.0	1.0	Approved	21-03-2003	http://www.tta.or.kr/imt2000/TAT.3G-S.R0065-0 v1.0.zip
TTC	TS-3GB-S.R0065-0v1.0	1	TTC Published	27-08-2002	http://www.ttc.or.jp/imt2000/ts/tssr0065-0v10.pdf

10.4.42 S.R0068 Version 1.0 Link Layer Assisted Robust Header Compression Stage 1 Requirements (11 June 2002)

This document specifies the requirements for, and operations of, the Link Layer Assisted Header Compression (LLA HC) from the perspective of the user and the system operator.

The objective is to define and standardize the functionality of the this feature that can be incorporated into the operations of cdma2000-based wireless telecommunication networks.

The scope of this feature is in support of QoS-enabled packet data service. This feature may also be used to support the ALLIP multimedia domain, although ALLIP is not the only application.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0068	1.0	Published	-12-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAT.3G-S.R0068-0 v1.0	1.0	Approved	21-03-2003	http://www.tta.or.kr/imt2000/TAT.3G-S.R0068-0 v1.0.zip
TTC	TS-3GB-S.R0068-0v1.0	1	TTC Published	26-11-2002	http://www.ttc.or.jp/imt2000/ts/tssr0068-0v10.pdf

10.4.43 S.R0069 Version 1.0 Header Stripping and Generation Stage 1 Requirements (15 March 2002)

This document specifies the requirements for, and operations of, the header stripping and generation feature from the perspective of the user and the system operator.

The objective is to define and standardize the functionality of this feature that can be incorporated into the operations of cdma2000-based wireless telecommunication networks.

The scope of this feature is in support of QoS-enabled packet data service. This feature may also be used to support the ALLIP multimedia domain, although ALLIP is not the only application.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0069	1.0	Published	-12-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAT.3G-S.R0069-0 v1.0	1.0	Approved	21-03-2003	http://www.tta.or.kr/imt2000/TAT.3G-S.R0069-0 v1.0.zip

10.4.44 S.R0070 Version 1.0 Work Item, Stage 1 and System Requirements Process Guidelines (16 May 2002)

This document is to provide uniform procedures and guidance for the development, completion, distribution and approval of Work Items, Stage 1 and System Requirements across all TSGs.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0070	1.0	Published	-12-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAT.3G-S.R0070-0 v1.0	1.0	Approved	21-03-2003	http://www.tta.or.kr/imt2000/TAT.3G-S.R0070-0 v1.0.zip

10.4.45 S.R0071 Version 1.0 Legacy System Packet Data Surveillance Requirements Stage 1 Requirements (18 April 2002)

The 3GPP2 Steering Committee found that the packet data surveillance feature (also known as packet data intercept, legal surveillance, lawful surveillance or electronic surveillance) was regional in nature and should be left to the appropriate SDOs to develop, with 3GPP2 consulting as requested.

This document serves as a pointer to the appropriate Standards Development Organization (SDO) documents for Packet Data Surveillance (PDS) for 3GPP2 All-IP systems.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0071	1.0	Published	-12-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAT.3G-S.R0071-0 v1.0	1.0	Approved	21-03-2003	http://www.tta.or.kr/imt2000/TAT.3G-S.R0071-0 v1.0.zip

10.4.46 S.R0072 Version 1.0 All-IP Packet Data Surveillance Requirements Stage 1 Requirements (18 April 2002)

The 3GPP2 Steering Committee found that the packet data surveillance feature (also known as packet data intercept, legal surveillance, lawful surveillance or electronic surveillance) was regional in nature and should be left to the appropriate SDOs to develop, with 3GPP2 consulting as requested.

This document serves as a pointer to the appropriate Standards Development Organization (SDO) documents for Packet Data Surveillance (PDS) for 3GPP2 All-IP systems.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0072	1.0	Published	-12-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAT.3G-S.R0072-0 v1.0	1.0	Approved	21-03-2003	http://www.tta.or.kr/imt2000/TAT.3G-S.R0072-0 v1.0.zip

10.4.47 S.R0073 Version 1.0 Internet Over-the-Air Handset Configuration Management (IOTA) Stage 1 (11 July 2002)

This document specifies the requirements for, and operation of, Internet based Over-the-Air Handset Configuration Management (IOTA HCM) from the perspective of the users and system operators.

The objective of this document is to define the requirements of this feature for incorporation into the operations of cdma2000-based wireless telecommunication systems.

	Document No.	Version	Status	Issued date	Location
CWTS	CWTS-MC-S.R0073	1.0	Published	-12-2002	http://www.cwts.org/itu/part2/MC1.htm
TTA	TTAT.3G-S.R0073-0 v1.0	1.0	Approved	21-03-2003	http://www.tta.or.kr/imt2000/TAT.3G-S.R0073-0 v1.0.zip
TTC	TS-3GB-S.R0073-0v1.0	1	TTC Published	26-11-2002	http://www.ttc.or.jp/imt2000/ts/tssr0073-0v10.pdf

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