

Cellular Networking Perspectives

Editor: David.Crowe@cnp-wireless.com

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IFAST, which assigns MIN codes to international roaming carriers with AMPS, CDMA and TDMA, has expanded its pool of IRM codes from 2,000 to 3,600, significantly extending the life of the resource.

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US law enforcement has demanded more surveillance capabilities, particularly related to broadband access and packet data, from the FCC.

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An update on the status of the 3GPP Technical Specification Group responsible for Services, Security, Codecs and Architecture.

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An update on the 3GPP2 group that performs many of the same functions as 3GPP TSG SA – managing services, security and architecture (but not codecs).

IFAST Implements IRM Expansion

The IRM (International Roaming MIN) is used by many cellular carriers outside North America and by several US-based providers of data services.

The MIN is a 10 digit number that uniquely identifies an AMPS, TDMA or CDMA cellular phone. North American systems generally use the same number for the MDN as for the MIN, meaning that MIN codes beginning with the digits 2 through 9 cannot be used by international carriers using international roaming.

Current IRM codes provide 2000 unique 4-digit codes that have been assigned by IFAST (ifast.org) for several years. The remaining 6 digits of the MIN are assigned by the carrier to uniquely identify one million mobiles. This has been so successful that more than two-thirds of the total resource has been allocated.

Another restricted digit in North American phone numbers is the fourth digit ('D' digit). It also cannot be a 0 or 1. Expansion of the North American numbering plan using this 'D' digit has been considered, but is unlikely because: the amount of expansion provided is small; there are many current usages of such codes (e.g. for test numbers); and it will not allow 7 digit dialing.

Even if 'D' digit expansion did occur, it would not cause problems for mobiles using a MIN with a 0 or 1 in the fourth digit position because the MBI (MIN Block Identifier – mbiadmin.com) administration guidelines have reserved these codes for international use.

IFAST agreed at its March, 2004 meeting to expand its IRM allocations to the new format, with a 0 or 1 in the fourth digit position. This will increase the number of IRM codes available from 2,000 to 3,600 (it does not fully double the available allocation because some IRM codes with a 0 or 1 in the fourth digit position also have a 0 or 1 in the first digit position). The percentage of the resource that has been assigned will drop from about two-thirds to just over one-third of the expanded resource.

A presentation on IRM expansion is available at:

ifast.org/files/IFAST23_003_IRM_Expansion.pdf

Figure 1 illustrates the original and the expanded IRM formats.

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Figure 1: International Roaming MIN (IRM) Formats

Original IRM Formats				
IFAST Assigns			Carrier Assigns	
0	X	X	X	6 digits (1,000,000 identifiers)
1	X	X	X	6 digits (1,000,000 identifiers)
Expanded IRM Formats				
IFAST Assigns			Carrier Assigns	
N	X	X	0	6 digits (1,000,000 identifiers)
IFAST Assigns			Carrier Assigns	
N	X	X	1	6 digits (1,000,000 identifiers)

Key:

- X = Any digit 0 through 9.
- N = Any digit 2 through 9.

US Law Enforcement Asks FCC for More Surveillance Capabilities

The US Department of Justice, FBI and DEA (Drug Enforcement Agency) asked the FCC for yet more surveillance capabilities in a March 10th 2004 petition.

Some of the things that US law enforcement want are:

- Making broadband access (e.g. DSL) and broadband telephony services (e.g. VoIP) subject to CALEA.
- Making Push-To-Talk (PTT/PoC) subject to CALEA.
- Clearly identify 'packet mode services.'

Law enforcement agencies are particularly unhappy with the standardization of packet data surveillance. So unhappy, in fact, that they have walked away from the TIA TR-45 ad hoc group developing the J-STD-025 standard for CALEA support.

If US law enforcement is given everything for which it petitioned, their scope for surveillance would be greatly increased, with carriers on the hook to implement quickly and swallow all the costs.

The petition is available at:

askcalea.net/docs/20040310.calea.jper.pdf

3GPP TSG SA Update

The 3GPP TSG for Service and System Aspects (TSG SA) is responsible for the overall architecture and service capabilities of systems based on 3GPP specifications, including cross-TSG coordination. Two meetings of this group (#22 and #23) have been held since the last publication of this report.

Highlights of TSG meeting #22 included:

- A request for 3GPP to find a way to fall back from a video call to a voice call. This was triggered by an urgent liaison statement from the **GSM Association Service Group** and resulted in a new Work Item.
- TSG SA endorsed the principle that the MMS parts independent of the cellular system will be transferred from 3GPP to OMA.
- The OMA Requirement WG has sent a Liaison Statement on solving specific Push to Talk over Cellular (PoC) issues and on the principles to avoid overlaps between the two groups. TSG SA replied that SA2 is analyzing the implication of PoC on the 3GPP system in **TR 23.979**.

Highlights of meeting #23 included:

- An effort to distinguish between 'essential' and 'desired' features and building blocks for Rel 6, triggered by a contribution from Ericsson, Nokia and Siemens.
- A liaison from the GSM association initiated a discussion of IPv4/IPv6 IP Multimedia Subsystem (IMS) roaming and interworking. SA has concluded that there is a need for IPv4 support in IMS, and SA2 was asked to continue their study of IPv4/IPv4 and IPv4/IPv6 interworking.

TSG SA Working Group 1 (Service)

3GPP TSG SA Working Group 1 (SA1) defines the services and features for 3G, including high level ('Stage 1') requirements for the overall system.

This includes:

- Definition of service and feature requirements,
- Framework for services,
- Specification of services (stage 1),
- Specification of service capabilities (stage 1),
- Identification of technical and operational issues to meet market requirements and
- Charging and accounting requirements.

At TSG SA#22, SA1 identified some problems with the approved **TR 22.952** Priority Service on the "9 times overload," access class control and interaction with packet service. Contributions were solicited.

SA1 also revised the WID for WLAN Interworking to try to remove duplicate requirements found in other technical specifications. A TS (Specification) may be produced instead of a TR (Report).

At TSG SA#23, a CR was approved for **TS 22.101** to describe how video-telephony can switch to and from a simple voice call.

SA1 is focussing its efforts on Rel-6 clean up, Interworking with WLAN (I-WLAN), and Messaging and Multimedia Broadcast Multicast Service (MBMS). WLAN interworking will be the focus of Rel 7.

SA1 rejected a change request to MBMS proposing that “MBMS shall be accessible independently of the smart card being used in terminal, i.e., using a pre-release-6 SIM”. The reason: This would contradict the task given to SA3, which is to design a “zero option solution” for MBMS security.

SA1 held a joint meeting with the Open Mobile Alliance (OMA) Requirements working group. SA1 agreed to investigate areas of possible overlap and agreed to actions for maintaining coordination. OMA, on its part, will also investigate possible overlap and will also provide a list of existing web services it has developed.

Chris Sachno of NTT DoCoMo was elected vice-chair.

Table 1: 3GPP TSG SA Working Group 1 (Service) Specification Update

Document	Title	Status
tbd	WID on USSD message delivery and transfer to USIM	New Work Item
tbd	GUP WID	Updated WID for the Stage 3 specification
tbd	Multimedia Priority Service WID	Updated completion date
TS 22.011	Service Accessibility	Version 6.3 being revised.
TS 22.030	Man-Machine Interface (MMI) of the User Equipment (UE)	Rel 7 version initiated.
TS 22.071	Location Services (LCS); Service Description; Stage 1	Versions 3.5 (Rel 99), 4.6, 5.4 and 6.7 being revised.
TS 22.078	Customised Applications for Mobile Network Enhanced Logic (CAMEL); Service Description; Stage 1	Versions 5.13 and 6.4 being revised. Rel 7 being developed.
TS 22.101	Service Aspects; Service Principles	Versions 3.17 (Rel 99), 4.10, 5.13, 6.7 being revised.
TS 22.127	Service Requirement for the Open Service Access (OSA); Stage 1	Version 6.5 being revised.
TS 22.146	Multimedia Broadcast/Multicast Service; Stage 1	Version 6.4 being revised.
TS 22.240	Generic User Profile (GUP); Stage 1	Version 6.3 being revised.
TS 22.246	MBMS User Service	Version 6.1 being revised.
TR 22.949	Study on a Generalized Privacy Capability	Rel 6 version initiated.
TR 22.952	Priority Service Guide	Rel 6 version initiated.

TSG SA Working Group 2 (Architecture)

3GPP TSG SA Working Group 2 on Architecture (SA2) develops the Stage 2 network descriptions for the 3GPP network. Based on services requirements from SA1, it identifies the main functions and entities of the network, decides how they are linked and outlines the information they exchange. SA2’s Stage 2 descriptions are consumed by the groups defining the format of messages in Stage 3 specifications. An exception is that Stage 2 for the Radio Access Network is a responsibility of TSG RAN.

At TSG SA#22, SA2 decided to work on IP Flow-Based Charging in a dedicated TS, to replace **TR 23.825**.

SA2 approved CRs on Rel99 location services and for Rel5 GPRS Stage 2, QoS, Early User Equipment support, Architecture Requirements and IMS.

Stage 2 for several topics are considered stable, including Speech Enabled Service, Push Service and WLAN/Cellular Interworking.

After a contentious debate, SA2 decided that Network Request PDP Context Activation (NRPCA) with Dynamic IP address assignment will not be standardized as one of the methods to support Push Service.

Network Sharing still has several outstanding issues to be resolved, the primary one being the architecture solution for rerouting/redirecting in the Mobile Operator Core Network. The group proposed creating a dedicated **TS** for this feature, which is currently documented in a **TR**.

The following features were not completed by March 2004, which means they missed their targeted completion date:

- Packet Switch Domain and IMS Impacts for Supporting IMS Emergency Calls,
- Feasibility Study on the Applicability of GALILEO for Location Services,
- IMS Messaging,
- 3GPP Enablers for services like Push to Talk over Cellular (PoC),
- Interworking Aspects and Migration Scenarios for IPv4-based IMS Implementation,
- Overall Architectural Aspects of IP Flow-Based Bearer Level Charging,
- Bandwidth and Resource Savings in Circuit Switched Networks, and
- Circuit Switched Video and Voice.

Table 2: 3GPP TSG SA Working Group 2 (Architecture) Specification Update

Document	Title	Status
tbd	Access Class Barring and Overload Protection	New work item.
tbd	Combining CS Bearers with IMS	New work item.
tbd	WID for Flow Based Charging	Updated with the identities of affected specifications.
tbd	WID on Circuit Switched Video and Voice Service	Update the scope and objective of the WID.
tbd	WID on Network Sharing	Updated the completion date and new specification number.
TS 03.71	Location Service (LCS); Functional Description; Stage 2	Version 8.9 (Rel 99) being revised.
TS 23.002	Network Architecture	Version 6.4 being revised.
TS 23.060	GPRS; Stage 2	Versions 5.8 and 6.4 being revised.
TS 23.107	QoS Concept and Architecture	Versions 5.12 and 6.1 being revised.
TS 23.125	Overall High Level Functionality and Architecture Impacts of Flow Based Charging (replaces TR 23.825).	Rel 6 version initiated.
TS 23.171	Functional Stage 2 Description of Location Service in UMTS	Version 3.11 (Rel 99) being revised.
TS 23.207	End-to-End QoS Concept and Architecture	Versions 5.9 and 6.2 being revised.
TS 23.221	Architectural Requirements	Versions 5.9 and 6.2 being revised.
TS 23.234	3GPP System to Wireless Local Area Network (WLAN) Interworking; System Description	Rel 6 version initiated.
TS 23.271	Functional Stage 2 Description of LCS	Versions 4.11, 5.10 and 6.7 (Rel 6) being revised.
TR 23.825	Overall Architecture Aspects of IP Flow Based Bearer Level Charging; Stage 2	To be replaced by TS 23.125.
TR 23.851	Network Sharing; Architecture and Functional Description	Version 6.0 available.
TR 23.877	Architectural Aspect of Speech Enabled Services	Version 6.0 available.
TR 23.976	Push Architecture	Version 6.0 available.
TR 23.977	Bandwidth and Resource Saving and Speech Enhancements for Circuit Switched Networks.	Initial draft submitted.

TSG SA Working Group 3 (Security)

3GPP TSG SA Working Group 3 on Security (SA3) is responsible for the security of the 3GPP system, performing analyses of potential security threats to the system, considering the new threats introduced by the IP-based services and systems, and setting the security requirements for the overall 3GPP system.

At the most recent meetings SA3 determined that *Network domain Security: Authentication Framework* (TS 33.310) was stable. One open issue is that the Certificate Management Protocol (CMPv2) is used for initial enrollment. It is still an internet draft,

even though it is already widely supported and expected to received RFC status in IETF no later than June 2004.

SA3 continued addressing an attack on GSM security reported at Crypto 2003 conference.

TSG SA Working Group 4 (Codecs)

3GPP TSG SA Working Group on Codecs (SA4) specifies speech, audio, video, and multimedia codecs for both circuit-switched and packet-switched environments. It also evaluates codec quality, end-to-end performance, and interoperability in existing mobile and fixed networks.

Table 3: 3GPP TSG SA Working Group 3 (Security) Specification Update

Document	Title	Status
TS 33.141	Presence Service; Security	Version 1.1.1 (Rel 6) was submitted for information.
TS 33.203	3G Security; Access Security for IP-Based Services	Version 6.2 being revised.
TS 33.210	3G Security; Network Domain Security; IP Network Layer Security	Versions 6.4 being revised.
TS 33.220	Generic Authentication Architecture (GAA); Generic Bootstrapping Architecture	Rel 6 (version 6.0) initiated.
TS 33.221	Generic Authentication Architecture (GAA); Support for Subscriber Certificates	
TS 33.222	Generic Authentication Architecture (GAA); Access to Network Application Function Using HTTPS	
TS 33.234	3G Security; Wireless Local Area Network (WLAN) Interworking Security	
TS 33.310	Network Domain Security (NDS); Authentication Framework (AF)	
TR 33.817	Feasibility Study on (U)SIM Security Reuse by Peripheral Device on Local Interface	
TR 33.919	Generic Authentication Architecture (GAA); System Description	Draft version 1.3 available.
TS 55.226	Specification of the A5/4 Encryption Algorithms for GSM and ECSD, and the GEA4 Encryption Algorithm for GPRS;	Draft version 1.0 available.

SA4 has spent most of its recent meeting time on several Release 6 work items:

- Performance Characterization of Default Codecs for Packet Switched (PS) Conversational Multimedia Applications,
- Packet Switched Streaming (PSS),
- Extended AMR-WB Codec for PS Streaming and Messaging Services,
- Enhanced MMS Codec and Formats,
- Speech Recognition and Speech Enabled Services: Codec Work to Support Speech Recognition Framework for Automated Voice Services,

- Media Codecs and Formats for IMS Messaging and Presence,
- Definition of the MBMS user service, Media Codecs, Formats and Transport/Application Protocols using MBMS.

SA4 has asked the plenary for permission to recommend two optional PSS/MMS Audio Codecs (AMR-WB and Enhanced aacPlus) instead of a single mandatory codec, even though this will introduce the possibility of incompatibility or transcoding. Guidelines on the usage of these codecs will be provided in an informative annex of TS 26.234.

Table 4: 3GPP SA Working Group 4 (Codecs) Specification Update

Document	Title	Status
tbd	Codec Enhancements for Packet Switched Conversational Multimedia Application	New work item.
tbd	3G-324M (Circuit-Switched Video Telephony) Improvement	New work item.
TS 26.104	ANSI-C Code for the Floating-Point Adaptive Multi Rate (AMR) Speech Codec	Versions 5.4 and 6.1 being revised.
TS 23.243	ANSI-C Code for the Fixed-Point Distributed Speech Recognition Extended Advance Front-end	Draft version 1.0 (Rel 6) available.
TS 26.244	Transparent End-to-End Packet Switched Streaming Service (PSS); 3GPP File Format	Version 6.0 (Rel 6) being published.
TS 26.246	Transparent End-to-End Packet Switched Streaming Service (PSS); 3GPP SMIL Language Profile	Draft version 1.0 (Rel 6) available.
TR 26.935	Packet Switched Conversational Multimedia Applications; Performance Characterization of Default Codec	
TR 26.937	Transparent End-to-End Packet Switched Streaming Service (PSS); Real-Time Transport Protocol (RTP) Usage Model	

TSG SA Working Group 5 (Telecom Management)

3GPP TSG SA Working Group 5 for Telecom Management (SA5) defines the management framework and requirements for management of 3G systems, providing architecture descriptions of the telecommunication management network (TMN) and coordinating 3G telecom management work across all TSGs.

SA5 maintains liaisons with several other groups:

- 3GPP2 TSG-S, which references SA5 TSs in S.S0028-B “OAM&P for cdma2003 (3GPP2 R5 Delta Specification)”, which also documents some exception areas as well as providing specification for cdma2000 Network Resource Models.

- IETF AAA Working Group on Diameter Credit Control Application for 3GPP Online Charging.
- OMA Mobile Commerce and Charging (MCC) Working group on Re-use of 3GPP Charging Architecture and Specifications.
- TeleManagement Forum (TMF - www.tmforum.org) on 3G-Mobile Management Standards.

SA5 plans to complete its Subscription Management, OAM&P and Charging Management specifications by September 2004.

Table 5: 3GPP TSG SA Working Group 5 (Telecom Management) Specification Update

Document	Title	Status
TSG 32.104	3G Performance Management	Version 3.7 (Rel 99) being revised.
TSG 32.111-2	Fault Management; Part 2: Alarm Integration Reference Point (IRP): Information Service	Version 6.1 being revised.
TSG 32.150	Integration Reference Point (IRP) Concept and Definition	Version 6.0 being published.
TSG 32.151	Integration Reference Point (IRP) Information Service (IS) Template	
TSG 32.152	Integration Reference Point (IRP) Information Service (IS) Unified Modelling Language (UML) Repertoire	
TSG 32.215	Charging Management; 3G Charging Data Description for the Packet Switched (PS) Domain	Version 4.7 being revised.
TSG 32.250	Charging Management; Circuit Switched (CS) Domain Charging	Version 6.0 being published.
TSG 32.260	Charging Management; IP Multimedia Subsystem (IMS) Charging	Version 1.0 (Rel 6) available.
TSG 32.296	Charging Management; Online Charging System (OCS): Applications and Interfaces	
TSG 32.297	Charging Management; Charging Data Records (CDR) File Format and Transfer	Version 6.0 was published.
TSG 32.299	Charging Management; Diameter Charging Application	Draft version 1.0 (Rel 6) available.
TSG 32.302	Configuration Management (CM); Notification Integration Reference Point (IRP): Information Service	Version 5.2 being revised.
TSG 32.331	Telecommunication Management; Notification Log Integration Reference Point (IRP): Requirements	Version 6.0 being published.
TSG 32.332	Telecommunication Management; Notification Log Integration Reference Point (IRP): Information Service (IS)	Draft version 1.0 (Rel 6) available.
TSG 32.341	Telecommunication Management; File Transfer (FT) Integration Reference Point (IRP): Requirements	Version 6.0 being published.
TSG 32.343	Telecommunication Management; File Transfer (FT) Integration Reference Point (IRP): Common Object Request Broker Architecture (CORBA) Solution Set (SS)	Draft version 1.0 (Rel 6) available.
TSG 32.351	Communication Surveillance (CS) Integration Reference Point (IRP): Requirement	Version 6.0 being published.
TSG 32.371	Security management Concept and Requirements	Version 1.0 (Rel 6) available.
TSG 32.413	Performance Management (PM) Integration Reference Point (IRP): Common Object Request Broker Architecture (CORBA) Solution Set (SS)	Version 6.0 being published.

Table 5: 3GPP TSG SA Working Group 5 (Telecom Management) Specification Update - cont.

Document	Title	Status
TS 32.422	Subscriber and Equipment Trace: Trace Control and Configuration Management	Draft version 1.0 (Rel 6) available.
TS 32.612	Configuration Management (CM); Bulk CM Integration Reference Point (IRP) Information Service (IS)	Version 4.5 and 5.3 being revised.
TS 32.622	Configuration Management (CM); Generic Network Resources: Integration Reference Point (IRP): Network Resource Model (NRM)	Versions 5.3 and 6.1 being revised.
TS 32.625	Configuration Management (CM); Generic Network Resources: Integration Reference Point (IRP): Bulk CM xXtensive Markup Language (XML) File Format Definition	Version 5.2 and 6.1 being revised.
TS 32.634	Configuration Management: Core Network Resources Integration Reference Point (IRP): Common Management Information Protocol (CMIP) Solution Set (SS)	Version 5.2 being revised.
TS 32.635	Configuration Management: Core Network Resources Integration Reference Point (IRP): Bulk CM xXtensive Markup Language (XML) File Format Definition	
TS 32.641	Configuration Management (CM); UTRAN Network Resources Integration Reference Point (IRP): Requirements	Version 5.1 being revised.
TS 32.642	Configuration Management (CM); UTRAN Network Resources Integration Reference Point (IRP): Network Resource Model (NRM)	Version 5.4 being revised.
TS 32.643	Configuration Management (CM); UTRAN Network Resources Integration Reference Point (IRP): Common Object Request Broker Architecture (CORBA) Solution Set	Version 5.3 being revised.
TS 32.662	Configuration Management (CM); Kernel CM Information Service (IS)	Versions 5.2 and 6.2 being revised.
TR 32.803	Telecommunication Management; Process Guide; Use Cases in Unified Modelling Language (UML)	Draft version 1.0 (Rel 6) released.

3GPP TSG SA Meetings

The most recent plenary meeting of TSG SA was held March 15th – 17th 2004 in Phoenix, Arizona. Planned future meetings are:

- June 7th – 9th 2004 in Seoul, Korea.
- September 13th – 15th 2004 in the US.
- December 13th – 15th 2004 in Athens, Greece.
- March 14th – 16th 2005 in Tokyo, Japan.
- June 6th – 8th 2005.
- September 12th – 14th 2005.
- December 5th - 7th 2005.

SA1 Meetings. Additional SA1 meetings are planned for May 10th – 14th 2004 in Shenzhen, China; June 28th – July 2nd 2004 in North America; October 11th – 15th 2004 in Sophia Antipolis, France; January 17th – 21st 2005 in South Africa.

SA2 Meetings. April 19th – 23rd 2004 in Shenzhen, China; May 17th – 21st 2004 in Sophia Antipolis, France; August 16th – 20th 2004 in Montreal, Canada; October 11th – 15th 2004 in Sophia Antipolis, France and November 15th – 19th 2005 in Korea.

SA3 Meetings. (SA3-LI) April 14th – 16th 2004 in Rome, Italy; May 10th – 14th 2004 in Beijing, China; July 6th – 9th 2004 in Chicago, USA; (SA3-LI) July 19th – 20th 2004 in Povoá de Varzim, Portugal; October 5th – 8th 2004 in Malta; (SA3-LI) October 12th – 14th 2004 in the US; November 23th – 26th 2004 in Shenzhen, China.

SA4 Meetings. April 5th – 7th 2004 in Lund, Sweden; May 17th – 21st 2004 in Montreal, Canada; August 16th – 20th 2004 (location is tbd); November 22nd – 26th 2004 in Helsinki, Finland.

SA5 Meetings. May 10th – 14th 2004 in Beijing, China; June 28th – July 2nd 2004 in Sophia Antipolis, France; August 16th – 20th in Montreal, Canada; Sept. 27th – Oct. 1st 2004 in Sophia Antipolis, France; November 15th – 19th 2004 in Sanya, China.

For a complete schedule of 3GPP meetings consult:

www.3gpp.org/Meetings/meetings.htm

3GPP2 TSG-S Service and System Aspects

Cellular Networking Perspectives

Editor: David.Crowe@cnp-wireless.com

First publication

- Note: 1. S.S – TSG-X Specification; SR – TSG-S Report; S.P – TSG-S Project.
2. Bold Type indicates a modification since the previous publication of this information.
3. Published 3GPP2 specifications will be available at: http://www.3gpp2.org/Public_html/specs/index.cfm

3GPP2 TSG-S – Service and System Aspects – Specifications

Specification	Description	Status
S.S0028	OAM&P for cdma2000 (3GPP Delta Specification)	Published 05/01
S.S0028-A	OAM&P for cdma2000 (3GPP R4 Delta Specification)	Published 12/02
S.S0028-Av2	OAM&P for cdma2000 (3GPP R4 Delta Specification)	Published 02/03
S.S0028v2	OAM&P for cdma2000 (3GPP Delta Specification)	Published 07/01
S.S0028v3	OAM&P for cdma2000 (3GPP Delta Specification)	Published 03/02
S.S0053	Common Cryptographic Algorithms	Published 01/02
S.S0054	Interface Specification for S.S0053	Published 01/02
S.S0055	Enhanced Cryptographic Algorithms (ESA/ESP)	Published 01/02
S.S0055-A	Enhanced Cryptographic Algorithms (ESA/ESP)	Published 11/03
S.S0078	Common Security Algorithms	Published 04/03
S.S0093	cdma2000 Network Performance Measurement Types	Published 12/03

3GPP2 TSG-S – Service and System Aspects – Reports

Report	Description	Status
S.R0003	3GPP2 System Capability Guide	Published
S.R0003-A	3GPP2 System Capability Guide	Published 07/01
S.R0004	Service Implementation Guide	Published
S.R0005	Network Reference Model	Rescinded
S.R0005-A	Network Reference Model	Published 12/99
S.R0005-B	Network Reference Model	Published 05/01
S.R0006	Cellular Features Description	Published 12/99
S.R0007	Stage 1 for User Selective Call Forwarding (USCF)	Published
S.R0008	Stage 1 for Answer Hold (AH)	Published
S.R0009	Stage 1 for User Identity Module (UIM)	Published 12/99
S.R0010	Stage 1 for Preferred Language Enhancement	Published 12/99
S.R0011	Stage 1 for Advice of Charge	Published 12/99
S.R0012	Stage 1 for Rejection of Undesired Annoying Calls	Published 12/99
S.R0013	Stage 1 for Global Emergency Call Origination (GECO)	Published 12/99
S.R0014	Stage 1 for Tandem Free Operation (TFO)	Published 12/99
S.R0015	Stage 1 for ISDN Interworking	Published 12/99

S.R0016	Stage 1 for Automatic Call Gapping	Published
S.R0017	3G WIRELESS Network Management System High Level Requirements	Published 12/99
S.R0018	Stage 1 for Prepaid Charging	Published 12/99
S.R0019	Stage 1 for Location Based Services	Published 10/00
S.R0021	Stage 1 for Video Streaming Service	Published 08/00
S.R0021-0	Stage 1 for Multimedia Streaming Service	Published 04/02
S.R0022	Stage 1 for Video Conferencing	Published 08/00
S.R0023	Stage 1 for High Speed Data Enhancements for cdma2000 (DO)	Published
S.R0023v2	Stage 1 for High Speed Data Enhancements for cdma2000 (DO)	Published
S.R0024	Stage 1 for Wireless Local Loop	Published 10/00
S.R0025	Stage 1 for Wireless Payphone	Published 10/00
S.R0026	Stage 1 for High Speed Data Enhancements for cdma2000 Integrated Data/Voice (DV)	Published 11/00
S.R0027	Stage 1 for Personal Mobility	Published
S.R0029	Stage 1 for Access Control Based on Call Type	Published 10/00
S.R0030-0	Stage 1 for Broadcast/Multicast Service (BCMCS)	Published 08/01
S.R0030-A	Stage 1 for Broadcast/Multicast Service (BCMCS)	Published 02/04
S.R0032	Stage 1 for Enhanced Subscriber Authentication (ESA) and Privacy (ESP)	Published
S.R0033	Stage 1 for Realm Configured Packet Data Session Dormancy Timer	Published 12/01
S.R0034	UIMID Manufacturer's Code Assignment Guidelines and Procedures	Published 05/01
S.R0034v2	UIMID Manufacturer's Code Assignment Guidelines and Procedures	Published 08/02
S.R0035	Stage 1 for Quality of Service (QoS)	Published 09/02
S.R0037v2	IP Network Architecture	Published 05/02
S.R0037v3	IP Network Architecture	Published 09/03
S.R0038-0	3GPP2 Evolution	Published 04/02
S.R0038v1	3GPP2 Evolution	Published 03/04
S.R0038v2	3GPP2 Evolution	In press
S.R0048	MEID Stage 1	Published 05/01
S.R0048-A	MEID Stage 1	Published 09/03
S.R0051	Stage 1 for Enhanced Message Service (EMS)	Published 07/01
S.R0052	Alpha System Release Guide	Published 01/04
S.R0057	System Requirements for IP-Based Service Architecture	Published 07/02
S.R0058	System Requirements for IP Multimedia Domain	Published 04/03
S.R0059	System Requirements for Legacy MS Domain (LMSD) Step 1	Published 04/03
S.R0060	Stage 1 for Removable UIM (R-UIM)/Mobile Equipment (ME) Interface Testing	Published 03/02
S.R0061	Wireless Immediate Messaging	Published 10/02
S.R0062	Presence for Wireless Systems	Published 10/02
S.R0064	Multimedia Messaging Services (MMS)	Published 10/02
S.R0065	System Requirements for Fast Call Setup	Published 04/02
S.R0066	Stage 1 for IP-Based Location Services (LCS)	Published 04/03
S.R0068	Stage 1 for Link Layer Assisted Robust Header Compression (LLA ROHC)	Published 06/02
S.R0069	Stage 1 for Header Stripping and Generation	Published 03/02
S.R0070	Work Item, Stage 1 and System Requirements Process Guidelines	Published 05/02
S.R0070-A	Work Item, Stage 1 and System Requirements Process Guidelines	In press
S.R0071	Stage 1 for Legacy System Packet Data Surveillance	Published 04/02
S.R0072	Stage 1 for All-IP Packet Data Surveillance	Published 04/02
S.R0073	Stage 1 for Internet Over-the-Air Handset Configuration Management (IOTA)	Published 07/02
S.R0074	Stage 1 for File Format for Multimedia Services (FFMS)	Published 04/03
S.R0075	System Requirements for Accounting and Auditing for All-IP	Published 04/03
S.R0079	End-to-End Quality of Service	Ballot
S.R0080	Stage 1 for cdma200 Wideband Speech Codec	Published 02/03
S.R0082	Enhanced Packet Data Air Interface Security	Published 09/03

S.R0083	Broadcast/Multicast Service Security Framework	Published 11/03
S.R0084	Stage 1 for Prepaid Packet Data	Published 09/03
S.R0086	IMS Security Framework	Published 02/04
S.R0088	Global Wireless Equipment Numbering Administration Procedures	Published 12/03
S.R0089	Mobile Equipment Identifier (MEID) Assignment Guidelines and Procedures	Published 12/03

3GPP2 TSG-S – Service and System Aspects – Projects

Project	Description	Status
S.P0030	BCMCS Stage 1	Development
S.P0067	Enhanced Call Recovery	Released
S.P0079	Quality of Service (QoS)	Development
S.P0090	Stage 1 for Network Initiated Data Session (NIDS)	Ballot
S.P0094	Rm Interface Enhancements Stage 1	Development
S.P0095	Support of ISIM on UICC Stage 1	Development
S.P0096	TrFO (Transcoder Free Operation)	Development
S.P0099	Publication Numbering Guidelines	Forwarded to SC
S.P0102	Release Planning Guidelines	Development