



System Release Guide for the UMB-1 Release of the cdma2000 System Specifications

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Revision History

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| v1.0 | Initial Release | 15 May 2008 |
| v2.0 | Two (2) additional work items added to release; editorial changes identified after initial release | 18 June 2008 |

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1. INTRODUCTION

This document is the System Release Guide (SRG) for the Ultra Mobile Broadband-1 (UMB¹-1) Release of the 3GPP2 wireless telecommunication system. It is developed and maintained under the auspices of 3GPP2 TSG-S, the Technical Specifications Group (TSG) for Services and Systems Aspects for 3GPP2.

1.1 Document Purpose

The objective of this document is to provide an informative overview for and reference to the UMB-1 of the 3GPP2 wireless telecommunication system (cdma2000®)² capabilities, features and services. This document is intended for use by persons and/or companies who are developing or deploying cdma2000 systems or by persons who are otherwise interested in 3GPP2 wireless telecommunications systems.

In order to be compliant with this 3GPP2 system release, mandatory features must be implemented. However, the set of optional features implemented in a given system is decided by the operators and manufacturers. The individual specifications indicate the mandatory and optional nature of features. This system release includes only features and capabilities that are part of a published 3GPP2 specification(s).

1.2 UMB-1 Release Summary

The UMB-1 Release focuses on the following two (2) release critical work items, as identified in blue in Table 1:

Enhanced cdma2000 Air Interface (3GPP2-00159)

UMB represents a major break-through in next generation mobile broadband services by enabling the transfer of native IP, variable length, data packets at speeds that are orders of magnitude higher than what is commercially available today. It is the latest member of the family of cdma2000 standards that was designed from the ground up to improve the overall end user experience and strengthen an operator's earnings potential.

UMB is the leading Orthogonal Frequency Division Multiple Access (OFDMA) solution, using sophisticated control and signaling mechanisms, radio resource management (RRM), adaptive reverse link (RL) interference management, and

¹ Ultra Mobile Broadband™ and (UMB™) are trade and service marks owned by the CDMA Development Group (CDG).

² cdma2000® is a trademark for the technical nomenclature for certain specifications and standards of the Organizational Partners (OPs) of 3GPP2. Geographically (and as of the date of publication), cdma2000® is a registered trademark of the Telecommunications Industry Association (TIA-USA) in the United States.

advanced antenna techniques, such as Multiple Input Multiple Output (MIMO), Space Division Multiple Access (SDMA) and beamforming. The UMB solution universally addresses a large cross-section of advanced mobile broadband services by economically delivering low-rate, low latency voice traffic at one end of the spectrum, just as efficiently as ultra-high-speed, latency insensitive, broadband data traffic at the other. To support ubiquitous and universal access, UMB supports inter-technology hand-offs and seamless operation with existing cdma2000 1X and 1xEV-DO systems.

Integrating and optimizing these and other advanced radio access techniques into a single, open, global standard represents a major technological break-through within the mobile communications industry. Thus, the UMB solution delivers a compelling user experience based on the strongest performance and economic value proposition available within the wireless industry, including:

- High-Speed Data: Peak download and upload speeds of 288 Mbps and 75 Mbps, respectively, in a mobile environment with a 20 MHz bandwidth.
- Increased Data Capacity: Ability to deliver both high-capacity voice and broadband data in all environments; fixed, pedestrian and fully-mobile in excess of 300 km/hr.
- Low Latency: An average round-trip over-the-air latency as low as 14.3 msec to support delay sensitive applications with minimal jitter.
- Increased VoIP Capacity: up to approximately 1400 simultaneous Voice over IP (VoIP) users³ within a single sector, in a 20 MHz bandwidth mobile environment.
- Large Coverage: Large wide area network (WAN) coverage areas equivalent to existing cellular networks; with either ubiquitous coverage for seamless roaming or non-contiguous coverage for hot zone applications.
- Full Mobility: Robust mobility support with seamless handoffs is inherent in all aspects of the UMB design.
- Converged Access Network: Supports the deployment of a Converged Access Network (CAN), which is an advanced IP-based Radio Access Network (RAN) architecture being developed by 3GPP2 to support multiple access technologies and advanced network capabilities, such as enhanced QoS, with fewer network nodes and lower latencies.
- Multicasting: Support for high-speed multicast of rich multimedia content.
- Deployment Flexibility: Deployable in flexible bandwidth allocations between 1.25 MHz and 20 MHz, using incremental channel bandwidths allocations 153.6 kHz, within all the band classes defined by 3GPP2 in C.S0057.

³ The number of VoIP users depends on various conditions, such as network layout, cell radius, propagation channel modeling, VoIP codec, delay requirements etc.

- **Interoperability:** The UMB radio access network is also designed to interoperate with legacy networks including cdma2000 1X and 1xEV-DO.

Packet Data Access Network Evolution (3GPP2-00145)

The evolved/enhanced architecture provides support of both distributed and centralized architecture and streamlines the network entities and interfaces for Enhanced Packet Data Air Interface (E-PDAI). The new architecture will enhance system performance such as: reduce signaling latency, reduce media transmission delay, improve data transmission efficiency, and improve mobility management. The new architecture will speed up deployment of new services/features by leveraging the existing 3GPP2 and IETF protocols and minimizing the need for 3GPP2 specific network entities.

2. DOCUMENT REFERENCES

2.1 Definitions

| | |
|------------------------|---|
| Informative Reference | The most recent version of each report that supports the end-to-end features of the release. |
| Normative Reference | The most recent version of each specification that supports the end-to-end features of the release. |
| Supplemental Reference | A supplemental reference refers to the most recent version of each document (specification or report) that has been published since the previous 3GPP2 release, but for which its associated end-to-end feature(s) has not been released. |

2.2 Normative References

A normative reference refers to the most recent version of each specification that supports the end-to-end features of the release.

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| A.S0008-C | v1.0 | Interoperability Specification (IOS) for High Rate Packet Data (HRPD) Radio Access Network Interfaces With Session Control in the Access Network |
| A.S0009-C | v1.0 | Interoperability Specification (IOS) for High Rate Packet Data (HRPD) Radio Access Network Interfaces with Session Control in the Packet Control Function |
| A.S0011-D | v1.0 | Interoperability Specification (IOS) for cdma2000 Access Network Interfaces – Part 1 Overview (IOS v5.1) |

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| A.S0012-D | v1.0 | Interoperability Specification (IOS) for cdma2000 Access Network Interfaces – Part 2 Transport (IOS v5.1) |
| A.S0013-D | v1.0 | Interoperability Specification (IOS) for cdma2000 Access Network Interfaces – Part 3 Features (IOS v5.1) |
| A.S0014-D | v1.0 | Interoperability Specification (IOS) for cdma2000 Access Network Interfaces - Part 4 (A1, A1p, A2 and A5 Interfaces) (IOS v5.1) |
| A.S0015-D | v1.0 | Interoperability Specification (IOS) for cdma2000 Access Network Interfaces - Part 5 (A3 and A7 Interfaces) (IOS v5.1) |
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| A.S0017-D | v1.0 | Interoperability Specification (IOS) for cdma2000 Access Network Interfaces - Part 7 (A10 and A11 Interfaces) (IOS v5.1) |
| A.S0019-A | v2.0 | Interoperability Specification (IOS) for Broadcast Multicast Services (BCMCS) |
| A.S0020-0 | v1.0 | Interoperability Specification (IOS) for Ultra Mobile Broadband (UMB) Radio Access Network Interfaces |
| C.S0001-D | v2.0 | Introduction to cdma2000 Standards for Spread Spectrum Systems - Release C |
| C.S0002-D | v2.0 | Physical Layer Signaling Standard for cdma2000 for Spread Spectrum Systems |
| C.S0003-D | v2.0 | Medium Access Control (MAC) Standard for cdma2000 Spread Spectrum Systems |
| C.S0004-D | v2.0 | Signaling Link Access Control (LAC) Standard for cdma2000 Spread Spectrum Systems |
| C.S0005-D | v2.0 | Upper Layer (Layer 3) Signaling Standard for cdma2000 Spread Spectrum Systems |
| C.S0006-D | v2.0 | Analog Signaling Standard for cdma2000 Spread Spectrum Systems |
| C.S0010-C | v2.0 | Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Base Stations |

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| C.S0011-C | v2.0 | Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Mobile Stations |
| C.S0014-C | v1.0 | EVRC, Speech Service Options 3, 68, and 70 for Wideband Spread Spectrum Digital Systems |
| C.S0015-B | v2.0 | Short Message Service (SMS) for Wideband Spread Spectrum Systems |
| C.S0018-C | v1.0 | Minimum Performance Specification for the Enhanced Variable Rate Codec, Speech Service Options 3 and 68 for Spread Spectrum Digital Systems |
| C.S0022-A | v1.0 | Position Determination Service for Dual Mode Spread Spectrum Systems |
| C.S0023-C | v1.0 | Removable User Identity Module for Spread Spectrum Systems - Revision C |
| C.S0024-B | v2.0 | cdma2000 High Rate Packet Data Air Interface Specification |
| C.S0029-B | v1.0 | Test Application Specification (TAS) for High Rate Packet Data Air Interface |
| C.S0032-A | v2.0 | Recommended Minimum Performance Standards for cdma2000 High Rate Packet Data Access Network |
| C.S0033-A | v2.0 | Recommended Minimum Performance Standards for cdma2000 High Rate Packet Data Access Terminal - Revision A |
| C.S0035-A | v2.0 | CDMA Card Application Toolkit (CCAT) |
| C.S0036-0 | v1.0 | Recommended Minimum Performance Specification for C.S0022-0 Spread Spectrum Mobile Stations |
| C.S0038-A | v2.0 | Signaling Conformance Specification for cdma2000 High Rate Packet Data Air Interface Specification |
| C.S0039-0 | v2.0 | Enhanced Subscriber Privacy for cdma2000 High Rate Packet Data |
| C.S0043-0 | v1.0 | Signaling Conformance Test Specification for the cdma2000 Air Interface |
| C.S0044-A | v1.0 | Interoperability Specification for cdma2000 Air Interface |

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| C.S0045-A | v1.0 | Multimedia Messaging Service (MMS) Media Format and Codecs for cdma2000 Spread Spectrum Systems |
| C.S0050-B | v1.0 | 3GPP2 File Format for Multimedia Services |
| C.S0054-A | v1.0 | cdma2000 High Rate Broadcast-Multicast Packet Data Air Interface Specification - Revision A |
| C.S0055-0 | v1.0 | Packet Switched Video Telephony Services (PSVT/MCS) |
| C.S0057-B | v1.0 | Band Class Specification for cdma2000 Spread Spectrum Systems |
| C.S0058-A | v1.0 | Over the Air Interoperability Specification for cdma2000 Air Interface |
| C.S0061-0 | v1.0 | SMS Signaling Conformance Tests for CDMA Base Stations and Mobile Stations |
| C.S0063-A | v2.0 | cdma2000 High Rate Packet Data Supplemental Services |
| C.S0064-0 | v1.0 | IP Based Over-the-Air Device Management (IOTA-DM) for cdma2000 Systems |
| C.S0065-0 | v1.0 | cdma2000 Application on UICC for Spread Spectrum Systems |
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| C.S0072-0 | v1.0 | Mobile Station Equipment Identifier (MEID) Support for cdma2000 Spread Spectrum Systems |
| C.S0073-A | v1.0 | Signaling Test Specification for Mobile Station Equipment Identifier (MEID) Support for cdma2000 Spread Spectrum Systems |
| C.S0074-0 | v1.0 | UICC-Terminal Interface Physical and Logical Characteristics for cdma2000 Spread Spectrum Systems |
| C.S0075-0 | v1.0 | Interworking Specification for cdma2000 High Rate Packet Data Systems |
| C.S0078-0 | v1.0 | Secured Packet Structure for CDMA Card Application Toolkit (CCAT) Applications |
| C.S0079-0 | v1.0 | Remote APDU Structure for CDMA Card Application Toolkit (CCAT) Applications |

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| C.S0081-0 | v1.0 | Signaling Conformance Specification for cdma2000 High Rate Packet Data Supplemental Services |
| C.S0082-0 | v1.0 | Circuit Services Notification Application Specification for cdma2000 High Rate Packet Data |
| C.S0084-000-0 | v2.0 | Overview for Ultra Mobile Broadband (UMB) Air Interface Specification |
| C.S0084-001-0 | v2.0 | Physical Layer for Ultra Mobile Broadband (UMB) Air Interface Specification |
| C.S0084-002-0 | v2.0 | Medium Access Control Layer for Ultra Mobile Broadband (UMB) Air Interface Specification |
| C.S0084-003-0 | v2.0 | Radio Link Layer for Ultra Mobile Broadband (UMB) Air Interface Specification |
| C.S0084-004-0 | v2.0 | Application Layer for Ultra Mobile Broadband (UMB) Air Interface Specification |
| C.S0084-005-0 | v2.0 | Security Functions for Ultra Mobile Broadband (UMB) Air Interface Specification |
| C.S0084-006-0 | v2.0 | Connection Control Plane for Ultra Mobile Broadband (UMB) Air Interface Specification |
| C.S0084-007-0 | v2.0 | Session Control Plane for Ultra Mobile Broadband (UMB) Air Interface Specification |
| C.S0084-008-0 | v2.0 | Route Control Plane for Ultra Mobile Broadband (UMB) Air Interface Specification |
| C.S0084-009-0 | v2.0 | Broadcast-Multicast Upper Layer for Ultra Mobile Broadband (UMB) Air Interface Specification |
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| S.S0028-000-C | v2.0 | OAM&P for cdma2000 (Overview) |
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| S.S0083-A | v1.0 | Broadcast/Multicast Service Security Framework |
| S.S0093-0 | v2.0 | cdma2000 Network Performance Measurement Types |
| S.S0109-A | v1.0 | Generic Bootstrapping Architecture (GBA) Framework |
| S.S0114-A | v1.0 | Security Mechanisms Using GBA |
| S.S0118-0 | v1.0 | ENUM Stage 1 |
| X.S0001-A | v1.0 | MAP Enhancements for cdma Packet Data Service (C-PDS) |
| X.S0004-000-E | v7.0 | Mobile Application Part (MAP) - Introduction |
| X.S0004-200-E | v1.0 | Mobile Application Part (MAP) - Intersystem Handoff |
| X.S0004-290-E | v1.0 | Mobile Application Part (MAP) - Intersystem Handoff |
| X.S0004-321-E | v1.0 | Mobile Application Part (MAP) - Voice Feature Scenarios: Call Delivery |
| X.S0004-322-E | v1.0 | Mobile Application Part (MAP) - Voice Feature Scenarios: Call Forwarding |
| X.S0004-323-E | v1.0 | Mobile Application Part (MAP) - Voice Feature Scenarios: Call Waiting |
| X.S0004-324-E | v1.0 | Mobile Application Part (MAP) - Voice Feature Scenarios: Calling Number Identification Presentation, Calling Number Identification Restriction |
| X.S0004-325-E | v1.0 | Mobile Application Part (MAP) - Voice Feature Scenarios: Conference Calling |
| X.S0004-326-E | v1.0 | Mobile Application Part (MAP) - Voice Feature Scenarios: Do Not Disturb |
| X.S0004-327-E | v1.0 | Mobile Application Part (MAP) - Voice Feature Scenarios: Flexible Alerting |
| X.S0004-328-E | v1.0 | Mobile Application Part (MAP) - Voice Feature Scenarios: Mobile Access Hunting |
| X.S0004-329-E | v1.0 | Mobile Application Part (MAP) - Voice Feature Scenarios: Message Waiting Notification |

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| X.S0004-330-E | v1.0 | Mobile Application Part:: Voice Feature Scenarios: Selective Call Acceptance/Password Call Acceptance |
| X.S0004-371-E | v1.0 | Mobile Application Part (MAP) – Broadcast Teleservice Transport Capability |
| X.S0004-400-E | v1.0 | Operations, Administration and Maintenance (OA&M) |
| X.S0004-500-E | v1.0 | Introduction to Signaling Protocols |
| X.S0004-510-E | v1.0 | X.25 Transport Signaling Protocols |
| X.S0004-511-E | v1.0 | ANS/SS7 Transport Signaling Protocols |
| X.S0004-512-E | v1.0 | ITU-T SS7 Transport Signaling Protocols |
| X.S0004-520-E | v2.0 | TCAP Application Signaling Protocols |
| X.S0004-540-E | v2.0 | Mobile Application Part (MAP) - Operations Signaling Protocols |
| X.S0004-550-E | v2.0 | Mobile Application Part (MAP) - Parameters Signaling Protocols |
| X.S0004-590-E | v1.0 | MAP Compatibility Signaling Protocols |
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| X.S0004-630-E | v3.0 | Basic Call Processing |
| X.S0004-640-E | v2.0 | Intersystem Procedures |
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| X.S0004-750-E | v1.0 | SSF/CCF Call and Service Logic Model |
| X.S0004-790-E | v1.0 | WIN Call Delivery |
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| X.S0011-004-D | v1.0 | cdma2000 Wireless IP Network Standard: Quality of Service and Header Reduction |
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| X.S0013-002-B | v1.0 | All-IP Core Network Multimedia Domain: IP Multimedia Subsystem - Stage 2 |
| X.S0013-003-B | v1.0 | All-IP Core Network Multimedia Domain: IP Multimedia (IMS) Session Handling; IP Multimedia (IM) Call Model - Stage 2 |
| X.S0013-007-A | v1.0 | All-IP Core Network Multimedia Domain - IP Multimedia Subsystem - Charging Architecture |
| X.S0013-008-A | v1.0 | All-IP Core Network Multimedia Domain – IP Multimedia Subsystem - Offline Accounting Information Flows and Protocol |
| X.S0013-009-0 | v1.0 | IMS/MMD Call Flow Examples |
| X.S0013-010-B | v1.0 | All-IP Core Network Multimedia Domain – IP Multimedia Subsystem Sh Interface; Signaling Flows and Message Contents – Stage 2 |
| X.S0013-011-B | v1.0 | All-IP Core Network Multimedia Domain – Sh Interface Based on Diameter Protocol; Protocol Details – Stage 3 |

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| X.S0013-012-0 | v1.0 | All-IP Core Network Multimedia Domain – Service Based Bearer Control – Stage 2 |
| X.S0013-013-0 | v1.0 | All-IP Core Network Multimedia Domain – Service Based Bearer Control – Tx Interface Stage 3 |
| X.S0013-014-0 | v1.0 | All-IP Core Network Multimedia Domain – Service Based Bearer Control – Ty Interface Stage 3 |
| X.S0013-016-0 | v1.0 | All-IP Core Network Multimedia Domain – Messaging Service Using the IP Multimedia Subsystem |
| X.S0016-000-A | v1.0 | 3GPP2 Multimedia Messaging System MMS Specification Overview Revision A |
| X.S0016-101-0 | v1.0 | Multimedia Messaging Service - MM10 Interface Based on Diameter Protocol - Stage 3 |
| X.S0016-102-0 | v1.0 | Multimedia Messaging Service - MM10 Interface Based on RADIUS Protocol - Stage 3 |
| X.S0016-200-A | v1.0 | Multimedia Messaging Service - Stage 2 Functional Description |
| X.S0016-310-0 | v1.0 | MMS MM1 Stage 3 Using OMA/WAP |
| X.S0016-311-0 | v1.0 | MMS MM1 Stage 3 Using M-IMAP for Message Submission and Retrieval |
| X.S0016-312-0 | v1.0 | MMS MM1 Stage 3 Using SIP |
| X.S0016-330-A | v1.0 | Multimedia Messaging Service - MM3 Stage 3 for Internet Mail Exchange |
| X.S0016-340-A | v1.0 | Multimedia Messaging Service - MM4 Stage 3 Inter-carrier Interworking - Stage 3 |
| X.S0016-370-A | v1.0 | Multimedia Messaging Service - MM7 VASP Interworking Stage 3 |
| X.S0022-A | v1.0 | Broadcast Multicast Service in cdma2000 Wireless IP Network |
| X.S0024-0 | v1.0 | IP-Based Location Services |
| X.S0027-000-0 | v2.0 | Presence Overview |
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| X.S0027-002-0 | v1.0 | Presence Security |
| X.S0027-003-0 | v1.0 | Presence Service Using the IP Multimedia (IM) Core Network (CN) Subsystem; Stage 3 |
| X.S0027-004-0 | v1.0 | Network Presence |
| X.S0028-100-A | v1.0 | cdma2000 Packet Data Services – Wireless Local Area Network (WLAN) Interworking – Access to Internet |
| X.S0029-0 | v1.0 | Conferencing Using the IP Multimedia (IM) Core Network (CN) Subsystem |
| X.S0033-0 | v2.0 | OTA Support for MEID |
| X.S0042-000-0 | v1.0 | Voice Call Continuity Between IMS and Circuit Switched Systems – Overview |
| X.S0042-001-0 | v1.0 | Voice Call Continuity Between IMS and Circuit Switched Systems – Stage 2 |
| X.S0042-002-0 | v1.0 | Voice Call Continuity Between IMS and Circuit Switched Systems – Stage 3 |
| X.S0044-0 | v1.0 | MIPv4 Enhancements |
| X.S0048-0 | v1.0 | SMS Support over IMS |
| X.S0050-0 | v1.0 | Interworking between Session Initiation Protocol (SIP) and ISDN User Part (ISUP) |
| X.S0054-000-0 | v1.0 | CAN Overview |
| X.S0054-100-0 | v1.0 | CAN Basic Operation |
| X.S0054-102-0 | v1.0 | Multiple Authentication and 2G-RUIM Support for Converged Access Network |
| X.S0054-105-0 | v1.0 | CAN TBD |
| X.S0054-110-0 | v1.0 | CAN MIPv4 Operation |
| X.S0054-210-0 | v1.0 | CAN CMIP Based Inter-AGW Handoff |
| X.S0054-220-0 | v1.0 | CAN PMIP Based Inter-AGW Handoff |
| X.S0054-300-0 | v1.0 | CAN Quality of Service |
| X.S0054-400-0 | v1.0 | CAN Accounting |

X.S0054-910-0 v1.0 CAN Data Dictionary

2.3 Informative References

An informative reference refers to the most recent version of each report that supports the end-to-end features of the release.

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| C.R1001-F | v1.0 | Administration of Parameter Value Assignments for cdma2000 Spread Spectrum Standards |
| C.R1008-0 | v1.0 | Multimedia Services Evaluation Methodology |
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| S.R0058-0 | v1.0 | IP Multimedia Domain System Requirements |
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| S.R0065-0 | v1.0 | Fast Call Setup Stage 1 |
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| S.R0075-0 | v1.0 | Accounting and Auditing All-IP System Requirements |
| S.R0079-0 | v1.0 | Support for End-to-End QoS - Stage 1 Requirements |
| S.R0082-0 | v1.0 | Enhanced Packet Data Air Interface Security Stage 1 |
| S.R0086-A | v1.0 | IMS Security Framework |

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| S.R0101-0 | v1.0 | IOTA Device Management for cdma2000 Systems - Stage 1 Requirements |
| S.R0106-0 | v1.0 | Packet-Switched Video Telephony - Stage 1 |
| S.R0108-0 | v2.0 | HRPD-cdma2000 1x Interoperability for Voice and Data System Requirements |
| S.R0110-0 | v1.0 | IP-Based Location Services Security Framework |
| S.R0113-0 | v2.0 | cdma2000 Enhanced Packet Data Air Interface System - System Requirements Document |
| S.R0121-0 | v1.0 | Network Evolution for cdma2000 Networks – System Requirements Document |
| S.R0122-0 | v1.0 | Preferred Cryptographic Profiles |
| S.R0124-0 | v1.0 | Ultra Mobile Broadband Architecture Model |
| X.R0039-0 | v1.0 | Packet Switched Voice (over IP) and Video Telephony Services End-to-End System Design Technical Report |
| X.R0046-0 | v1.0 | TSG-X Technology Evolution Framework |
| X.R0052-0 | v1.0 | All-IP System – MMD Roaming Technical Report |

2.4 Supplemental References

A supplemental reference refers to the most recent version of each document (specification or report) that has been published since the previous 3GPP2 release, but for which its associated end-to-end feature(s) has not been released.

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|-----------|------|---|
| C.R1010-0 | v1.0 | Software Distribution for H.263 Video Codec for 3GPP2 Packet Switched Multimedia Services |
| C.S0083-0 | v1.0 | Video Codec for 3GPP2 Packet Switched Multimedia Services - H.263 |
| S.R0006-A | v1.0 | Wireless Features Description |
| S.R0111-0 | v2.0 | Expanded R-UIM Identifier |
| S.R0115-0 | v2.0 | All-IP Network Emergency Call Support - Stage 1 Requirements |

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|---------------|------|--|
| S.R0117-0 | v1.0 | Multimedia Priority Services Stage 1 |
| S.R0120-0 | v1.0 | All-IP System – MMD Policy Enhancements – System Requirements |
| S.R0125-502-0 | v1.0 | VoIP Supplementary Services Description: Call Forwarding – Busy |
| S.R0125-503-0 | v1.0 | VoIP Supplementary Services Description: Call Forwarding - Default |
| S.R0125-504-0 | v1.0 | VoIP Supplementary Services Description: Call Forwarding - No Answer |
| S.R0125-505-0 | v1.0 | VoIP Supplementary Services Description: Call Forwarding - Unconditional |
| S.R0125-506-0 | v1.0 | VoIP Supplementary Services Description: Call Transfer |
| S.R0125-507-0 | v1.0 | VoIP Supplementary Services Description: Call Waiting |
| S.R0125-508-0 | v1.0 | VoIP Supplementary Services Description: Calling Identification Presentation |
| S.R0125-509-0 | v1.0 | VoIP Supplementary Services Description: Calling Identification Restriction |
| S.R0125-512-0 | v1.0 | VoIP Supplementary Services Description: Flexible Alerting |
| S.R0125-513-0 | v1.0 | VoIP Supplementary Services Description: Message Waiting Indication |
| S.R0125-552-0 | v1.0 | VoIP Supplementary Services Description: Call Hold |
| S.R0125-553-0 | v1.0 | VoIP Supplementary Services Description: Customized Ring Back Tone |
| S.R0125-554-0 | v1.0 | VoIP Supplementary Services Description: Directory Assistance |
| S.R0125-555-0 | v1.0 | VoIP Supplementary Services Description: Inbound Call Restrictions/Anonymous Call Rejection |
| S.R0125-556-0 | v1.0 | VoIP Supplementary Services Description: Outbound Call Restrictions |
| S.R0128-0 | v1.0 | HRPD and WIMAX Inter-Technology Hand-Off Stage 1 Requirements |
| S.R0129-0 | v1.0 | HRPD/1xRTT and 3GPP E-UTRAN (LTE) Interworking and Inter-Technology Handoff Stage 1 Requirements |
| S.R0130-0 | v1.0 | Interworking and Inter-Technology Handoff for UMB and UTRA/E-UTRA Technologies Stage 1 |
| X.S0028-000-0 | v1.0 | cdma2000 Packet Data Services – Wireless Local Area |

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|---------------|------|---|
| | | Network (WLAN) Interworking – List of Parts |
| X.S0028-200-0 | v1.0 | cdma2000 Packet Data Services – Wireless Local Area Network (WLAN) Interworking – Access to Operator Service and Mobility |
| X.S0040-0 | v1.0 | PPP-Alternative Protocol (AltPPP) for cdma2000 Wireless IP Network Standard |
| X.S0049-0 | v1.0 | All-IP Network Emergency Call Support |

3. SYSTEM RELEASE CONTENT AND FEATURE DESCRIPTION

The features and capabilities provided by this cdma2000 system release are listed in Table 1. This release includes new and enhanced features added since the publication of [SC.R2004-002-0 v1.0](#): System Release Guide for the Release 4 of the cdma2000 System Specifications. For the list of features in 3GPP2 System Release 4, please refer to [SC.R2004-002-0 v1.0](#).

Table 1 – Features Supported by this Release

| WI Number | Feature Name | Description | Specs & Reports |
|------------------|---|--|---|
| 00002 | Enhanced Message Service | EMS adds limited support for sending sounds and pictures (icons) and formatted text to the existing SMS (not MMS). | C.S0015-A v1.0, C.S0015-A v2.0, C.S0061-0 v1.0, S.R0051-0 v1.0 |
| 00009-A | CDMA Packet Data Services, Phase 1 - Revision A | <p>C-PDS shall allow communication services to access private or public Packet Data Networks (PDNs) (e.g., Internet or Intranet) using an air interface provided by the wireless service provider. C-PDS shall allow movement of a wireless user engaged in a Packet Data session.</p> <p>C-PDS usage requires a wireless user to register both with the wireless service provider and the Packet Data network access provider.</p> <p>C-PDSs are distinguished in two general categories of Quality of Service (QoS), as:</p> <ol style="list-style-type: none"> 1. Non-Assured Services <p>Services that are not particularly sensitive to minimum data rate, delay, or error rate.</p> <ol style="list-style-type: none"> 2. Assured Services: <p>Services for which there is a sensitivity to some combination of guaranteed minimum data rate, delay, or data-loss rate.</p> <p>When there is a packet data capable MS that supports simultaneous services, C-PDS may be supported with simultaneous voice or circuit bearer services. This implies that a user of a circuit service (voice or data) shall be able to establish, maintain, and/or terminate a C-PDS while maintaining the circuit call. A user with an active Packet Data session shall be able to establish, maintain, and or terminate a circuit service (voice or data) while maintaining the packet data session. A user with a circuit call active shall be able to transition a simultaneous packet session between the dormant and active states as managed by the Radio Network (RN).</p> | X.S0001-A v1.0 |

| WI Number | Feature Name | Description | Specs & Reports |
|------------------|---|--|--|
| 00019 | Revision E Integration | Consolidation of a number of stand-alone standards approved since the publication of N.S0005-0 (ANS-41-D) into a new revision of the document to be published as multipart document in the series X.S0004-NNN-A (ANS-41 Rev E). | X.S0004-E |
| 00022 | Location Services | Completes cdma2000 specifications for defining all interfaces between the Position Server it's signaling Reference Points and other Position Servers to provide for location services in the UMB NAM. The functionality of the Position Server and any other network element is beyond the scope of this work item. | C.S0022-A v1.0, C.S0036-0 v1.0, S.R0066-0 v1.0, S.R0110-0 v1.0, X.S0024-0 v1.0 |
| 00025 | Enhanced Security Services | Defines enhanced security capabilities for wireless networks and mobile stations. The capabilities are Enhanced Subscriber Authentication and Enhanced Subscriber Privacy. From the end user perspective, the enhanced security requirements are air interface independent and applicable to all digital air interfaces. | A.S0011-17-D v1.0, C.S0022-0 v3.0, C.S0022-A v1.0, C.S0039-0 v1.0, C.S0039-0 v2.0, S.S0078-A v1.0, S.S0078-A v3.0, X.S0006-0 v1.0 |
| 00027 | IP Multimedia Domain (MMD) | Defines network support for services over an all-IP core network for 3rd Generation Mobile Systems. | S.R0058-0 v1.0, S.R0086-0 v1.0, S.R0086-A v1.0, S.S0086-B v1.0, S.S0086-B v2.0, X.S0013-0 v1.0, X.S0013-0 v2.0 |
| 00027-A | IP Multimedia Domain (MMD) - Revision A | | X.S0013-A v1.0 |

| WI Number | Feature Name | Description | Specs & Reports |
|------------------|---|---|---|
| 00027-B | IP Multimedia Domain (MMD) - Revision B | | X.S0013-B v1.0 |
| 00031 | Presence Service | Presence provides the ability for the availability of a subscriber to be made known to a specified audience under careful authenticated control. | S.R0062-0 v1.0, X.S0027-0 v1.0, X.S0027-000-A v1.0 |
| 00034 | Enhanced Call Recovery | The Enhanced Call Recovery (ECR) feature is a capability to address a standing requirement of reducing dropped calls. The concept is to have the mobile station and network execute a pre-determined procedure to re-establish communication in the event of a call that is in danger of being dropped. | A.S0011-17-D v1.0, C.S000(1-6)-B v1.0, C.S000(1-6)-C v1.0, C.S000(1-6)-D v1.0 |
| 00041 | Fast Call Set-Up | The 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. | A.S0011-17-C v1.0, A.S0011-17-C v2.0, C.S0004-D v1.0, C.S0004-D v2.0, C.S0005-D v1.0, C.S0005-D v2.0, C.S0043-0 v1.0, S.R0065-0 v1.0 |
| 00043 | Enhanced Packet Data Air Interface Security | The Enhanced Packet Data Air Interface Security feature adds support for enhanced encryption, authentication, key management and data integrity to packet data services in cdma2000. It is intended that the security of the packet data air interface be enhanced to the same level as the security services defined in S.R0032 for voice. | A.S0020-0 v1.0, C.S0039-0 v1.0, C.S0039-0 v2.0, S.R0082-0 v1.0 |

| WI Number | Feature Name | Description | Specs & Reports |
|------------------|----------------------------|--|--|
| 00048 | Common Security Algorithms | Support for air interface common security algorithms for cdma2000 1X EV-DV. | A.S0013-C v2.0, C.S000(1-6)-C v1.0, C.S000(1-6)-C v2.0, S.S0055-A v1.0, S.S0055-A v2.0, S.S0055-A v3.0, S.S0078-0 v1.0, S.S0078-A v1.0, S.S0078-A v2.0, S.S0078-A v3.0 |
| 00050 | End-to-End QoS | Defines the framework for an end-to-end QoS negotiation and resource reservation scheme between the Mobile Station (MS) and the Correspondent Node (CN). The MS or the CN invokes the end-to-end QoS mechanism when an application requires better than best effort QoS. The framework is based on leveraging and extending the standard IETF protocols, including appropriate mapping of IP level QoS values to air-interface specific QoS values applicable to the PDSN, radio access network (RAN) and the air interface. | A.S0008-A v1.0, A.S0008-A v2.0, A.S0008-B v1.0, A.S0009-A v1.0, A.S0009-A v2.0, A.S0009-B v1.0, A.S0011-17-C v1.0, C.S0002-D v1.0, C.S0063-0 v1.0, C.S0063-0 v2.0, C.S0063-A v1.0, C.S0063-A v2.0, S.R0079-0 v1.0, X.S0011-D v1.0 |

| WI Number | Feature Name | Description | Specs & Reports |
|------------------|---|--|---|
| 00051 | 1xEV-DV Capabilities | This feature provides high rate packet data transmission to the mobile station, simultaneously with voice service, at up to 3 Mbps in a single 1.25 MHz CDMA carrier. 1xEV-DV provides simultaneous voice service and packet data services at up to 3 Mbps on the forward link. Services included are: concurrent voice and data services, access authentication, data delivery, session handoff, and status management. The protocol revision of MOB_P_REV 9 defines a mobile station that complies with all the requirements specified in 1xEV-DV, except those pertaining to AKA and Message Integrity. MOB_P_REV 10 complies with all requirements specified in 1xEV-DV. | A.S0009-A v1.0, A.S0009-A v2.0, A.S0009-B v1.0, A.S0011-17-B v1.0, A.S0011-17-C v1.0, A.S0011-17-C v2.0, C.S000(1-6)-C v1.0, C.S000(1-6)-C v2.0, C.S000(1-6)-D v1.0, C.S000(1-6)-D v2.0, C.S0010-C v1.0, C.S0010-C v2.0, C.S0011-C v1.0, C.S0011-C v2.0, C.S0043-0 v1.0, C.S0044-0 v1.0, S.R0026-0 v1.0, X.S0011-C v1.0, X.S0011-D v1.0 |
| 00058 | Security Framework for Data Services via HRPD | Establishes a security framework for packet data via HRPD. General security requirements are described, including security features supporting authentication, key distribution/management, confidentiality and integrity. Access network security mechanisms based on a security model are also a part of this document and along the lines of 3GPP TS33.102 and other relevant specifications/RFCs. | A.S0008-B v1.0, A.S0009-B v1.0, C.S0024-0 v4.0, C.S0024-A v1.0, C.S0024-A v2.0, C.S0024-A v3.0, C.S0024-B v1.0, C.S0039-0 v1.0, C.S0039-0 v2.0, C.S0054-0 v1.0, C.S0054-0 v2.0, S.R0082-0 v1.0 |

| WI Number | Feature Name | Description | Specs & Reports |
|-----------|---------------------------------|--|---|
| 00060 | Policy for Tx and Ty Interfaces | <p>The cdma2000 All-IP NAM has to satisfy requirements for end-to-end QoS, authorization of network resource usage and accurate accounting for network resources used. Therefore, policies should be enforced during network resource requests. For example, when a user requests a certain level of QoS for an IP packet flow, policies are applied to ensure that the requested resources lie within the bounds of the allowed resource level established and the available resource 'budget' for the requesting user.</p> <p>To provide protection against fraud and ensure accurate accounting of network resource usage and QoS guarantee, a linkage should be provided between session setup/control and bearer resource setup mechanisms. This work establishes that linkage by defining policy related protocols for two interfaces in the cdma2000 All-IP NAM. The first interface (28/Go) connects the Policy Decision Function (PDF) to the PDSN/AGW and is responsible for bearer resources policy enforcement and accounting correlation exchange. The second interface (mm) connects the PDF to a network entity (e.g., P-CSCF) and is responsible for policy request and decisions. The PDF acts as a Policy Decision Point from the perspective of policy control.</p> <p>The two interfaces provide:</p> <ol style="list-style-type: none"> 1. Bearer resources policy enforcement and accounting correlation exchange 2. Resource control to ensure that the use of allocation resources is properly recorded 3. The ability to prevent theft of service 4. The ability to provide IP QoS admission control service, in conjunction with End-to-End QoS 5. The ability for policy control over IP bearer resources and services to evolve separately 6. De-coupling of policy function from IMS entities | S.R0037-0 v3.0, S.R0037-A v1.0, X.S0013-0 v2.0, X.S0013-B v1.0 |

| WI Number | Feature Name | Description | Specs & Reports |
|------------------|---|--|---|
| 00061 | Standardized cdma2000 Performance Measurement Types | Defines standardized network performance measurement types for cdma2000 networks. Identifies measurements types defined by other standards bodies (3GPP, IETF) for re-use in the 3GPP2 context. The performance management types are related to core and radio access network elements. It also includes (end-to-end) measurement types that span multiple network elements. | S.S0093-0 v1.0, S.S0093-0 v2.0 |
| 00067-A | Voice Over IP (VoIP) — Phase II | The VoIP — Phase II identifies cdma2000 network system features and capabilities that enhance the support of voice over Internet Protocol (IP). | A.S0008-B v1.0, A.S0008-C v1.0, A.S0009-A v1.0, A.S0009-A v2.0, A.S0009-B v1.0, A.S0011-17-D v1.0, C.S0002-D v1.0, C.S0024-A v1.0, C.S0024-A v2.0, C.S0024-A v3.0, C.S0024-B v1.0, C.S0063-0 v1.0, S.R0058-0 v1.0, S.R0075-0 v1.0, S.R0079-0 v1.0, S.R0086-0 v1.0, S.R0086-A v1.0, S.S0086-B v1.0, S.S0086-B v2.0, X.S0013-0 v1.0, X.S0013-A v1.0 |

| WI Number | Feature Name | Description | Specs & Reports |
|------------------|--|---|---|
| 00073 | Support for ISIM on UICC in 3GPP2 Systems | <p>Proposes that the MS-resident IMS support capabilities may be realized by utilizing the 3GPP-specified ISIM and UICC mechanism. This work item aims for the support of the initial release of the 3GPP2 IMS functionality as specified by TSG-X.</p> <p>UICC and ISIM</p> <p>Logically, this work item consists of two components: (1) the support for UICC in 3GPP2 systems, and (2) the support for ISIM on UICC in 3GPP2 systems.</p> | C.S0069-0 v1.0, C.S0073-0 v1.0, C.S0074-0 v1.0, S.R0095-0 v1.0, X.S0013-B v1.0 |
| 00074 | IOTA Device Management (IOTA-DM) | Extends 3GPP2 IP Based Over-the-Air Handset Configuration Management (IOTA-HCM) capabilities, as specified in C.S0040 IOTA-HCM. The enhancements include, but are not limited to, the following, a. Firmware OTA (FOTA) b. Support for SyncML Device Management (SyncML DM) in addition to MMC [Mobile Management Command] command sets. | C.S0064-0 v1.0, S.R0101-0 v1.0 |
| 00076 | Press-to-Talk Over Cellular (PoC) | The Press-To-Talk over Cellular (PoC) feature over a wireless IP network enables point-to-point and point to multipoint half-duplex IP-based communications without dialing, together with a rich variety of features including Presence Service. | S.R0100-0 v1.0 |
| 00078 | Multimedia Messaging Services (MMS) Enhancements | Multimedia Messaging Services (MMS) offers non-real time messaging service that may contain multimedia contents. | C.S0045-0 v1.0, C.S0045-0 v2.0, S.R0064-0 v1.0, S.R0064-A v1.0, X.S0016-0 v1.0, X.S0016-0 v2.0 |

| WI Number | Feature Name | Description | Specs & Reports |
|------------------|--|--|---|
| 00078-A | Multimedia Message Service (MMS) – Rev A | | C.S0045-A v1.0, X.S0016-A v1.0 |
| 00082 | IMS Conferencing | IMS Conferencing provides the means for a user to create, manage, terminate, join and leave conferences, which are handled by a server within a home network of the conference creator. It also provides the network with the ability to give information about these conferences to the involved parties. Participants to conferences may be internal or external to the home network. The network operator or the user may apply membership and media policies to a conference by using a conference policy control protocol (CPCP). | X.S0029-0 v1.0 |
| 00087 | Telephone Number Mapping Support (ENUM) | Defines ENUM [TElephone NUmber Mapping] network support. ENUM unifies the telephone numbering system E.164 with the Internet addressing system DNS [Domain Name Service]. | S.S0118-0 v1.0 |
| 00090 | Packet Switched Video Telephony (a.k.a., Multimedia Conversational Services) | End-to-end solution for packet-switched video telephony (also sometimes referred to as multimedia conversational services), which entails the capability to conduct two-way point-to-point and point-to-multipoint real-time video, speech, and signaling transmission between mobile terminals. | A.S0008-A v1.0, A.S0008-A v2.0, A.S0009-A v1.0, A.S0009-A v2.0, C.00055-0 v1.0, S.R0106-0 v1.0, S.R0106-0 v2.0, X.R0039-0 v1.0 |

| WI Number | Feature Name | Description | Specs & Reports |
|------------------|--|---|---|
| 00094 | HRPD-cdma2000 1X Interoperability for Voice and Data | Addresses HRPD and cdma2000-1X network interoperability by providing flexibility in the selection of the network (cmda2000-1X or HRPD) to support a voice call to/from a Hybrid Access Terminal (HAT). The determination of which network (cdma2000-1X or HRPD) serves the mobile may depend on if the HAT has a dormant or active data session when a voice call is originated/terminated. Also enable voice and data call (including Video Telephony) handoffs between HRPD and cdma2000-1X networks. | A.S0008-A v1.0 , A.S0008-A v2.0, A.S0009-A v1.0, A.S0009-A v2.0, A.S0009-B v1.0, C.S0075-0 v1.0, S.R0037-A v1.0, S.R0108-0 v1.0, S.R0108-0 v2.0, X.S0004-630-E v3.0, X.S0004-641-E v2.0, X.S0042-0 v1.0, X.S0048-0 v1.0 |
| 00095 | Graceful recovery when Segmentation & Reassembly is not available (GR) | Provides enhancement for graceful recovery when Segmentation & Reassembly is not available. | X.S0004-691-E v2.0, X.S0004-691-E v3.0 |
| 00099 | Short Message Service (C.S0015-A v2.0) Point Release | Point Release for Short Message Service (C.S0015-A v2.0). | C.S0015-A v2.0 |
| 00100 | Short Message Service (C.S0015-B v2.0) Point Release | Point Release for Short Message Service (C.S0015-B v2.0). | C.S0015-B v2.0 |

| WI Number | Feature Name | Description | Specs & Reports |
|------------------|--|--|---|
| 00104-A | Generic Bootstrapping Architecture (GBA) – Version 2 | Provides generic architecture providing the possibility to generate a common shared key between the Mobile Station (MS) and the entities affiliated with the network, after the network authenticates the MS. | S.S0109-0 v2.0, S.S0114-0 v2.0 |
| 00105 | IMS to ISUP Interworking | Defines the principles of interworking between IP Multimedia Subsystem (IMS) and ISDN User Part (ISUP) based Circuit Switched (CS) networks, in order to support basic voice calls. | X.S0050-0 v1.0 |
| 00116 | cdma2000 application on UICC | Creates a new specification for a cdma2000access application on the UICC platform as specified in ETSI-SCP TS 102 221, supporting all current functionalities available in the R-UIM specification (C.S0023) and serving as a baseline for future evolution. | C.S0065-0 v1.0, S.R0037-A v1.0, S.R0037-B v1.0 |
| 00117 | MEID for Pre Rev D cdma2000 | An interim MEID solution for cdma2000 pre-Rev D systems is needed to address ESN exhaust by creating a new specification "MEID for Pre-Rev D cdma2000" containing requirements for implementing MEID & PLCM features in Pre-Revision D mobile & base station equipment. A solution is needed that can be deployed faster than Revision D to address the pending ESN exhaust issue. | A.S00(11-17)-C v2.0, C.S0004-D v2.0, C.S0005-D v2.0, C.S0044-A v1.0, C.S0072-0 v1.0, C.S0073-0 v1.0, X.S0008-0 v2.0, X.S0033-0 v1.0, X.S0033-0 v2.0 |
| 00120 | Interoperability test specification for cdma2000 Air Interface – Rev A | Interoperability test specification for cdma2000 Air Interface – Rev A. | C.S0044-A v1.0 |

| WI Number | Feature Name | Description | Specs & Reports |
|------------------|--|---|---|
| 00129 | Guidelines for Evaluating the Quality of VoIP over HRPD Rev A | Creates a Technical Report comprising guidelines for evaluating quality of VoIP over an HRPD Rev A system. | C.R1008-0 v1.0, C.R1009-0 v1.0 |
| 00131 | Vocoder Enhancements for Voice Quality and System Capacity Improvements | Enhances EVRC for efficient delivery of speech content over circuit-switched and packet-switched networks in cdma2000. | C.R0014-B v1.0, C.S0014-B v1.0, C.R0018-B v1.0, C.S0018-B v1.0 |
| 00132 | R-UIM Remote Management | Leverages the secured packet architecture & Application Protocol Data Unit (APDU structure defined by ETSI SCP to enable post-issuance remote management of R-UIMs or UICC based applications over the air in cdma2000 network. | C.S0078-0 v1.0, C.S0079-0 v1.0 |
| 00138 | Revision of Parameter Value Assignments | C.R1001-F incorporates new parameter value assignments to reflect the changes made in other Technical Specifications as well as new proprietary parameter assignments requested by individual member companies. | C.R1001-F v1.0 |
| 00141 | Alterations to cdma2000 HRPD AN Spurious Emission Minimum Performance Specifications (MPS) | C.S0032-A version update. | C.S0032-A v2.0 |
| 00142 | Alterations to cdma2000 HRPD AT Spurious Emission Minimum Performance Specifications (MPS) | C.S0033-A version update. | C.S0033-A v2.0 |

| WI Number | Feature Name | Description | Specs & Reports |
|------------------|--|--|---|
| 00145 | Packet Data Access Network Evolution (PDANE) | Evolves and enhances cdma2000 Packet Data Access Network to allow deploying both distributed and centralized architecture to better support Enhanced Packet Data Air Interface (E-PDAI), to enhance system performance, reduce cost of network operation, enable faster introduction of new feature, and provide better QoS for real time IP services. | A.S0020-0 v1.0, S.R0121-0 v1.0, S.R0124-0 v1.0, X.S0054-000-0 v1.0 |
| 00146 | Signaling Conformance Specification for the Enhanced Multi-flow Packet Applications | Signaling Conformance Specification for C.S0063. | C.S0081-0 v1.0 |
| 00146-A | Signaling Conformance Specification for cdma2000 HRPD Supplemental Services Revision A | Signaling Conformance Specification for C.S0063-A v 1.0. | C.S0038-A v2.0 |
| 00147 | Simulation Methodology for Multimedia Services | Documents simulation methodologies adopted for evaluating packet-switched multimedia services over cdma2000 networks. | C.R1008-0 v1.0, C.R1009-0 v1.0 |
| 00149 | A new revision to the AN Minimum Performance Standard to support HRPD Rev. B and BCMCS Rev A access networks | Minimum Performance Specification for C.S0024-B and C.S0054-A access networks. | C.S0032-A v2.0 |

| WI Number | Feature Name | Description | Specs & Reports |
|------------------|---|---|--|
| 00150 | A new revision to the AT Minimum Performance Standard to support HRPD Rev. B and BCMCS Rev A access terminals | Minimum Performance Specification for C.S0024-B and C.S0054-A access terminals. | C.S0033-A v2.0 |
| 00151 | Revision B of Test Application Specification for HRPD Rev. B and BCMCS Rev. A. | Test Application Specification for C.S0024-B [HRPD Air Interface] and C.S0054-A [High Rate Broadcast-Multicast Air Interface]. | C.S0029-B v1.0 |
| 00158 | Enhanced Variable Rate Codec – Wideband | The purpose of this work item is to further enhance EVRC for much better voice quality while preserving the existing `system capacity over circuit switched and packet switched networks in cdma2000. | C.R0014-C v1.0, C.S0014-C v1.0, C.R0018-C v1.0, C.S0018-C v1.0, |
| 00159 | Enhanced cdma2000 Air Interface | Defines enhanced cdma2000 air interface. | A.S0020-0 v1.0, C.S0084-0 v1.0, C.S0084-0 v2.0, S.R0113-0 v1.0, S.R0113-0 v2.0, S.R0124-0 v1.0, X.S0054-0 v1.0 |

| WI Number | Feature Name | Description | Specs & Reports |
|------------------|--|---|-----------------------------------|
| 00162 | Version update for Enhanced Cryptographic Algorithms and Common Security Algorithms Specifications | 1- Version update to S.S0055-A v4.0 2- Version update to S.S0078-A v4.0. | S.S0055-A v4.0, S.S0078-A v4.0 |
| 00163 | Preferred Cryptographic Profiles | The Preferred Cryptographic Profiles (PCP) contains formal recommendations for preferred cryptographic transports and associated cipher suites to be used to protect security-sensitive IP interfaces and services. | S.R0122-0 v1.0 |
| 00164 | Version update for CDMA Card Application Toolkit (CCAT) Specification | Version update to C.S0035-A v2.0. | C.S0035-A v2.0 |
| 00165 | Development of a new specification for the HRPD air interface cdma2000 Circuit Services Notification Application | Specification for Notification of availability of cdma2000 1x Circuit-Switched Services on the HRPD air interface. | C.S0082-0 v1.0 |
| 00166 | GBA Rev A Enhancements | Builds on the Rev 0 versions of the GBA specifications by adding new features. | S.S0109-A v1.0, S.S0114-A v1.0 |

| WI Number | Feature Name | Description | Specs & Reports |
|------------------|---|---|----------------------------|
| 00169 | New revision of CDMA Card Application Toolkit (CCAT) Specification | Enhances the features of CCAT specification according to ETSI TS 102 223 (Card Application Toolkit) Release 7. | C.S0035-A v2.0 |
| 00171 | MMD Roaming | The MMD Roaming specifies the inter-operator roaming architecture and protocols to allow MMD operators to provide services to their customers when roaming on other networks. | X.R0052-0 v1.0 |
| 00174 | Signaling Conformance Specification for HRPD Rev A Point Release. | Signaling Conformance Specification for C.S0024-A v3.0. | C.S0038-A v2.0 |
| 00175 | Over the Air Interoperability Specification for cdma2000 Air Interface | OTA Inter-op Spec. C.S0058-A. | C.S0058-A v 1.0 |
| 00178 | Point Release for cdma2000 High Rate Packet Data Air Interface Specification Revision B | Fixes bugs in cdma2000 High Rate Packet Data Air Interface Specification Revision B | C.S0024-B v2.0 |
| 00183 | VoIP Codecs and Protocols | Recommends VoIP codecs and protocol configuration for IMS compliant terminals attached via an HRPD access network. | C.S0085-0 v1.0 |
| 00184 | Point release for cdma2000 High Rate Packet Data | Fixes bugs found in C.S0063-A. | C.S0063-A v2.0 |

Supplemental Services.

| WI Number | Feature Name | Description | Specs & Reports |
|------------------|---|--|--|
| 00188 | Point Release of Ultra Mobile Broadband (UMB) Air Interface Specification | Point Release of C.S0084 | C.S0084-0 v2.0 |
| 00193 | Adding UMB Security Algorithms to S.S0078-B | Adds the security algorithm specification for UMB. | S.S0078-B v1.0 |
| 00200 | Test Signaling Specification for MEID - Rev A | Updates C.S0073-0 to include bug fixes and test cases to test additional functionality related to MEID. | C.S0073-A v1.0 |
| 2000-002 | IP Broadcast and IP Multicast | For broadcast and multicast support the information should be sent over-the-air using common channels to avoid message replication and thereby reduce traffic. When a mobile station is otherwise engaged in a transmission and does not have immediate access to the common channel, it may be required that the message be replicated to reach one or more specific mobile stations. If no multicast member is in a particular cell or sector, the information should not be sent. | A.S0019-0 v1.0, A.S0019-0 v2.0, A.S0019-A v1.0, A.S0019-A v2.0, C.S0002-D v1.0, C.S0003-D v1.0, C.S0003-D v2.0, C.S0005-D v1.0, C.S0005-D v2.0, C.S0023-C v1.0, C.S0054-0 v1.0, C.S0054-0 v2.0, C.S0054-A v1.0, S.R0030-0 v3.0, S.R0030-A v1.0, S.R0037-A v1.0, S.S0083-A v1.0, X.S0022-0 v1.0, X.S0022-A v1.0 |

| WI Number | Feature Name | Description | Specs & Reports |
|------------------|--|--------------------|--|
| TSGA-009 | Multi RLP Support and Cross Paging | | A.S0008-A v1.0, A.S0008-A v2.0, A.S0009-A v1.0, A.S0009-A v2.0, A.S0009-B v1.0 |
| TSGC-014 | Reverse Link Performance Enhancements | | C.S000(1-6)-C v2.0, C.S0002-D v1.0, C.S0003-D v1.0, C.S0003-D v2.0, C.S0005-D v1.0, C.S0010-C v1.0, C.S0010-C v2.0, C.S0011-C v1.0, C.S0011-C v2.0, C.S0024-A v1.0, C.S0024-A v2.0, C.S0024-B v1.0, C.S0044-A v1.0 |
| TSGC-019 | Forward Link Performance Enhancements | | C.S000(1-6)-D v2.0 |
| TSGC-032 | Signaling Conformance Test Specification for Data Services | | C.S0062-0 v1.0 |
| TSGC-038 | <i>SMS Enhancements</i> | | C.S0015-B v1.0, C.S0015-B v2.0 |

| WI Number | Feature Name | Description | Specs & Reports |
|------------------|--|--------------------|--|
| TSGC-061 | Vocoder Enhancements for Voice Quality and System Capacity | | C.R0014-B v1.0, C.S0014-B v1.0, C.R0018-B v1.0, C.S0018-B v1.0 |
| TSGC-072 | 3GPP2 Multimedia Services Evaluation Methodology | | C.R1008-0 1.0, C.R1009-0 v1.0 |
| TSGC-100 | File Formats for Multimedia Services | | C.S0050-B v1.0 |
| TSGS-003 | OAM&P for cdma2000 | | S.S0028-A v1.0, S.S0028-B v1.0, S.S0028-B v2.0, S.S0028-C v1.0, S.S0028-C v2.0 |

4. ABBREVIATIONS

The abbreviations below are used throughout the system release guide.

| | |
|--------|-------------------------------------|
| BCMCS | Broadcast/Multicast Services |
| CAN | Converged Access Network |
| CCAT | CDMA Card Application Toolkit |
| CDMA | Code Division Multiple Access |
| CN | Correspondent Node or Core Network |
| CPCP | Conference Policy Control Protocol |
| CS | Circuit Switched |
| DM | Device Management |
| DNS | Domain Name Service |
| ECR | Enhanced Call Recovery |
| EMS | Enhanced Message Service |
| ENUM | Telephone Numbering Mapping |
| E-PDAI | Enhanced Packet Data Air Interface |
| GBA | Generic Bootstrapping Architecture |
| HAT | Hybrid Access Terminal |
| HRPD | High Rate Packet Data |
| IM | IP Multimedia |
| IMS | IP Multimedia Subsystem |
| IOS | Interoperability Specification |
| IOTA | Internet Over-the-Air |
| IP | Internet Protocol |
| ISDN | Integrated Services Digital Network |
| ISIM | IM Services Identity Module |
| ISUP | ISDN User Part |
| LAC | Link Access Control |
| MAC | Medium Access Control |
| MAP | Mobile Application Part |
| MEID | Mobile Station Equipment Identifier |
| MIMO | Multiple Input Multiple Output |
| MMC | Mobile Management Command |

| | |
|-------|---|
| MMD | Multimedia Domain |
| MMS | Multimedia Messaging Service |
| MS | Mobile Station |
| NAM | Network Architecture Model |
| OA&M | Operations, Administration and Maintenance |
| OFDMA | Orthogonal Frequency Division Multiple Access |
| PCP | Preferred Cryptographic Profiles |
| PDF | Policy Decision Function |
| PoC | Push-to-talk over Cellular |
| PSVT | Packet Switched Video Telephony |
| QoS | Quality of Service |
| RAN | Radio Access Network |
| RL | Reverse Link |
| RRM | Radio Resource Management |
| SDMA | Space Division Multiple Access |
| TAS | Test Application Specification |
| TCAP | Transaction Capabilities Application Part |
| TSG | Technical Specifications Group |
| UICC | Universal Integrated Circuit Card |
| UMB | Ultra Mobile Broadband |
| VoIP | Voice over IP |
| WI | Work Item |
| WIN | Wireless Intelligent Network |
| WLAN | Wireless Local Area Network |