System Release Guide for the Release 7 of the cdma2000 System Specifications

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Revision History

Revision	Description of Changes	Date
v1.0	Publication	January 2014

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FOREWORD

This forward is not part of this report.

This document is developed and maintained under the auspices of the 3GPP2 PMT, the Project Management Team of the 3GPP2 Steering Committee.

1 **1. SCOPE**

2 This document is the System Release Guide (SRG) for Release 7 of the 3GPP2
3 wireless telecommunication system.

4 **1.1 Document Purpose**

5 The objective of this document is to provide an informative overview for and reference
6 to Release 7 of the 3GPP2 wireless telecommunication system (cdma2000®)[1]
7 capabilities, features and services. This document is intended for use by persons
8 and/or companies who are developing or deploying cdma2000 systems or by persons
9 who are otherwise interested in 3GPP2 wireless telecommunications systems.

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

15 **1.2 Release Summary**

16 Release 7 focuses on the following release critical work items, as identified in blue in
17 Table 1:

18 1.2.1   BCMCS Enhancements on HRPD System (3GPP2-00230)

19 There are several areas of Broadcast and Multicast Services (BCMCS) enhancements
20 addressed in this feature revision, including:

21 ➢ Support of BCMCS on Femto Cells

22 ➢ Transition of Broadcast/Multicast flow between BCMCS and a Unicast channel

23 ➢ BCMCS based solution to support emergency alert system

24 ➢ Security enhancements to support clip-casting and file-transfer

25 ➢ Usage based accounting

26 1.2.2   HRPD-Based Air Interface to Allow Range Extension (3GPP2-00254)

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[1] 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.

1 This air interface feature is based on HRPD and allows increased range between the
2 base station and terminals. This system is useful for scenarios where link the budget
3 is limited while power is at a premium, e.g., machine-to-machine communication,
4 and satellite deployments.

5 Additionally, new lower bit rate vocoder requirements are included, allowing voice
6 communication over increased range.

7 1.2.3   HRPD-Based Air Interface to Allow Range Extension – Supporting
8   Documents (3GPP2-00256)

9 This feature contains supporting documents for the air interface based on HRPD to
10 allow increased range between the base station and its terminals.

11 Supporting documents are test procedures and requirements (minimum
12 performance, conformance and interoperability requirements) for the air interface.

13 1.2.4   Energy Saving RAN (3GPP2-00259-A)

14 Energy Saving RAN provides the ability for both cdma2000 1x and HRPD radio access
15 networks to power on and off cells and sectors in response to traffic demand
16 fluctuations. By exchanging information between neighbor cells, powering on and off
17 is accomplished in a coordinated fashion with minimum, if any, interruption to the
18 service and without performance degradation beyond the limits (Key Performance
19 Indicators) specified by the operator.

20 1.2.5   Advanced Security Framework for HRPD and eHRPD (3GPP2-00265)

21 Advanced security features are specified for HRPD/eHRPD, including support for Air-
22 Interface Application Layer Security (AALS) with HRPD and eHRPD access networks,
23 authentication, key distribution/management, confidentiality and integrity
24 mechanisms and algorithm profiles, etc. Specifications also cover the interworking of
25 AALS with the legacy security functionalities.

26 Features such as, EAP authentication, key exchange between AT and AN and key
27 bootstrap after the access authentication, HRPD key distribution, information
28 confidentiality and integrity protection are specified.

29 1.2.6   System Requirements for Machine to Machine (M2M) Communication for
30   cdma2000 Networks (3GPP2-00269)

31 System requirements for cdma2000 wireless network enhancements are identified to
32 support machine-type data communications. Specifically, included arethe following
33 system requirements to enhance cdma2000 wireless networks:

34   ➢ Network architecture to support large numbers of M2M devices;

1   ➢ M2M addressing and numbering scheme;

2   ➢ Optimization of radio and network resource usage for massive M2M data
3   communications that allows both MS and network initiated services;

4   ➢ Network congestion prevention and overload due to large numbers of M2M
5   devices;

6   ➢ Efficient handling of small payload with frequent or infrequent usage for M2M
7   services;

8   ➢ M2M security issues;

9   ➢ Optimization of access network and packet- and circuit-switched core networks
10   with respect to the following:

11   o Device battery power usage,

12   o M2M communication performance,

13   o Signaling overhead

14   o System capacity

15   1.2.7   Dual Radio Voice Call Continuity from (LTE to cdma2000 1x) for IMS
16   Emergency Calls (3GPP2-00298)

17   This feature enhances X.S0042-A v.1.0 to support dual radio VCC from LTE to
18   cdma2000 1x for an IMS Emergency Call. VCC is based on the IMS Service
19   Continuity architecture for emergency calls specified in 3GPP TS 23.237 R10 (IMS
20   Service Continuity – Stage 2).

21   X.S0042-A v1.0 does not address emergency calls, and this feature specifies the
22   capability for an emergency call initiated on the LTE network to transfer the call to
23   the cdma2000 1x network due to loss of signal strength.

24   When the IMS emergency call is initiated over the Evolved Packet System (EPS), the
25   SIP signaling is routed through an Emergency Access Transfer Function (EATF) that
26   provides an IMS-based mechanism for enabling continuity of the IMS emergency
27   session (see TS 23.237). The call continuity is then performed by the EATF.

28   X.S0042-A v1.0 is enhanced to describe the UE interaction with the cdma2000 1x
29   network and the cdma2000 1x network interaction with the EATF for continuity of
30   the emergency services call.

31   X.S0042-A v1.0 is also modified to address various bugs:

1   ➢ Clarify how the MSC knows when to add optional parameters into a MAP
2   ORREQ.

3   ➢ Correct the statements that the MDN is derived from an IMSI.

4   ➢ Correct/update references (e.g., remove the MMD references).

5   1.2.8   Enhancement of the cdma2000 1x System with M2M Focus (3GPP2-00309)

6   The goals for M2M related cdma2000 1x system enhancements includes:

7   1. Significant reduction of device power consumption particularly for M2M
8   applications;

9   2. Significant reduction of network signaling load, accomplished through Revision
10   F of the cdma2000 1x air interface specifications (C.S0001 to C.S0005).

11   **2. DOCUMENT LISTS**

12   The list of documents in the following three sections reflects the version of a
13   document as of the original SRG publication date. Please review the 3GPP2 website
14   (www.3gpp2.org) to find the latest published version of a document when
15   implementing this release.

16   **2.1 Normative Documents**

17   A normative document refers to the most recent version of each 3GPP2 specification
18   that supports the end-to-end features of the release.

Document Number & Revision	Document Version	Document Title	Publication Date
A.S0004-C	v1.0	CDMA Tandem Free Operation	February 2011
A.S0008-D	v1.0	Interoperability Specification (IOS) for High Rate Packet Data (HRPD) Radio Access Network Interfaces with Session Control in the Access Network	April 2013
A.S0009-D	v1.0	Interoperability Specification (IOS) for High Rate Packet Data (HRPD) Radio Access Network Interfaces with Session Control in the Packet Control Function	April 2013
A.S0010-A	v1.0	cdma2000 RAN Management	December 2013

Document Number & Revision	Document Version	Document Title	Publication Date
A.S0011-D	v4.0	Interoperability Specification (IOS) for cdma2000 Access Network Interfaces - Part 1 Overview (IOS v5.0)	August 2012
A.S0012-D	v4.0	Interoperability Specification (IOS) for cdma2000 Access Network Interfaces - Part 2 Transport	August 2012
A.S0013-D	v4.0	Interoperability Specification (IOS) for cdma2000 Access Network Interfaces - Part 3 Features	August 2012
A.S0014-D	v4.0	Interoperability Specification (IOS) for cdma2000 Access Network Interfaces - Part 4 (A1, A1p, A2 and A5 Interfaces)	August 2012
A.S0015-D	v4.0	Interoperability Specification (IOS) for cdma2000 Access Network Interfaces - Part 5 (A3 and A7 Interfaces) (IOS v5.0)	August 2012
A.S0016-D	v4.0	Interoperability Specification (IOS) for cdma2000 Access Network Interfaces - Part 6 (A8 and A9 Interfaces)	August 2012
A.S0017-D	v4.0	Interoperability Specification (IOS) for cdma2000 Access Network Interfaces - Part 7 (A10 and A11 Interfaces)	August 2012
A.S0019-A	v2.0	Interoperability Specification (IOS) for Broadcast Multicast Services (BCMCS)	April 2008
A.S0022-A	v2.0	Interoperability Specification (IOS) for Evolved High Rate Packet Data (eHRPD) Radio Access Network Interfaces and Interworking with Enhanced Universal Terrestrial Radio Access Network (E-UTRAN)	May 2012
A.S0024-B	v1.0	Interoperability Specification (IOS) for Femtocell Access Points	December 2012

Document Number & Revision	Document Version	Document Title	Publication Date
C.S0001-F	v1.0	Introduction to cdma2000 Spread Spectrum Systems	January 2013
C.S0002-F	v1.0	Physical Layer Standard for cdma2000 Spread Spectrum Systems	January 2013
C.S0003-F	v1.0	Medium Access Control (MAC) Standard for cdma2000 Spread Spectrum Systems	January 2013
C.S0004-F	v1.0	Signaling Link Access Control (LAC) Standard for cdma2000 Spread Spectrum Systems	January 2013
C.S0005-F	v1.0	Upper Layer (Layer 3) Signaling Standard for cdma2000 Spread Spectrum Systems	January 2013
C.S0010-E	v1.0	Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Base Stations	December 2011
C.S0011-E	v1.0	Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Mobile Stations	May 2012
C.S0013-B	v1.0	Loopback Service Options (LSO) for cdma2000 Spread Spectrum Systems	March 2011
C.S0014-E	v1.0	Enhanced Variable Rate Codec, Speech Service Options 3, 68, 70, and 73 for Wideband Spread Spectrum Digital Systems	December 2011
C.S0015-C	v1.0	Short Message Service (SMS) for Wideband Spread Spectrum Systems	December 2012
C.S0016-D	v2.0	Over-the-Air Service Provisioning of Mobile Stations in Spread Spectrum Standards	May 2012
C.S0017-010-0	v3.0	Data Services - Radio Link Protocol	April 2013

Document Number & Revision	Document Version	Document Title	Publication Date
C.S0018-E	v2.0	Minimum Performance Specification for the Enhanced Variable Rate Codec, Speech Service Options 3, 68, 70, 73 and 77 for Wideband Spread Spectrum Digital Systems	September 2013
C.S0023-D	v2.0	Removable User Identity Module for Spread Spectrum Systems	December 2011
C.S0024-200-C	v2.0	Physical Layer for cdma2000® High Rate Packet Data Air Interface Specification	August 2011
C.S0024-300-C	v2.0	Medium Access Layer for cdma2000® High Rate Packet Data Air Interface Specification	August 2011
C.S0024-400-C	v2.0	Connection and Security Layers for cdma2000 High Rate Packet Data Air Interface Specification	August 2011
C.S0024-500-C	v2.0	Application, Stream and Session Layers for cdma2000® High Rate Packet Data Air Interface Specification	August 2011
C.S0025-A	v1.0	Markov Service Option (MSO) for cdma2000 Spread Spectrum Systems	July 2012
C.S0032-D	v1.0	Recommended Minimum Performance Standards for cdma2000 High Rate Packet Data Access Network	May 2012
C.S0033-D	v1.0	Recommended Minimum Performance Standards for cdma2000 High Rate Packet Data Access Terminal	May 2012
C.S0035-B	v1.0	CDMA Card Application Toolkit (CCAT)	December 2013

Document Number & Revision	Document Version	Document Title	Publication Date
C.S0036-A	v1.0	Recommended Minimum Performance Specification for Position Determination Service for cdma2000 Spread Spectrum Systems	November 2011
C.S0043-A	v1.0	Signaling Conformance Test Specification for cdma2000 Spread Spectrum Systems	October 2010
C.S0044-B	v1.0	Interoperability Specification for cdma2000 Air Interface	August 2011
C.S0049-A	v1.0	R-UIM Conformance Testing with ME	May 2012
C.S0051-A	v1.0	Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Repeaters	May 2012
C.S0054-A	v1.0	cdma2000® High Rate Broadcast-Multicast Packet Data Air Interface Specification - Revision A	March 2006
C.S0056-A	v1.0	Electro-Acoustic Recommended Minimum Performance Specification for cdma2000 Mobile Stations	March 2013
C.S0057-E	v1.0	Band Class Specification for cdma2000 Spread Spectrum Systems	November 2010
C.S0063-A	v2.0	cdma2000 High Rate Packet Data Supplemental Services	September 2007
C.S0065-B	v2.0	cdma2000 Applications on UICC	February 2011
C.S0087-A	v2.0	E-UTRAN – HRPD and cdma2000 1x Connectivity and Inter-working Air Interface Specification	July 2012
C.S0095-A	v1.0	Signaling Test Specification for EUTRAN-cdma2000 Connectivity and Interworking	April 2013

Document Number & Revision	Document Version	Document Title	Publication Date
C.S0096-A	v1.0	Recommended Minimum Performance Standards for Mobile Stations that support Simultaneous 1x Voice and High Rate Packet Data	May 2012
C.S0097-A	v1.0	E-UTRAN – cdma2000 1x Connectivity and Interworking Air Interface Specification	August 2013
C.S0098-100-0	v1.0	Introduction to cdma2000 Extended Cell High Rate Packet Data Air Interface Specification	October 2011
C.S0098-200-0	v1.0	Physical Layer for Extended Cell High Rate Packet Data (xHRPD) Air Interface Specification	October 2011
C.S0098-300-0	v1.0	Upper Layers for cdma2000 Extended Cell High Rate Packet Data Air Interface Specification	October 2011
C.S0099-0	v2.0	cdma2000 1x Guidelines: Supporting Revision E Capabilities on Earlier 1x Specifications	August 2011
C.S0104-0	v1.0	Recommended Minimum Performance Standards for Extended Cell cdma2000 High Rate Packet Data Access Terminal	December 2011
C.S0106-0	v1.0	Mobile Equipment (ME) Conformance Testing with CDMA Card Application Toolkit	September 2013
C.S0107-0	v1.0	cdma2000 Application (CSIM) Conformance Testing for Spread Spectrum Systems	January 2013
S.S0028-E	v1.0	OAM&P for cdma2000 (Overview, 3GPP R8 Delta Specification, 3GPP2 Network Resource Model IRP)	February 2010
X.S0008-A	v1.0	MAP Support for the Mobile Equipment Identity (MEID)	June 2013

Document Number & Revision	Document Version	Document Title	Publication Date
X.S0022-A	v2.0	Broadcast Multicast Service in cdma2000 Wireless IP Network	September 2011
X.S0042-B	v1.0	Voice Call Continuity between IMS and Circuit Switched Systems	December 2013
X.S0057-B	v1.0	E-UTRAN - HRPD Connectivity and Interworking: Core Network Aspects	November 2012
X.S0059-000-A	v1.0	cdma2000 Femtocell Network: Overview	December 2011
X.S0059-100-A	v1.0	cdma2000 Femtocell Network: Packet Data Network Aspects	December 2011
X.S0059-200-A	v1.0	cdma2000 Femtocell Network: 1x and IMS Network Aspects	December 2011
X.S0059-400-A	v1.0	cdma2000 Femtocell Network: 1x and IMS Supplementary Services Aspects	December 2011
X.S0061-A	v1.0	Network PMIP Support	August 2012
X.S0062-A	v1.0	Policy and Charging Control (PCC) for cdma2000 1x and HRPD	December 2013
X.S0064-0	v1.0	cdma2000 SMS/IM Interworking	June 2011
X.S0066-0	v1.0	Accounting at HA/LMA for cdma2000 Networks	April 2012
X.S0069-0	v1.0	Concurrent Volume and Duration Based Prepaid	December 2013

1 **2.2 Informative Documents**

2 An informative document refers to the most recent version of each 3GPP2 report that
3 supports the end-to-end features of the release.

Document Number & Revision	Document Version	Document Title	Publication Date
C.R0014-E	v1.0	Software Distribution for Enhanced Variable Rate Codec (EVRC), Speech Service Options 3, 68, 70, and 73, Specification	April 2013

Document Number & Revision	Document Version	Document Title	Publication Date
C.R0018-E	v1.0	Software Distribution for Enhanced Variable Rate Codec (EVRC), Speech Service Options 3, 68, 70, and 73, Minimum Performance Specification	April 2013
C.R1001-I	v1.0	Administration of Parameter Value Assignments for cdma2000 Spread Spectrum Standards	September 2013
C.R1008-0	v2.0	cdma2000 Multimedia Services Evaluation Methodology	December 2011
C.R1009-0	v2.0	cdma2000 Multimedia Services Evaluation Methodology: Software Tools	December 2011
C.R1013-0	v1.0	Battery Life Measurement Methodology for cdma2000 1x and cdma2000 HRPD Mobile Stations	December 2013
S.R0126-A	v1.0	Femto and Pico Cell SRD	December 2012
S.R0135-A	v1.0	Network Architecture Model for cdma2000 Femtocell Enabled Systems	February 2012
S.R0140-0	v2.0	Green Revised Energy Efficient Network (GREEN) - Technology Initiatives Study for cdma2000 Wireless Networks	January 2012
S.R0141-0	v1.0	Study for M2M Communication for cdma2000 Wireless Networks	December 2010
S.R0142-0	v1.0	Emergency Call Call-Back Stage 1 Requirements	July 2010
S.R0143-0	v1.0	xHRPD SRD	October 2010
S.R0144-0	v1.0	1x Calling Party Number Presentation (CPNP) during e1xCSFB – Stage 1 Requirements	April 2011
S.R0145-0	v1.0	Advanced Security Framework for (e)HRPD	June 2011
S.R0148-A	v1.0	Dynamic RAN Power Management Stage 1 Requirements	April 2013

Document Number & Revision	Document Version	Document Title	Publication Date
S.R0149-0	v1.0	Requirements for Remote Provisioning of Mobile Station Credentials	November 2012
S.R0151-0	v1.0	eHRPD – EUTRAN Interworking Matrix	June 2013
S.R0152-0	v1.0	Security Framework for Binding of Access Subscription with Devices	December 2013

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2.3 Supplemental Documents

A supplemental document refers to the most recent version of each 3GPP2 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.

Document Number & Revision	Document Version	Document Title	Publication Date
A.S0025-0	v1.0	Interoperability Specification (IOS) for cdma2000 Machine to Machine Communications	December 2013
C.S0056-A	v1.0	Electro-Acoustic Recommended Minimum Performance Specification for cdma2000 Mobile Stations	April 2013
C.S0105-A	v1.0	Unstructured Supplementary Service Data (USSD) Service Options for Spread Spectrum Systems: Service Options 78 and 79	July 2013
S.R0147-0	v1.0	System Requirements for Unstructured Supplementary Services Data	December 2011
X.S0063-0	v1.0	3GPP2 Femtocell Configuration Parameters	December 2011
X.S0065-0	v1.0	Unstructured Supplementary Service Data (USSD) Support	May 2012

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1 **3. SYSTEM RELEASE CONTENT AND FEATURE DESCRIPTION**

2 The features and capabilities provided by this cdma2000 system release are listed in
3 Table 1, specifically the new and enhanced features added since the publication of
4 SC.R2006-002-0 v2.0: System Release Guide for the Release 6 of the cdma2000
5 System Specifications. For the list of features in 3GPP2 Release 6 release, please refer
6 to SC.R2006-002-0 v2.0.

7 Please note that Table 1 lists all versions of each document (specification or report)
8 that support the features for this new release. Release critical work items are
9 indicated in blue.

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Table 1 – Features Supported by this Release

Work Item Number	Feature Name	Description	Specs & Reports (The latest version supersedes previous versions)
00111-A	Expanded Removable User Identity Module Identifier	The 32-bit Removable User Identity Module Identifier (UIM_ID) shares the same numbering space with Electronic Serial Number (ESN). As the 32-bit numbering space for both UIM_ID and ESN becomes exhausted the Expanded UIM-ID specifies a solution to replace it and address issues associated with the UIM_ID exhaustion.	A.S0011-D v3.0 A.S0012-D v3.0 A.S0013-D v3.0 A.S0014-D v3.0 A.S0015-D v3.0 A.S0016-D v3.0 A.S0017-D v3.0
00156	Revision A of Mobile Equipment (ME) Conformance Testing for cdma2000 Spread Spectrum Systems Specification	C.S0048-A v1.0	C.S0044-A v1.0
00161	GBA_U support in 'cdma2000 Application on UICC' and ISIM	Inclusion of Generic Bootstrapping Architecture (GBA) functions into 'cdma2000 Application on UICC' specification (C.S0065) and 'ISIM application on UICC' (C.S0069).	C.S0065-A v1.0 C.S0065-B v1.0
00189-A	3GPP2 System Enhancements for Femto and Picocell Support - Revision A	Enhancements to the cdma2000 family of standards to support functionality necessary to operate cdma2000 1x and HRPD in femto (very small, targeted to home or commercial users) and pico (small, targeted to commercial users) base stations.	A.S0024-A v2.0
00195-A	Support for 3GPP2 cdma2000 (HRPD and 1XRTT) and 3GPP E-UTRAN (LTE) Mobility Interworking and Inter-Technology Handoff	Support for HRPD - E-UTRAN and 1xRTT - E-UTRAN handoff and mobility interworking.	X.S0057-A v1.0 X.S0057-A v2.0 X.S0057-B v1.0
00218-A	Enhancement of the cdma2000 1x System	Enhancement of the cdma2000 1x system for higher capacity and better user experience.	A.S0011-D v3.0 A.S0012-D v3.0 A.S0013-D v3.0 A.S0014-D v3.0 A.S0015-D v3.0

Work Item Number	Feature Name	Description	Specs & Reports (The latest version supersedes previous versions)
			A.S0016-D v3.0 A.S0017-D v3.0
00223	Update to EVRC-B and EVRC-WB to Support DTX in Circuit Switched Voice Service	Updates to EVRC-B and EVRC-WB codec specifications so that the DTX functionality already defined in these coders gets extended to circuit switched voice services.	A.S0004-C v1.0 A.S0014-D v3.0 C.R0014-D v1.0 C.S0014-D v1.0 C.S0014-D v2.0 C.S0014-D v3.0 C.R0018-D v1.0 C.S0018-D v1.0 C.S0018-E v1.0
00225	3GPP2/3GPP Alignment for LTE-eHRPD Interworking	To maintain alignment with both the CR processes and the release processes of 3GPP, revision levels of the LTE-eHRPD interworking specifications are aligned with major releases of 3GPP specifications. Point releases (addenda) of the LTE-eHRPD interworking specifications are aligned with the approved 3GPP CR.	A.S0022-0 v2.0 A.S0022-A v1.0 A.S0022-A v2.0 C.S0087-0 v2.0 C.S0087-A v1.0 C.S0087-A v2.0 S.S0028-E v1.0 X.S0057-0 v2.0 X.S0057-0 v3.0 X.S0057-A v1.0 X.S0057-A v2.0 X.S0057-B v1.0
00230	BCMCS Enhancements on HRPD System	Enhancements of Broadcast – Multicast capabilities for HRPD system.	A.S0019-A v2.0 C.S0054-A v1.0 C.S0063-A v2.0 X.S0022-A v1.0 X.S0022-A v2.0
00232	Test Related Specifications for 1x Enhancements	Test procedures and minimum requirements to support features developed for the cdma2000 1x Enhancements.	C.S0010-D v1.0 C.S0011-D v1.0 C.S0013-B v1.0 C.S0025-A v1.0

Work Item Number	Feature Name	Description	Specs & Reports (The latest version supersedes previous versions)
			C.S0043-A v1.0 C.S0044-B v1.0
00236	Mobile Station Minimum Performance Specifications for Simultaneous 1x and HRPD operation	Minimum performance specification (MPS) for the simultaneous operation of the cdma2000-1x and the HRPD systems on the same mobile station to ensure mobile station compliance with the desired behavior that is not captured in the individual MPSs for cdma2000-1x and HRPD.	C.S0043-A v1.0 C.S0044-B v1.0 C.S0096-0 v1.0
00240	Bug fixes for Access Terminal Minimum Performance Standards for cdma2000 High Rate Packet Data	Bug-fixes and supplemental requirements in Rev. B of the Access Terminal (AT) MPS.	C.S0033-C v1.0
00241	Interworking between the Short Messaging Services and OMA Instant Messaging	Service Level Interworking between OMA Instant Messaging and Short Messaging Services.	X.S0064-0 v1.0
00242	3GPP2 System Enhancements for Femto Cell Support Phase II	Enhancement to the cdma2000 femto cell specifications to support legacy architectures and other new features and capabilities.	A.S0024-A v1.0 A.S0024-B v1.0 S.R0126-A v1.0 S.R0135-A v1.0 X.S0059-000-A v1.0 X.S0059-100-A v1.0 X.S0059-200-A v1.0 X.S0059-400-0 v1.0 X.R0063-0 v1.0
00244	Minimum Performance Requirements for Position Determination Service for cdma2000 Spread Spectrum Systems C.S0022-B	Minimum Performance Requirements for Position Determination Service for cdma2000 Spread Spectrum Systems C.S0022-B	C.S0036-A v1.0
00245	Multiple PDN and multiple IP address support in cdma2000 1x	Simultaneously support multiple IP address types assignment from multiple PDN domains in cdma2000	X.S0061-A v1.0

Work Item Number	Feature Name	Description	Specs & Reports (The latest version supersedes previous versions)
	and HRPD Networks	1x and HRPD networks.	
00246	PCC Support for MS-initiated QoS in cdma2000 1x and HRPD Networks	Introduce 3GPP based Policy and Charging Control (PCC) support for MS-initiated QoS in cdma2000 1x and HRPD networks.	X.S0062-A v1.0
00248	Interoperability Test Requirements for HRPD Rev B	Interoperability test requirements for C.S0024-B	C.S0044-B v1.0
00253-A	CSIM Conformance Test Requirements	CDMA Subscriber Identity Module (CSIM) Conformance Test Requirements for Mobile Equipment and Card.	C.S0107-0 v1.0
00254	HRPD-based air interface to allow range extension	Extended Cell High-Rate Packet Data (xHRPD) based air interface to allow range extension and new low bit rate vocoder.	C.R0014-E v1.0 C.R0018-E v1.0 C.S0014-E v1.0 C.S0018-E v2.0 C.S0057-E v1.0 C.S0098-0 v1.0 S.R0143-0 v1.0
00255-A	Minimum Performance Requirements for Micro and Pico cdma2000 Base Stations	Test procedures and minimum performance requirements for Micro cdma2000 1x Base Station (BS) and High Rate Packet Data (HRPD) BS that can be deployed in medium range (micro) environments and pico cdma2000 1x BS and HRPD-BS that can be deployed in local area environments.	A.S0008-D v1.0 A.S0009-D v1.0
00256	HRPD-Based Air Interface to Allow Range Extension – Supporting Documents	Supporting documents for HRPD-based air interface to allow range extension.	C.S0011-E v1.0 C.S0044-C v1.0 C.S0104-0 v1.0
00257	Support for Emergency Call Callback (ECCB)	Extensions to the 3GPP2 cdma2000 1x documents support emergency call callback to the originator of an emergency call, wherebythe functionality of emergency call callback applies to native access technologies such as cdma2000 1x as well as mixed access technology scenarios such as Circuit Switched Fallback (CSFB)	A.S0008-C v3.0 A.S0009-C v3.0 A.S0011-C v4.0 A.S0011-D v4.0 A.S0012-C v4.0 A.S0012-D v4.0

Work Item Number	Feature Name	Description	Specs & Reports (The latest version supersedes previous versions)
		from LTE to cdma2000 1x.	A.S0013-C v4.0 A.S0013-D v3.0 A.S0013-D v4.0 A.S0014-C v4.0 A.S0014-D v4.0 A.S0015-C v4.0 A.S0015-D v4.0 A.S0016-C v4.0 A.S0016-D v4.0 A.S0017-C v4.0 A.S0017-D v4.0 S.R0142-0 v1.0
00258	Machine-to-Machine Communication Study	Machine-to-Machine (M2M) Communication, also known as Machine Type Communication (MTC) Study, encompasses an analysis of the benefits of mobile communications to a data communication service that does not require human interaction. M2M Communication allows timely adjustments to remote equipment in sparsely populated areas. M2M may also be applied to consumer-oriented services to allow triggers to adjust settings for remote appliances and personal equipment in order to enhance consumer convenience, and as part of a broader green strategy to improve energy efficiencies for individual users.	S.R0141-0 v1.0
00259	Green Revised Energy Efficient Network Study	Complexity and energy sensitivities are a concern in growth and established markets alike. GREEN Study focuses on recent improvements in energy efficiencies to the design, delivery and deployment of services and equipment in the mobile network. GREEN Study investigates protocol enhancements which can potentially reduce power consumption, extend battery life, and better match the available	S.R0140-0 v1.0 S.R0140-0 v2.0

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Work Item Number	Feature Name	Description	Specs & Reports (The latest version supersedes previous versions)
		power in both network and terminal equipment.	
00259-A	Energy Saving RAN	Provides the ability for cdma2000 RANs to communicate with each other regarding powering on and off of cells and sectors in response to traffic demand fluctuations. By exchanging information between neighbor cells, powering on and off is accomplished in a coordinated fashion with minimum, if any, interruption to the service and without performance degradation beyond the limits (Key Performance Indicators) specified by the operator.	A.S0010-0 v1.0
00260	R-UIM Field Ordering, R-UIM Commands, Initialization and Bug Fixes	The field order correction in the R-UIM specification, addition of a table of R-UIM commands and updates to the initialization procedures.	C.S0023-D v2.0
00262	ME /Card Conformance Testing for R-UIM and ME Conformance Testing for CCAT	Development and enhancement of ME and Card Conformance Testing for R-UIM and development of ME Conformance Tests for CCAT.	C.S0048-A v1.0 C.S0049-A v1.0 C.S0106-0 v1.0
00264	1x Calling Party Number Presentation (CPNP) during (e)CSFB	End-to-end solutions to provide Calling Party information to the MS during 1x (e)CSFB from LTE	A.S0008-C v4.0 A.S0009-C v4.0 C.S0097-A v1.0 S.R0144-0 v1.0
00265	Advanced HRPD Security Framework	Specifies advanced security features for (e)HRPD, including support for Air-Interface Application Layer Security (AALS) with HRPD and eHRPD access networks, authentication, key distribution/management, confidentiality and integrity mechanisms and algorithm profiles, etc. The interworking of AALS with the legacy security functionalities is also covered.	S.R0145-0 v1.0
00269	System Requirements for Machine to Machine (M2M) Communication for cdma2000 Networks	cdma2000 network enhancements for System Requirements to support M2M.	S.R0146-0 v1.0

Work Item Number	Feature Name	Description	Specs & Reports (The latest version supersedes previous versions)
00276	Add support for ACCOLC value 12 in cdma2000 systems	Addition of support for the Access Channel Overload Class (ACCOLC) value of 12 for the purpose of Multimedia Priority Services.	C.S0001-E v3.0 C.S0003-E v3.0 C.S0004-E v3.0 C.S0005-E v3.0 C.S0099-0 v2.0
00277	Mapping 3GPP Release 9 features and 3GPP2 features into E-UTRAN – HRPD Interworking	Enhancement of the E-UTRAN – HRPD interworking specification to support mapping of 3GPP Release 9 features, and addition of support for emergency services operations.	C.S0087-A v1.0 S.R0151-0 v1.0
00279	Accounting at HA/LMA for cdma2000 Networks	For operator's requirement, in cdma2000 networks, HA (Home Agent)/LMA (Local Mobility Anchor) needs to support accounting functionality. In order to support accounting at the HA/LMA, MIPv4 and PMIPv4/v6 procedures between the PDSN and the HA/LMA are enhanced through the use of 3GPP2 Organization Specific Mobility Extensions/Options. This feature does not address accounting at the HA/LMA for MIPv6 mode of operation.	X.S0066-0 v1.0
00281	OTASP/OTAPA Revision D Bug Fixes	Bug fixes and clarifications for OTASP/OTAPA specification.	C.S0016-D v2.0
00282	Administration of Parameter Value Assignments	Assignment and documentation of values for parameters defined within certain cdma2000 standards.	C.R1001-H v1.0
00283	HRPD-RevC Point Release	Bug fixes in C.S0024-C.	C.S0024-C v2.0
00284	Adding 3GPP Release 9 features to cdma2000 1x - E-UTRAN Interworking	Inclusion of the features developed in 3GPP Release 9 in cdma2000 1x – E-UTRAN Interworking.	C.S0097-A v1.0
00285	Dynamic RAN Power Management of Radio Carriers and BTSs	Support of the ability to manage power for BTSs and Radio Carriers dynamically for the purpose of for energy savings.	A.S0010-0 v1.0 A.S0010-A v1.0 S.R0148-0 v1.0

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Work Item Number	Feature Name	Description	Specs & Reports (The latest version supersedes previous versions)
			S.R0148-A v1.0
00286	cdma2000 1x Rev E and Guidelines for using cdma2000 1x Revision E Features on Earlier Revisions Bug Fixes	Correction of bugs in cdma2000 1x Rev E and Guidelines for using cdma2000 1x Revision E Features on Earlier Revisions.	C.S0001-E v1.0 C.S0002-E v1.0 C.S0003-E v1.0 C.S0004-E v1.0 C.S0005-E v1.0 C.S0099-0 v2.0
00287	Bug fixes for C.S0087-0 v2.0 E-UTRAN – HRPD Connectivity and Inter-working	Addresses bugs in C.S0087-0 v2.0 E-UTRAN – HRPD Connectivity and Inter-working.	C.S0087-0 v3.0
00288	Add support for EVRC SOs 68, 70, and 73 to Vocoder Related Documents	Updates of vocoder-related documents to support EVRC Service Options (SOs) 68, 70, and 73.	A.S0011-C v4.0 A.S0011-D v3.0 A.S0012-C v4.0 A.S0012-D v3.0 A.S0013-C v4.0 A.S0013-D v3.0 A.S0014-C v4.0 A.S0014-D v3.0 A.S0015-C v4.0 A.S0015-D v3.0 A.S0016-C v4.0 A.S0016-D v3.0 A.S0017-C v4.0 A.S0017-D v3.0 C.R0028-B v1.0 C.S0028-B v1.0
00289	Enhancement for handoff from eHRPD to E-UTRAN	Enhancements for handoff from eHRPD to E-UTRAN.	C.S0087-A v2.0
00290	cdma2000 1x and E-UTRAN Interworking Signaling Test Specification for Supporting C.S0097-0	Signaling conformance test procedures and requirements for the Interworking Signaling Test Specification document to support the features in C.S0097-0 v2.0.	C.S0095-A v1.0

Work Item Number	Feature Name	Description	Specs & Reports (The latest version supersedes previous versions)
00291	eHRPD and E-UTRAN Interworking Signaling Test Specification requirements update	Signaling conformance test procedures and requirements to support the new and updated features in C.S0087-0 v3.0 and C.S0087-A v1.0.	C.S0095-A v1.0
00292	HRPD Interop	Additional test cases for HRPD interoperability.	C.S0044-B v1.0
00293	eHRPD and E-UTRAN Interworking Signaling Test Specification requirements corrections	Correct errors and omissions in existing test specification.	C.S0095-0 v2.0
00296	Electro-acoustic minimum performance requirements update	Develop electro-acoustic minimum requirements and test procedures to support the wideband voice communication, and develop requirements not addressed in the first release for narrowband electro-acoustic performance. Where possible, the 3GPP2 requirements will be harmonized with other related specifications from other requirements setting groups such as ITU-T and 3GPP.	C.S0056-A v1.0
00298	Dual Radio Voice Call Continuity (LTE to cdma2000 1x) for IMS Emergency Calls	Enhancement of X.S0042-A v1.0, Voice Call Continuity (VCC) between IMS and Circuit Switched Systems, to support Dual Radio Voice Call Continuity for an IMS Emergency Call initiated on an LTE network.	X.S0042-B v1.0
00300	Multimedia Services Evaluation Document Point Releases to address TIA legal comments	In order to address TIA legal comments made on C.R1008-0 v1.0, point releases of C.R1008-0 and C.R1009-0 were created.	C.R1008-0 v2.0 C.R1009-0 v2.0
00301	Revise Minimum Performance Specifications for the future frequency assignment plan in Japan	Revision of the requirement in the Minimum Performance Specifications due to Reduction of the Japan's PHS operational band and Revisions of BandClass3 related specifications.	C.S0010-E v1.0 C.S0011-E v1.0 C.S0032-D v1.0 C.S0033-D v1.0 C.S0051-A v1.0 C.S0096-A v1.0
00302	Adding Single Receive Antenna Fading Channel Tests for Femto	Additional test cases for fading channel performance for single receive antenna femto cell base stations and	C.S0010-E v1.0 C.S0032-D v1.0

Work Item Number	Feature Name	Description	Specs & Reports (The latest version supersedes previous versions)
	Cell Base Station and AN MPS	Access Network (AN) MPS documents.	
00303	Multiple HA/LMA Support for Network PMIP	In contrast to the revision 0 of X.S0061 supporting only one Home Agent/Local Mobility Agent (HA/LMA) assignment for Network Proxy Mobile Internet Protocol (PMIP) operation, which is not suitable for some network deployments, X.S0061 Revision A Network PMIP supports multiple HA/LMA assignments in the local network to enable robust (disaster-tolerant) network deployments.	X.S0061-A v1.0
00304	MEID coding and Emergency Call Object Tag Value correction for cdma Card Application Toolkit (CCAT)	Correction of the MEID coding and addition of the missing Emergency Call Object Tag Value to CCAT.	C.S0035-A v3.0
00305	X.S0008 Alignment with cdma2000 Release E	Update of X.S0008-0 to X.S0008-A to align with cdma2000 Release E.	X.S0008-A v1.0
00307	eHRPD Connectivity and Interworking Technical Corrections and 3GPP Release 9 Enhancements in X.S0057-A v2.0	X.S0057-A v2.0 addresses technical corrections to eHRPD Connectivity and Interworking and improvements related to 3GPP Release 9.	X.S0057-A v2.0
00309	Enhancement of the cdma2000 1x System with M2M Focus	Enhancements to the cdma2000 1x system for significantly improved battery life and higher network capacity particularly for M2M devices.	C.S0001-F v1.0 C.S0002-F v1.0 C.S0003-F v1.0 C.S0004-F v1.0 C.S0005-F v1.0 C.S0017-010-0 v3.0
00310	Technical corrections for E-UTRAN – cdma2000 1x Connectivity and Interworking Air Interface Specification	Technical corrections in C.S0097-0 v2.0.	C.S0097-0 v3.0
00312	Concatenated Broadcast Short	Addition of concatenated Broadcast SMS messages to	C.S0015-C v1.0

Work Item Number	Feature Name	Description	Specs & Reports (The latest version supersedes previous versions)
	Message Service (SMS) Messages	Short Message Service.	
00313	Bug fixes for ME Conformance Testing with Smart Cards	To fix bugs found in the ME conformance test specifications with smart cards for both the R-UIM (C.S0048-A v1.0) and CSIM (C.S0101-0 v1.0).	C.S0048-A v2.0 C.S0101-A v1.0
00314	Binding of Access Subscription with Device(s)	This work item is to study, identify and specify the needed security enhancements to cdma2000 systems to support the requirement to bind a cdma2000 access subscription with specific cdma2000 device(s)	S.R0152-0 v1.0
00315	Enhancements to Femtocell IOS	Addition of features to the Femtocell IOS, A.S0024-A.	A.S0024-B v1.0
00316	EVRC MPS Test Condition Correction for 2kbps mode	Removal of test condition not applicable to 2kbps vocoder mode.	C.S0018-E v2.0
00317	Concurrent Volume and Duration based Prepaid Packet Data Service	This Work Item introduces concurrent volume and duration based prepaid packet data service whether or not a tariff switch is provided.	X.S0069-0 v1.0
00322	CDMA Card Application Toolkit Support for USSD and Advanced Location	Add Unstructured Supplementary Service Data (USSD) and advanced location to CDMA Card Application Toolkit (CCAT) with additional corrections.	C.S0035-B v1.0
00324	Defining the cdma2000 Radio Environment for Smartphone Battery Life Measurement	This work item is intended to facilitate a series of detailed measurements of the battery life of a cdma2000 smartphone in scenarios including talking, standby, email, web access and multimedia streaming. This work item will concentrate on establishing a precise cdma2000 environment and is expected to be referenced by other organizations for the complete measurement sequences.	C.R1013-0 v1.0

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1 **4. ABBREVIATIONS**

2 The abbreviations below are used throughout the system release guide.

AALS	Air Interface Application Layer Security
BS	Base Station
CCAT	CDMA Card Application Toolkit
CPNP	Calling Party Number Presentation
CSFB	Circuit Switched Fallback
DTX	Discontinuous Transmission
ECCB	Emergency Call Callback
eHRPD	Evolved High Rate Packet Data
ESN	Electronic Serial Number
E-UTRAN	Enhanced Universal Terrestrial Radio Access Network
EVRC	Enhanced Variable Rate Codec
GREEN	Green Revised Energy Efficient Network
HA/LMA	Home Agenda/Local Mobility Anchor
HRPD	High Rate Packet Data
IOS	Interoperability Specification
IMS	IP Multimedia Subsystem
ISIM	IMS Subscriber Identity Module
LMSD	Legacy Mobile System Domain
LSO	Loopback Service Options
M2M	Machine-to-Machine
ME	Mobile Equipment
MEID	Mobile Equipment Identity
MPS	Minimum Performance Specification
MSO	Markov Service Option
R-UIM	Removable User Identity Module
SMS	Short Messaging Services
UICC	Universal Integrated Circuit Card
UIM_ID	User Identity Module Identifier
USSD	Unstructured Supplementary Service Data
VCC	Voice Call Continuity

WLAN	Wireless Local Area Network
xHRPD	Extended High Rate Packet Data

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