MOBILE

Issue: OCT 2005

Generic Requirements
For
R-UIM for CDMA 2000 Network

GENERIC REQUIREMENTS

GR No. GR/UIM-01/01.OCT 2005

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Generic Requirements
for
Removable User Identity Module for CDMA 2000 1x Network

GENERIC REQUIREMENTS
GR No. GR/UIM-01/01.OCT 2005

History Sheet

SI. No.	Title	GR No.	Remarks
1	R-UIM for CDMA 2000 1x Network	GR/UIM-1/01.OCT2005	Issue 01

Contents

REFERENCES

TEC Documents

GR/EDO-01/01.JUN 2004	-	CDMA 2000 1x EV-DO System
GR/MSC-01/01.FEB 2004	-	MSC based Core Network for CDMA 2000 1x System
GR/OTA-01/01.JAN2005	-	OTA System for CDMA 2000 Network
GR/PCN-01/01.FEB 2004	-	Packet Core Network for CDMA 2000 1x System
GR/RST-01/01. JUN 2004	-	CDMA 2000 1x Remote Stations
GR/SMS-05/01.JUN 2005	-	SMSC for CDMA 2000 Network
GR/UMS-02/01.JUN2005	-	UMS for CDMA 2000 Network
GR/WIN-01/01.JAN2005	-	WIN System for CDMA 2000 Network
GR/WLL-04/01.OCT2003	-	Radio Network (BTS&BSC) for CDMA 2000 System

QA Documents of BSNL

QM-333	-	Specification for Environmental testing of Switching and Transmission Equipments

EIA/TIA/IS Standards

IS-95 A/B	-	Air interface for 2G CDMA based Mobile Network
IS-683	-	Over-the-Air Service Provisioning of Mobile Stations in Spread Spectrum Standards
IS-725	-	OTASP & OTAPA

International Quality Standard

ISO-9001:2000	-	Quality Management System – Requirement
ISO- 7816-1	-	Identification cards - Integrated circuit(s) cards with contacts - Part 1: Physical characteristics

ISO- 7816-2	-	Information technology-Identification cards–Integrated circuit(s) cards with contacts - Part 2: Dimensions and location of the contacts
ISO-7816-3	-	Identification Cards- Integrated Circuit(s)Cards with contacts- Part 3: Electronic Signals and transmission protocols.

3GPP2 Standards

3GPP2 C.S0016	-	Over-the-Air Service Provisioning of Mobile Stations in Spread Spectrum Standards
3GPP2 C.S0023-B	-	Removable User Identity Module (R-UIM) for Spread Spectrum Systems.
3GPP2 C.S0035-A	-	CDMA Card Application Toolkit (CCAT)
3GPP2 S.R 0060	-	Removable User Identity Module (R-UIM)/ Mobile Equipment (ME) Interface Testing – Stage 1 Description
3GPP2 S.R 0104-0	-	HRPD (High Rate Packet Data) Network Access Authentication for a Hybrid Access Terminal with (HAT) an R-UIM Used to Access Spread Spectrum Systems - System Requirements.
3GPP2 N.S0011	-	OTASP and OTAPA
3GPP TS31.101	-	Technical Specification Group Terminals; -UICC-Terminal Interface; Physical and Logical Characteristics

Other Standards

MIL STD 883C	-	Test Method Standard for Microcircuits by US DoD

PART-1

Chapter 1

Introduction

1.1 General

This document contains the Generic Requirements (GR) of a Removable -User Identity Module (R-UIM) to be used in Remote Station (subscriber terminal) of a Wireless Local Loop (WLL)/Mobile system based on the CDMA 2000 1x & EV-DO standards.

The subscription related information provided by the operator is stored in the R-UIM independent of the terminal, therefore, the use of R-UIM in the network enables customers to choose from a wide variety of handsets. This allows the user to change his handset at his wish. This feature is generally called "plastic roaming". Use of R-UIM will enable service provider to offer prepaid services to subscribers in a more convenient manner.

1.2 Scope

The R-UIM shall be able to work with any Mobile Equipment (ME) complying with R-UIM standards of 3GPP2 and R-UIM enabled Remote Stations as per TEC GR No. GR/RST-01.

The environment of operation will be CDMA network complying with TEC GR GR/WLL-04 (for Radio Access Network), GR/MSC-01 (for MSC), GR/PCN-01 (for Packet Core Network), GR/EDO-01 (for EV-DO Network) and other related GRs such as GR/OTA-01 (for OTA System), GR/WIN-01 (for WIN), GR/SMS-05 (for SMSC), GR/UMS-02 (for UMS).

1.3 Functions

The R-UIM shall be capable to perform the following functions:

a. Access control to the network
b. Customization
c. Service personalization
d. Network branding and advertising

Details of these functions are given in chapter 2.

Chapter 2

Technical Requirements

2.0 General

2.1 Types of R-UIM

2.1.1 R-UIM, based on the memory, can be one of the following three categories :

(i). Category A : EEPROM size 64 K
(ii). Category B : EEPROM size 128 K
(iii). Category C : EEPROM size 256 K

2.1.2 Each of the above R-UIM type may be one of the following physical types:

(i) ID-1 SIM

Format and layout of the ID_1 R-UIM shall be in accordance with ISO 7816-1, 2. The card shall have rectangular shape to the following dimensions:

Width of the card : 85.60 mm
Height of the card : 53.98 mm
Thickness of the card : 00.76 mm

The card shall have a polarization mark, which indicates how the user should insert the card into the ME.

(ii) Plug-in SIM

The plug-in R-UIM shall have a width of 25 mm, a height of 15 mm and thickness of 00.76 mm including a feature for orientation.

The physical characteristics of both types of R-UIM shall be in accordance with ISO 7816-1, 2 and 3. The R-UIM shall comply with the additional requirements as specified in references in the 3GPP2 C.S0023 standard.

2.2 Compliance to R-UIM Standards

The R-UIM shall comply with all the requirements specified in the following 3GPP2 standards:

i. 3GPP2C.S0023-B (Ver 0 for Cat. A R-UIM)

ii. 3GPP2C.S0035-A (Ver 0 for Cat A R-UIM)
iii. 3GPP2 S.R 0104-0
iv. 3GPP2 S.R0060

2.3 Components of R-UIM card

The R-UIM mainly consists of the following sub-systems/components:-

1. Central Processing Unit (CPU)
2. Read Only Memory (ROM)
3. Random Access Memory (RAM)
4. Electrically Erasable Programable ROM (EPRPOM)
5. Digital Signature Co-processor
6. Operating System
7. Applications
8. CDMA Card Application Toolkit (CCAT)
9. Browser
10. Browser plug-ins

2.3.1 Central Processing Unit (CPU)

The CPU is the "intelligence" of the chip and performs all the mathematical calculations and takes all the decisions required by the R-UIM.

2.3.2 Read Only Memory (ROM)

The ROM shall have a sufficient memory to store the operating system which is the set of commands that R-UIM understands. It shall include the algorithms as per 3GPP2 standards mentioned in Clause 2.2 of this document. The contents of the ROM shall be created as part of the silicon manufacturing process. They shall be permanent and it shall not be possible to change them.

2.3.3 Random Access Memory (RAM)

The RAM is an area of volatile memory and its contents are lost each time the power is turned off. It is used to store temporary system flags, to buffer incoming data and as a scratch pad for calculations**.** For different categories of R-UIM the RAM shall be as given below:-

(a) At least 4KB for Category A (64 KB) R-UIM card
(b) At least 8KB for Category B (128 KB) R-UIM card
(c) At least 12KB for Category C (256 KB) R-UIM card

Sufficient memory space, if required, shall be reserved for modifications during program changes.

2.3.4 Electrically Erasable Programmable ROM (EEPROM)

The EEPROM memory stores all of the application data such as the Operator specific parameters (e.g. IMSI) and the subscriber data (e.g. Abbreviated Dialling Nos.). This information is retained even after the power is turned off and can be modified or erased using specific electrical signals.

The R-UIM shall be programmable for the features like, Phone book, Short Message Service (SMS), Fixed Dialling Number (FDN) etc. Optionally, R-UIM may support dynamic memory management. Storing of browser either in ROM or in EEPROM for accessing R-UIM based applications shall not affect the EEPROM memory required for application usage viz. 64/128/256 KB.

2.3.5 Digital signature co-processor (Optional)

The R-UIM (Category B & C), may optionally have a digital co-processor, to enable Digital Signatures and Public Key Cryptography. In case it is provided, the Cryptographic Engine shall support 1024 bit keys.

2.3.6 Operating System

Operating system is the set of commands that R-UIM understands. Operating System shall support JAVA Card 2.1or later version for Cat. A R-UIM and JAVA Card 2.2 1or later version for Cat.B & Cat. C R-UIM.

2.3.7 R-UIM Applications

R-UIM applications shall be provided as per 3GPP2 standards.

2.3.8 CDMA Card Application Tool kit (CCAT)

The R-UIM shall comply with the requirements for CDMA Card Application Toolkit (CCAT) as per 3GPP C.S0035.

It shall ensure interoperability between an R-UIM and an ME independently of the respective manufacturers and operators. CCAT implementation shall allow Service Providers to offer unique services to their subscribers by placing applications they have designed (or third party applications) on the R-UIM that would function on any particular manufacture’s ME that supports the Toolkit features.

The R-UIM shall provide a platform, as per 3GPP C.S0035 for CCAT for launching value added interactive services like Mobile banking, Tele-ticketing, Over the air modifications etc. as defined by the operator.

2.3.9 R-UIM Browser and its Applications (Optional)

Provision shall be made in EEPROM Memory to accommodate Browser Menu and Services. It shall also be possible for the subscriber to use the handset browser as per his option. The R-UIM card shall provide a browsing mechanism to support the following:

i. Interpreter for access to Internet Based Applications.
ii. Access to telephony functions from the Menu allowing Setup call, Send SMS, Send MMS, Launch WAP Browser etc.
iii. Support for OTA download of R-UIM toolkit applications & new plug-ins using SMS & OTAF.
iv. Browser shall be R-UIM vendor Independent (i.e. same Browser must run on all R-UIM cards).
v. Browser must be able to set-up an operator defined text, which will be displayed while the Browser is waiting for an application to respond.
vi. Browser Menu Change Management up to 3 levels viz. Main menu, Sub menu, Sub-sub menu.
vii. Browser must be able to execute a local Script.
viii. Dispatch of Terminal Profile.
ix. Support for Unicode –version 3.0, so as to be able to display Devnagri on the phones that have Hindi/ Vernacular support.
x. The browser shall be able to navigate through menus stored locally on the R-UIM as well as on backend application servers.
xi. Browser shall be able to support minimum 20 service sub-titles.
xii. Browser must be able to permit local storage of subscriber specific confidential information, such as Credit card number, which the Browser can use in transactions in payment type sessions on multiple applications.
xiii. The Browser must be able to execute scripts based on events such as location update, R-UIM file Update, etc.
xiv. Browser must be able to display the text, defined by operator, continuously on screen until user presses a key.
xv. Provide book marking feature
xvi. Refresh menu or event list.
xvii. Support for incremental variable.

2.3.10 Browser Plug-ins (Optional)

The Plug-ins are executables, stored on R-UIM ROM or EEPROM, which enhance the capabilities of browser. Following capabilities shall be supported:

i) Browser Plug-ins must be downloadable
ii) Support for Encryption, Decryption and Signing using Symmetric (e.g.DES) keys and Asymmetric Keys (e.g. RSA) for Digital Signatures shall be provided for R-UIM card
iii) Dispatch of Cell Global Identity (CGI) as part of the Browser request

2.4 Standards compliant and multi-vendor support

The R-UIM shall be based on R-UIM standards mentioned in 'Reference' and other standards mentioned therein and shall be supported by multiple vendors.

2.5 Security & Authentication

2.5.1 The R-UIM shall support all security & authentication requirements for 1x & 1x EV-DO Network, as specified in the standards mentioned in Clause 2.2 of this document.

2.5.2 Security Features

R-UIM shall be provided with adequate security features to protect data authenticity for their entire life. The security features shall be in conformity with 3GPP2 standards mentioned in Clause 2.2 of this document and shall ensure the

following:
- authentication of the R-UIM to the network
- authentication of the network to the R-UIM
- authentication of the user to the R-UIM
- data confidentiality over the radio interface
- file access conditions
- conversion functions to derive CDMA parameters

2.5.3 Passive Authentication

The R-UIM shall support seven passive authentication passwords, which consist of two user's secret code called PINs & three Administrative Secret Codes (ADM). User secret codes shall have their own unblocking secret codes called PUK (PIN unblocking key) as per 3GPP2 standards. Passwords shall be initialised at the R-UIM vendor's personalisation centre according to operator's needs. Access conditions, which define type of authentication conditions, required to access various files use passive authentication.

2.5.4 Active Authentication

It shall provide total transparent means for verification that both the card and the network have the same secret key. It shall support CAVE and MD5 for authentication. There shall be two types of active authentication:

(i) Internal authentication which verifies the genuineness of the card registered in the network.
(ii) External authentication ensures that an application has the right of access to certain highly sensitive files.

2.5.5 Transportation password generation

The transport of output files (which contains UIMID, PIN, PUK, ADM,A-key, ICCID etc.) from R-UIM vendor to operator shall be protected by transport keys, as specified by the operator.

2.5.6 Network Security

The R-UIM shall provide features required for authenticating itself to the CDMA 2000 network and generating the keys used to cipher the calls. These features shall comprise of keys and algorithms as per the procedure given in 3GPP2 standards mentioned at 2.2 of this document.

2.5.7 Additional security features

Following additional security features shall be available in the R-UIM:

(i) Following three states depending on security policy of operator, shall be made available for accessing data from the external world:
- Under no condition
- Under secret code control (PIN code, or administrative secret code)
- Never (EF locked)

(ii) Unique serial number (ICCID) to avoid card cloning.

(iii) "Inhibition systems" to prevent any power value out of range of the specification: Clock frequency, power supply value.

(iv) Manufacturing diversified secret code to be presented before any EEPROM allocation.

(v) Read/Update access to EEPROM 100% controlled by ROM software and issuer application.

2.5.8 Application Security Keys

The following additional 8 bit DES Symmetric keys and 1024 bit Asymmetric Key generated as random key shall be provided for Cat.B & Cat. C R-UIM.
- 4 ADM Keys
- 16 Application keys
- 2 OTA keys

In case digital coprocessor is provided, the Asymmetric private key in PKCS 15 format and the URL (Uniform Resource Locator) for the Public Key Certificate must be stored securely on the R-UIM card, while the corresponding Public Key shall be stored on the Public repository and URL shall point to the Public Key.

2.6 Support for 1x and 1x EV-DO Network

R-UIM shall support the both 1x and 1x EV-DO Network.

2.7 Upgradation through OTA

R-UIM shall support changes/upgradation of R-UIM parameters as per 3GPP2 OTA standards. In addition to requirement specified in the 3GPP2 standards, R-UIM may optionally support upgradation of features/services of R-UIM through OTAF.

2.8 Access control to the network

The R-UIM shall be secure to prevent unauthorised access to the network services involving:

i) Local access control

In the Local access control the identity of the cardholder being an authorised user is achieved through a PIN1 (Personal Identity Number) checking procedure without transmission on the radio interface. The subscriber presents to the R-UIM (via the handset) a four to eight digit No. which is known only to the subscriber. The R-UIM shall check the presented value against that, held in its secure memory. If the two are the same then it is assumed that the cardholder is the valid user and handset access is allowed.

ii) Network access control

The network access control mechanism shall start after the subscriber has proven his identity to the card. During this access the card proves to the CDMA 2000 network that it is valid for use. It shall be as per the procedure defined in 3GPP2 standards mentioned in clause 2.2 of this document.

2.9 Customization

It shall be possible to customise the R-UIM for the services to be provided by the operator. R-UIM shall be capable of storing atleast following inputs for customisation:

(i) International Mobile Subscriber Identity (IMSI_M, IMSI_T)
(ii) Integrated Circuit Card Identification (ICC ID)
(iii) Subscriber Authentication Key (A-key)
(iv) Personal Identification Number-1 (PIN-1/CHV-1)
(v) Personal Identification Number-2 (PIN-2/CHV-2)
(vi) PIN Unblocking Key-1 (PUK-1)
(vii) PIN Unblocking Key-2 (PUK-2)
(viii) Service Provider Name (SPN)
(ix) SID

(x) NID
(xi) PRL
(xii) UIM-ID
(xiii) CDMA Service Table

2.10 Service personalization

The R-UIM shall also act as a portable data storage device, which contains the subscriber related information such as Phone book, SMS, AoC, SMSC address etc. R-UIM shall be able to support following:

- Electrical Personalisation: To authenticate the chip, it shall load the customised executable program and initialise the data in the files.

- Geographical card Personalisation: For printing card holder related data on the card body.

2.11 Network branding and advertising

For the purpose of advertising and network branding , it shall be possible to print artwork containing operator's logo and other network related information on R-UIM card with high precision and quality. It shall be possible to accommodate any change in the artwork design in the subsequent batch of R-UIM cards.

2.12 Support for Bearer Independent Protocol (BIP)

R-UIM shall be able to support 'Bearer Independent Protocol' as per 3GPP2C.S0035 for Cat. B & Cat C R-UIM.

2.13 Transmission of SMS on certain events

R-UIM shall be able to send ESN of ME, UIM-ID and MIN to the Backend server as an SMS on "Power Up" event.

The R-UIM shall support to SET/RESET the trigger to send SMS on this event. The configuration to SET/RESET this functionality can be done using SMS. This feature can be used to blacklist the stolen R-UIM handsets from further calls to be made.

2.14 Multiple subscriptions

The R-UIM may optionally support following on a R-UIM single card:
(a) Dual IMSI support for CDMA
(b) Dual IMSI support for CDMA as well as GSM subscription

2.15 Initial subscription

2.15.1 The service provider shall provide the vendor with an input file. The contents of record are as follows:

RSN (Readable Serial Number)-Details given in Annexure-1.

2.15.2 Vendor will provide the output file back, for Network Provisioning of subscriber. The contents of record are as follows:

(i) RSN
(ii) RUIM-ID
(iii) A-key with Checksum (in decimal)(26 digits)
(iv) SPC

2.16 Preferred Roaming List structure (CDMA Roaming)

R-UIM shall have provision of a single Preferred Roaming List (PRL) to support all the CDMA networks. It shall support change in PRL through OTAF.

2.17 SMS and Phone Book support

(i). The R-UIM shall support storage of SMS messages (each of size 160 characters of user data) and Phone Book entries (each with an alpha tag of length 14 characters and number length of 28 digits)as per the details given below:

Category of R-UIM	No. of SMS	Phone Book entries
A	50	250
B	100	250
C	200	250

(ii). The Phone Book data shall be shared across the CDMA subscriptions and the GSM subscription, if supported.

(iii). The Phone book , using applications, may optionally, be able to store data in the fields viz. short name, additional number, E-mail ID and grouping information for phone book entries. The Phone book capacity may also be enhanced using applications.

2.18 Anti tear mechanism

R-UIM card shall have anti tear mechanism to prevent R-UIM data damage during accidental voltage cut- off (battery failures, battery pull - out without switch - off etc.)

2.19 Electrical Specifications

Electrical specifications shall comply with requirements mentioned in 3GPP2 C.S0023.

2.19.1 Supply Voltage

The R-UIM shall be capable to operate at 1.8V, 3V and 5V, thereby supporting 1.8V, 3V and 5V mobile equipment respectively.

2.19.2 Clock

R-UIM shall support clock rate of 1 to 5 MHz from Mobile Equipment/Remote Station.

2.19.3 Baud Rate

The minimum baud rate for all communication shall be 9600 bps.

2.20 Transmission Protocols

The transmission protocols used to exchange data between ME and R-UIM shall be as per 3GPP2 standards mentioned in Clause 2.2.

2.21 Application and File structure

R-UIM shall comply with all application & file structure as mentioned in 3GPP2 standards given in Clause 2.2 of this document.

2.22 Backward Compatibility: The RS shall be fully backward compatible with the existing cdma One networks, thereby implying that any CDMA 2000 1x Remote Station would be able to place and receive calls in IS-95A/B systems.

PART-2

Chapter 3

General Requirements

3.1 Engineering Requirements

3.1.1 Hardware

(i) R-UIM card body material

The card body shall be made of Acrylo Butadiene Nitryl Styrene (ABS) plastic material / Poly Vinyl Chloride (PVC) and shall be fully compliant to 3GGP2 standards, with quality standards stipulated by ISO-7816-1.

(ii) Contact lifetime

In order to ensure good mechanical protection and good electrical contact at the same time, contacts shall be protected with a layer of nickel and overall gold layer. Lifetime of R-UIM card in terms of insertion into / extraction from a Remote Station or a card reader shall be minimum of 10, 000 cycles.

(iii) Contact pressure

The contact pressure shall be large enough to ensure reliable and continuous contact. The radius of any curvature of the contacting elements shall be greater than or equal to 0.8 mm over the contact area. Under no circumstances, the contact force shall be greater than 0.5 N per contact.

3.1.2 Software

(i) The Software shall be robust and reliable so that it can protect itself from Hardware faults (within the permitted operating limits as per ISO-7816-1,2,3 standards) and Software faults in the ME/RS.

(ii) The venders shall indicate nature of technology used in their components especially related to micron of the chips used, nature of components used (whether in-house developed or commercially available components) etc. in support of the quality and reliability of components used

(iii) The software tools/drivers and cables (if required) for programming, configuration, software download, parameter changes and maintenance purposes shall be provided.

(iv) All software tools shall be compatible with Windows 2000, Windows XP and NT 4.0

(v) The supplier shall undertake to supply on continuing basis all software updates. These updates may include new features and services and other maintenance updates. Software upgradation of R-UIM shall take place at Web stores or Customer care center.

(vi) The software up-gradation/changes may be optionally possible as per Over-the-Air Service Provisioning of Mobile Stations in Spread Spectrum Standards as specified in IS-683 (3GPP2 C.S0016) and OTASP & OTAPA as per IS-725 (3GPP2 N.S0011) standards.

(vii) Any update in the software at a later stage to overcome deficiencies of the system due to bugs, compatibility etc., shall be provided free of cost by the supplier. Further, the vender shall provide, for successful integration, any software modification necessary due to problems in inter-working with other networks/equipment free of cost.

3.1.3 Average life span of R-UIM card shall be 5 years.

3.2 No problem due to change in date/time/year etc.

The hardware/software shall not pose any problem due to changes in date and time caused by events such as leap year etc, in the normal functioning of the RS

3.3 Quality Requirements

The R-UIM shall be manufactured in accordance with the International Quality Standard ISO-9001:2000 for which the manufacturer shall be duly accredited. The quality plan describing the quality assurance system followed by the manufacturer shall be submitted.

3.4 Environmental Specification

The R-UIM shall be fully compliant with 3GPP TS 31.101specifications in terms of temperature and humidity resistance. The temperature range for full operational use shall be between -25^{o} C and $+70^{o}$ C with occasional peaks of up to $+85^{o}$ C (not more than 4 hours each time and not over 100 times during the life time of the card).
R-UIM shall comply with requirement as per Category B-2 of QM-333 for environmental requirements.

3.5 Maintenance Requirement

The vendor shall provide regional and international technical support, for referral of difficult and obscure faults. The vendor shall supply escalation procedures for the referral of difficulties to these centers.

3.6 Documentation

Hard & Soft copy of all documents shall be provided in English by the equipment supplier. The user manuals shall be provided in both English and Hindi language. Also a list of Dos and Don'ts shall be provided in both language, giving concise, instructions to the user in bullet form. The documents shall comprise of following:

(i) R-UIM description documents
(ii) R-UIM operation and maintenance documents

(i) R-UIM Description Documents

The following R-UIM description documents shall be supplied along with the R-UIM:

(a) Overall R-UIM specification and description of hardware and software, giving details and invocation of facilities provided by the R-UIM.
(b) Installation manuals and testing procedures.
(c) Detailed description of software describing the principles, functions, and interactions with hardware, structure of the program and data.

(iii) R-UIM Operation and Maintenance Documents

The following O & M documents shall be provided by the supplier:
(a) Operating/ User manual
(b) Maintenance manual
(c) Fault localization and trouble shooting instructions including fault dictionary
(d) Test procedures with auxiliary test equipments
(e) User interface documents with screen shots of different CCAT menu
(f) User manual describing the usage of the R-UIM card, intended for the end subscriber.
(g) List of Dos and Don'ts

3.7 Electromagnetic Compatibility (EMC)

The chips used in R-UIM shall comply with MIL STD 883C technical specifications and shall accept Class Three electrostatic overload (threshold > 4000 volts).

3.8 Reference to latest version of all documents/standards

The latest version of the references mentioned in this GR, at the time of publication, is given in the 'References'. All the references are subject to revision hence all the users (including tendering authority) are encouraged to investigate the possibility of applying the most recent edition of these references.

Annexure-1

Format of Readable Serial Number (RSN)

The RSN would be of 15 characters length.

A BC DE F XXXXXXXXX

The specific positions would have the following significance:

- First set of 1 Character: A
  - Would denote the type of number.
  - The characters would be alphanumeric
  - Would always be R for RSN.

- Second set of 2 Character: BC
  - Would denote the manufacturer/OEM
  - The characters would be alphanumeric

- Third set of 2 Character: DE
  - Would denote the Material Group.
  - The characters would be alphanumeric
  - The main material groups would coded be: HS – Handset, SP – Spares, AC – Accessories, MS – Marketing and Sales collateral, FW – Fixed Wire line Telephones, SI – SIM Cards.

- Forth set of 1 Character: F
  - Would denote the factory Location of manufacturer / OEM.
  - The characters would be alphanumeric.
- Fifth set of 9 Characters: XXXXXXXXX
  - Would denote Serial Number.
  - The characters would be Numeric (in decimal).
  - These characters would be padded with left zeroes and would start from 1 for each Handset and SIM Type.

Annexure-2

Guidelines for the Tendering Authority

1. This GR requires the R-UIM to support **CCAT Specification.** At the time of publication of this document, it was informed by the manufacturers that R-UIMs based on **UTK specification** only are commercially available. R-UIM based on CCAT is not commercially available. Hence, the tendering authority may examine the commercial availability aspects at the time of tender.

2. The tendering authority may specify in the tender that the UIM-IDs IDs should be purchased by the supplier from Telecommunication Industry Association (TIA,Website: www.tiaonline.org)

3. The tendering authority may specify the R-UIM category & physical type at the time of tender.

4. The Tendering Authority may review all "Optional" features (e.g. clauses 2.3.5, 2.3.9, 2.3.10 etc.) indicated in this GR and may consider making them "mandatory" if required.

ABBREVIATIONS

3GPP2	Third Generation Partnership Project 2
AOC	Advice of Charge
ABS	Acryl Butadiene Nitryl Styrene
ADM	Administrative Secret Codes
CCAT	CDMA Card Application Tool
CDMA	Code Division Multiple Access
CPU	Central Processing Unit
DES	Data Encryption Standards
ESN	Electronic Service Number
EEPROM	Electrically Erasable Programmable Read Only Memory
EF	Elementary file
EMC	Electromagnetic Compatibility
EV-DO	Evolution-Data Only
FDN	Fixed Dialing Number
GR	Generic Requirements
GSM	Global System for Mobile Communication
HRPD	High Rate Packet Data
ICC_ID	Integrated Circuit Card Identification
IMSI_T	International Mobile Subscriber Identity_ Temporary
IMSI_M	International Mobile Subscriber Identity_ Mobile
KB	Kilo Byte
MD5	Message Digest algorithm 5
ME	Mobile Equipment
MIL STD	Military Standard
MIN	Mobile Identification Number
MMS	Multimedia Messaging Service
MSC	Mobile Switching Center
NID	Network Identification (Number)
OTA	Over-the-Air
OTAF	Over-the-Air Function
OTAPA	Over-the-Air Parameter Administration
OTASP	Over-the-Air Service Provisioning
PCN	Packet Core Network
PIN	Personal Identity Number
PKC	Public Keys Certificate
PKCS	Public-Key Cryptography Standards
PRL	Preferred Roaming List
PVC	Poly Vinyl Chloride
PUK	PIN Unlocking Key
RAM	Random Access Memory
ROM	Read Only Memory
RS	Remote Station
RSA	Rivest, Shamir and Adleman (algorithm)

RSN	Readable Serial Number
R-UIM	Removable-User Identity Module
R-UIMID	Removable-User Identity Module Identity
SID	System Identification (Number)
SIM	Subscriber Identity Module
SMS	Short Message Service
SMSC	Short Message Service Centre
SPC	Service Point Code
SPN	Service Provider Name
TEC	Telecom Engineering Centre
TIA	Telecommunications Industry Association
UICC	Universal Integrated Chip Card
UMS	Unified Messaging Service
URL	Uniform Resource Locater
US DoD	Department of Defence of U.S.
WAP	Wireless Application Protocol
WIN	Wireless Intelligent Network
WLL	Wireless in Local Loop

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