



Open Market Handsets (OMH) Device System Requirements

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Revision History

Date	Version	Description
November 2010	1.0	Initial release version

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1. Introduction

1.1 Scope

The Open Market Handsets (OMH) initiative is a strategic effort to benefit the CDMA ecosystem by enabling open distribution of devices across networks and regions. This is accomplished by expanding Removable User Identity Module (R-UIM) capabilities to support a full set of competitive features and by standardizing a uniform device implementation for each feature.

This document defines the high-level system requirements for OMH devices. A device that complies with these requirements will enable the user to use the same device on multiple networks that are run by various operators and provide different types of R-UIMs. The following diagram shows the relationships among devices, R-UIMs, and networks in the OMH ecosystem.

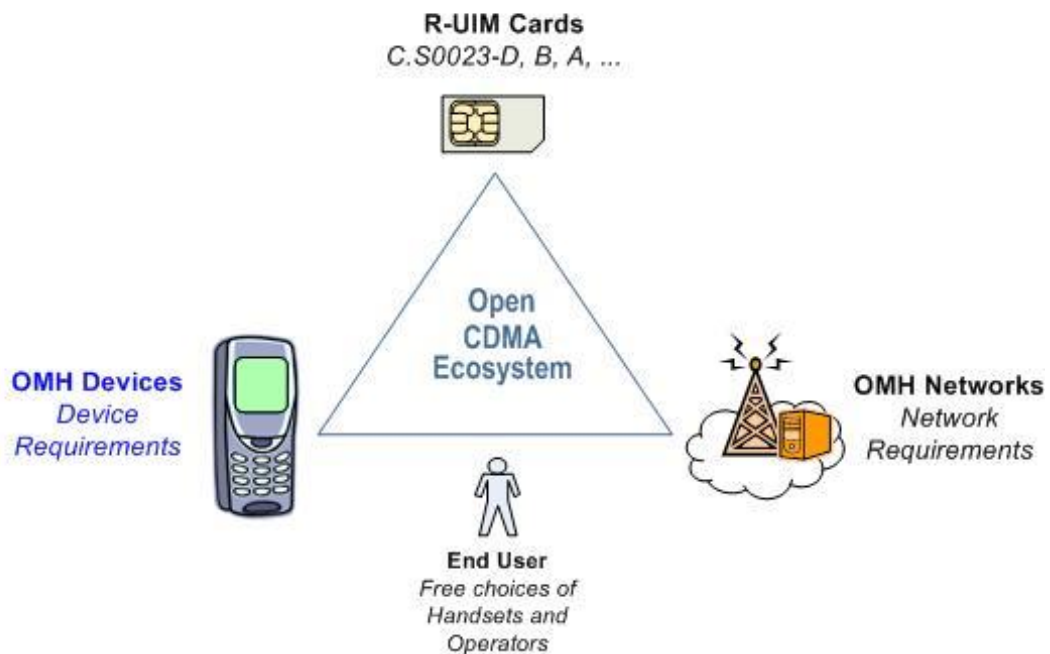


Figure 1 OMH devices, R-UIMs, and networks

1.2 Requirements Overview

The R-UIM-enabled OMH device needs to satisfy the system requirements defined in this document in the following categories:

- Mechanisms
- Voice Services
- Short Message Service (SMS)
- 3G Packet Data (3GPD)
- High Rate Packet Data (HRPD) (1xEV-DO)
- Applications, including support for Wireless Application Protocol (WAP), Multimedia Messaging Service (MMS), Java and Binary Runtime Environment for Windows (BREW) Application Manager
- Location Based Services (LBS)

Each requirement has a requirement number in this format: **DSRn-m**, where **DSR** represents a device system requirement, **n** represents the feature set or functional area and **m** represents the requirement number within that feature set or functional area. These requirements are also formatted in blue so the reader can visually identify the requirements more easily.

Note: Specific requirements for devices that fully utilize the C.S0023-D R-UIM capabilities are defined in [CDG167].



2. Mechanisms

This section contains the fundamental system requirements for general R-UIM support, security functions, carrier customization, UIM Toolkit (UTK) and CDMA Card Application Toolkit (CCAT), Short Message Service Point-to-Point (SMS-PP) download, device model and identification, Over-the-Air Service Provisioning and Over-the-Air Parameter Administration (OTASP/OTAPA) support, and so on.

2.1 R-UIM (DSR1)

DSR1-1 The device *shall* support the Integrated Circuit Card (ICC) physical and logical characteristics, as defined in [CS0023].

DSR1-5 The device *shall* support the R-UIM application on the ICC, as defined in [CS0023].

DSR1-10 The device *shall* support the following R-UIM commands:

- SELECT
- STATUS
- READ BINARY
- UPDATE BINARY
- READ RECORD
- UPDATE RECORD
- SEEK
- INCREASE
- CHANGE CHV
- DISABLE CHV
- ENABLE CHV
- UNBLOCK CHV
- INVALIDATE
- REHABILITATE
- GET RESPONSE
- TERMINAL PROFILE
- ENVELOPE

- FETCH
- TERMINAL RESPONSE

2.2 cdma2000 (DSR3)

DSR3-1 The device **shall** support cdma2000 Release 0, as defined in [CS0001], [CS0002], [CS0003], [CS0004], and [CS0005].

DSR3-5 The device **shall** use the Preferred Roaming List (PRL) stored in EF_{PRL} on the R-UIM.

DSR3-10 The device **shall** interpret the Concatenated PRL (cPRL) stored in EF_{PRL} on the R-UIM.

Note: See 13. Appendix: Concatenated PRL Usage for a detailed description of cPRL.

2.3 Security (DSR5)

DSR5-1 The device **shall** support the following security features for cdma2000 1x operations:

- Update Shared Secret Data (SSD)
- Base Station Challenge
- Confirm SSD
- Authenticate
- Generate Key/VPM

DSR5-5 The device **shall** support the following security features for 3G Packet Data and HRPD Access Network:

- Compute IP Authentication (CHAP, MN-HA, MIP-RRQ, MN-AAA)

2.4 Subsidy Lock (DSR10)

If an operator wants to subsidize a particular OMH device, it could do so by working with the device Original Equipment Manufacturer (OEM) to implement the desired personalization mechanism on the device. At that point, however, the device would no longer be considered an OMH device.

DSR10-1 The device **shall not** have subsidy locks, so that the same device can work with different R-UIMs on different networks.

2.5 Carrier Customization (DSR15)

DSR15-1 If the operator name is configured for the operator, the device **shall** display it on the idle screen.

DSR15-5 If an application label has been configured for a particular operator, the device's user interface **shall** display this text label with the associated icon or menu item used to launch that application (e.g., "Content World").

DSR15-10 If an application label has not been configured for the operator, the device's default label **shall** be displayed (e.g., "MMS").

2.6 CDMA Card Application Toolkit (DSR20)

The CCAT provides the interface between the device and the R-UIM. CCAT is defined in [CS0035]. The intention of the following CCAT requirements is to provide sufficient CCAT support to enable operators to provision lightweight applications (e.g., wireless banking, personal information collection for pre-paid subscribers, tracking of device ID and model information, etc.) that run on the R-UIM.

DSR20-1 If the device supports card applications, it **shall** provide an icon and/or a menu item for the user to select so that the user will be able to access the CCAT menus from the applications on the R-UIM.

DSR20-10 The device **shall** support the following CCAT commands:

- MORE TIME
- PROVIDE LOCAL INFORMATION
- REFRESH
- TERMINAL PROFILE
- SEND SHORT MESSAGE
- SMS-PP Data Download

DSR20-15 If the device supports card applications, it **shall** support the following commands:

- SET UP MENU
- MENU SELECTION
- DISPLAY TEXT
- GET INPUT
- SELECT ITEM
- SET UP CALL

DSR20-20 If the device supports card applications, it should support the following commands:

- GET INKEY
- TIMER MANAGEMENT
- TIMER EXPIRATION
- EVENT DOWNLOAD
- POLLING OFF
- SET UP EVENT LIST
- SET UP IDLE MODE TEXT
- LAUNCH BROWSER

2.7 Device and Model Identification (DSR25)

- DSR25-1** The device **shall** support a Mobile Equipment Identifier (MEID).
- DSR25-5** The device **shall** be provisioned with a properly formed MEID.
- DSR25-10** The device **shall** be provisioned with an Electronic Serial Number (ESN) containing the pESN value derived from the device's MEID.
- DSR25-15** If service n8 (SF_EUIMID-based EUIMID) is activated in EF_{CST} (CDMA Service Table), the device **shall** use EF_{USGIND} (Usage Indicator) to determine whether to use the Short Form Expanded UIM Identifier (SF_EUMID) or MEID for device identification, as defined in [CDG166].
- DSR25-20** Just as the device writes its ESN/MEID to the R-UIM during power-up, it **shall** also write its manufacturer information, model information, and software version information to EF_{Model} on the R-UIM, if EF_{Model} is present on the R-UIM.

2.8 CCAT / UTK Data Download (DSR30)

- DSR30-1** The device **shall** support the CCAT SMS-PP data download mechanism, as defined in [CS0035].
- DSR30-5** The device **shall** support the UTK SMS-PP data download mechanism, as defined in [CDG76].

2.9 OTASP / OTAPA (DSR35)

- DSR35-1** The device **shall** support the following OTASP commands:
- Generate Public Key
 - Key Generation Request
 - Commit
 - Validate
 - Configuration Request
 - Download Request
 - SSPR Configuration Request
 - SSPR Download Request
 - OTAPA Request

2.10 Root Certificates (DSR40)

- DSR40-1** If the operator has provisioned root certificates on the R-UIM, the device may use these certificates in addition to the default certificates present on the device.

2.11 Configuration Data Sources (DSR45)

An OMH device can work with an R-UIM that is provisioned with 1x and HRPD configuration specific to a subscriber (i.e., subscription and access network authentication credentials). All the other operator specific configurations may come from the following sources:

- R-UIM: See [CDG166] for the full set of parameters that can be stored on the C.S0023-D R-UIM.
- Device memory: The device memory could contain all configurations except configurations specific to a subscriber, as mentioned above.
- User input: The device could allow the user to manually input certain parameters when a particular service or application is launched.

In this document, an operator configuration set means the configuration parameters that are pre-provisioned on an operator's R-UIM, pre-provisioned on the device for an operator, or entered by the user manually for an operator.

Similarly, a parameter configured for the operator means a parameter that is pre-provisioned on an operator's R-UIM, pre-provisioned on the device for an operator, or entered by the user manually for an operator.

DSR45-1 The device **shall** automatically identify the operator based on the R-UIM inserted.

DSR45-5 The device **shall** use the operator configuration set (from the R-UIM, device memory, or user input) that corresponds to the operator identified.

DSR45-10 The device **shall** always use the configuration for 1x subscription and access network authentication from the R-UIM.

DSR45-15 The device **shall** always use the configuration for HRPD access network authentication from the R-UIM.

DSR45-20 The device **shall** provide the capability to use 3GPD user profiles for the operator configuration set.

DSR45-25 The operator configuration set in the device **shall** consist of the following parameters (see 12. Appendix: Device Configuration for the Operator for details regarding the parameters):

- Service Provider Name
- Application Labels
- SMS configuration
- 3GPD configuration, including the mapping from applications to 3GPD User Profiles
- WAP Browser Application configuration, if WAP Browser is supported on the device
- MMS Application configuration, if MMS is supported on the device

- Java Download URL, if Java Download application is supported on the device
- BREW Mobile Shop configuration, if BREW Mobile Shop is supported on the device
- LBS configuration, if LBS is supported on the device

Note: This document makes no assumptions about how this information is stored by the device. This implementation is specific to each device vendor.

- DSR45-30** If the device does not read the operator configuration set parameters from the R-UIM, the device **shall** contain the pre-provisioned operator configuration set for the selected operators that the device is intended to support.
- DSR45-35** The pre-provisioned operator configuration sets should not be changed by the user.
- DSR45-40** If the device does not read the operator configuration set parameters from the R-UIM, the device **shall** allow manual entry and editing of the parameters in the operator configuration set for an operator.
- DSR45-45** Any parameter that is entered by the user manually for the operator configuration set **shall** be stored in the device's non-volatile memory so that the parameter value persists across device power cycles.

2.12 Behavior While Using Legacy R-UIMs (DSR50)

- DSR50-1** When a legacy R-UIM (i.e., pre-C.S00230-D R-UIM) is inserted into the device, the device may inform the user that he/she needs to upgrade the R-UIM in order to obtain data services, *if the device expects the configuration for data services to come from the R-UIM.*
- DSR50-5** When a legacy R-UIM is used in the device and the user attempts to access any type of data service, the device **shall** inform the user that he/she needs to upgrade the R-UIM to an OMH R-UIM in order to obtain data services, *if the device expects the configuration for data services to come from the R-UIM.*
- DSR50-10** When an HRPD-capable device is in HRPD-only or 1x/HRPD hybrid mode, the device **shall** prompt the user to upgrade the card if HRPD is not enabled on R-UIM.
- DSR50-15** The device **shall** support voice calls with OMH R-UIMs and legacy R-UIMs.
- DSR50-20** The device **shall** support sending and receiving SMS with OMH R-UIMs and legacy R-UIMs.
- DSR50-25** When the device using a legacy R-UIM sets up a tethered data call using Password Authentication Protocol (PAP) authentication in Relay Model, it **shall** perform PAP authentication using credentials from the terminal.¹

¹ In this document, Terminal means a laptop or some other computing device that is connected to the OMH device in tethered mode.

- 1 **DSR50-30** When the device using a legacy R-UIM sets up a tethered data call using the
2 Challenge Handshaking Authentication Protocol (CHAP) authentication in
3 Relay Model, it **shall** perform CHAP authentication using credentials from
4 the terminal.

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3. Voice (DSR55)

3.1 General and R-UIM

DSR55-1 Voice services on the device **shall** use the subscriber-specific configuration from the R-UIM.

DSR55-5 The device **shall** read all applicable calling feature codes configured for the operator and display them to the user.

DSR55-10 The device **shall not** allow the user to enable or disable any calling features if the calling feature codes are not configured for the operator. Alternatively, the device may fall back to the default set of calling feature codes valid for the respective operator.

DSR55-15 The device **shall** always permit calls to emergency numbers, even if no R-UIM is inserted.²

DSR55-20 The device **shall** allow the user to dial emergency numbers configured on the R-UIM and the device.

3.2 Protocols

DSR55-200 The device should support Voice Privacy and allow the user to activate it when a voice call is set up and during a voice call.

DSR55-205 The device should support Call Forwarding.

DSR55-210 The device should support Three-Way Calling.

DSR55-215 The device should support Call Waiting.

DSR55-220 The device should support Caller ID.

DSR55-225 The device should support Message Waiting Indication.

DSR55-230 The device **shall** also support EVRC-B service option 68 (4GV-NB).

DSR55-235 The device should support the standard network-based “+” code dialing.

DSR55-240 The device should provide a plus key or equivalent user interface convention to allow “+” code dialing.

² The emergency numbers on the R-UIM are applicable to the user's home networks and might not be applicable to the networks to which the user has roamed in a different country. This is why the device should allow the user to enter, modify, and delete emergency numbers on the device as needed, depending on the network or country to which the user has roamed.

- 1 **DSR55-245** The device should support phonebook storage and subsequent retrieval of
2 digits with a “+” code, regardless of the source of the digits (e.g., user entry,
3 caller display, and Device Origination Address).
- 4 **DSR55-250** The device should support transmission of the dialed digits in ASCII mode
5 for internationally dialed voice calls in the Origination Message using the
6 International NUMBER_TYPE without using the “+” character.
- 7 **DSR55-255** The device should support setting the NUMBER_PLAN to either
8 “ISDN/Telephony” or “Unknown” for internationally dialed voice calls.
- 9 **DSR55-260** The device should accept an internationally formatted Calling Party Number
10 information record for an incoming voice call with NUMBER_TYPE =
11 “International number” and NUMBER_PLAN set to either “Unknown” or
12 “ISDN/Telephony.”
- 13 **DSR55-265** The device should present a received internationally formatted Calling Party
14 Number to the subscriber with a leading “+” symbol.
- 15 **DSR55-270** The device should match a received internationally formatted Calling Party
16 Number to a corresponding phonebook entry.
- 17 **DSR55-275** The device ***shall*** support Display Records that are sent from the network
18 using Feature Notification Message, Flash with Information Message, and
19 Alert with Info Message.
- 20 **DSR55-280** The device ***shall*** support Burst Dual Tone Multi Frequency (DTMF).



4. SMS (DSR60)

4.1 General and R-UIM

- DSR60-1** The device **shall** use the SMS configuration from the operator configuration set for the selected operator. See the SMS related device configuration parameters in 12. *Appendix: Device Configuration for the Operator*.
- DSR60-5** The device **shall** perform SMS retries using the retry parameters configured for the operator.
- DSR60-10** The device should allow the user to store SMS messages on the R-UIM.
- DSR60-15** The device should automatically store received SMS messages to the R-UIM.
- DSR60-20** The device should allow the user to modify the messages on the R-UIM.
- DSR60-25** The device should allow the user to delete the messages from the R-UIM.
- DSR60-30** The device should allow the user to store SMS Parameters on the R-UIM.
- DSR60-35** The device should allow the user to modify SMS Parameters on the R-UIM.
- DSR60-40** The device should allow the user to delete SMS Parameters from the R-UIM.
- DSR60-45** The device should use SMS Parameters from the R-UIM when sending Mobile Originated (MO) SMS messages.
- DSR60-50** The device should allow the user to choose one of the SMS Preferences records for use with SMS.
- DSR60-55** The device should use MESSAGE_ID from the R-UIM when sending MO SMS messages and increment it by 1.

4.2 Protocols

- DSR60-200** The device **shall** support MO SMS over access channel.
- DSR60-205** The device **shall** support MO SMS over traffic channel.
- DSR60-210** The device **shall** support Mobile Terminated (MT) SMS over paging channel.
- DSR60-215** The device **shall** support MT SMS over traffic channel.
- DSR60-220** The device **shall** support service option 6.
- DSR60-225** The device **shall** support service option 14.

- 1 **DSR60-230** The device ***shall*** support Voice Mail Notification over SMS.
- 2 **DSR60-235** If the device supports HRPD, the device should support sending and
3 receiving of SMS while the device is in 1x and HRPD hybrid mode.
- 4 **DSR60-240** The device ***shall*** support the sending and receiving of messages with empty
5 text.
- 6 **DSR60-245** The device should support the sending and receiving of messages with an
7 Internet email address.
- 8 **DSR60-250** The device ***shall*** allow the user to forward a message.
- 9 **DSR60-255** The device ***shall*** allow the user to send a message to multiple addresses.
- 10 **DSR60-260** If the device's user interface allows users to enter an SMS message that
11 exceeds 140 bytes, it ***shall*** ensure that no individual segment exceeds 140
12 bytes when it segments the long messages.
- 13 **DSR60-265** The device should support transmission of the Destination Address
14 parameter in ASCII mode for internationally addressed messages.
- 15 **DSR60-270** The device should support setting the Destination Address NUMBER_TYPE
16 to "International number" for internationally addressed messages.
- 17 **DSR60-275** The device should accept an Originating Address parameter coded in ASCII
18 mode when receiving internationally addressed messages.
- 19 **DSR60-280** The device should accept an Originating Address parameter with
20 NUMBER_TYPE = "International number" when receiving internationally
21 addressed messages.
- 22 **DSR60-290** The device should present a received, internationally formatted Originating
23 Address parameter to the subscriber with a leading "+" symbol.
- 24 **DSR60-295** The device should match a received, internationally formatted Originating
25 Address parameter to a corresponding phonebook entry.
- 26 **DSR60-305** The device should handle an SMS message meeting all of the following
27 conditions as a Flash SMS message:
 - 28 • Relative Validity Period value is 246 (Immediate) and/or Display
29 Mode is 0 (Immediate).
 - 30 • No other message parameters indicate that the message is a special
31 message not intended for the end user (e.g., an SMS-PP download
32 message).
- 33 **DSR60-310** If the device supports Flash SMS, it ***shall*** display the message to the user
34 directly.



5. 3G Packet Data (DSR65)

5.1 General and R-UIM

- DSR65-1** The device **shall** use the 3G Packet Data configuration from the operator configuration set for the selected operator. See the 3GPD related device configuration parameters in 12. *Appendix: Device Configuration for the Operator.*
- DSR65-5** The device **shall** support both PAP and CHAP authentication for Simple IP.
- DSR65-10** If the device supports Mobile IP, the device **shall** support Mobile IP authentication.
- DSR65-15** The device **shall** support Mobile IP to Simple IP fallback.
- DSR65-20** The device should support the following features based on the configuration for the operator:
- Extended Packet Zone Identifiers (EPZID)
 - Hysteresis Activation Timer (HAT)
 - TCP Keep-alive Idle Timer
- DSR65-25** The device **shall** restore the dormant timer to the value configured for the operator when an application exits.
- Note: This prevents an application from changing the dormant timer to a value that may be inappropriate for other applications.*
- DSR65-30** If the device supports tethered mode Relay Model data calls, the device **shall** use PAP credentials from the terminal for such Relay Model calls.
- DSR65-35** If the device supports tethered mode Relay Model data calls, the device **shall** use CHAP credentials from the terminal for such Relay Model calls.
- DSR65-40** If the device supports tethered mode Network Model data calls, the device **shall** use PAP credentials configured for the operator for such Network Model calls.
- DSR65-45** If the device supports tethered mode Network Model data calls, the device **shall** use CHAP credentials configured for the operator for such Network Model calls.
- DSR65-50** The device should support tethered-mode data calls in Network Model using PAP credentials from the terminal, if the device does not have PAP credentials configured for the operator.

DSR65-55 The device should support tethered-mode data calls in Network Model using CHAP credentials from the terminal, if the device does not have CHAP credentials configured for the operator.

5.2 Multiple Profiles

The term “profiles” here refers to the set of parameters (e.g., username, password, etc.) used for Simple IP or Mobile IP.

DSR65-200 The device **shall** support Multiple User Profiles for Simple IP based on the configuration for the operator.

DSR65-205 If the device supports Mobile IP, the device **shall** support Multiple User Profiles for Mobile IP based on the configuration for the operator.

DSR65-210 When performing Mobile IP to Simple IP fallback, the device **shall** fall back from a Mobile IP profile to a corresponding Simple IP profile.

DSR65-215 The device **shall** allow the mapping of each of the following applications to only one 3GPD user profile in the operator configuration set:

- MMS
- WAP Browser
- BREW Mobile Shop
- Java Download application

DSR65-220 If the device supports tethered mode Network Model calls, the device **shall** allow the mapping of a tethered mode Network Model data connection to only one 3GPD user profile in the operator configuration set.

DSR65-225 The device **shall** allow the mapping of LBS to one or more 3GPD user profiles in the operator configuration set.

DSR65-230 The device **shall** designate one 3GPD user profile as the default profile, and map to it all applications that are not explicitly mapped to a specific 3GPD user profile.

DSR65-235 When an application sets up a data session, the device **shall** use the 3GPD user profile mapped to that application to set up the session.

The requirements from DSR65-240 to DSR65-260 below apply only if the device supports concurrency (i.e., more than one application can be running simultaneously).

DSR65-240 If arbitration among multiple profiles based on profile priorities is not supported, the device may choose any device-specific policy (e.g. First-Come First-Served or Last-Come First-Served) to determine which of the concurrent applications get access to data services.

The requirements from DSR65-245 to DSR65-260 below apply only if the device supports arbitration among applications based on profile priorities.

DSR65-245 The device **shall** reuse the existing data session if the application to be launched uses the same profile as the existing application.

1 **DSR65-250** The device **shall** preempt the existing application and set up a new data
2 session if the application to be launched maps to a profile that has a higher
3 priority than the profile for the existing application.

4 **DSR65-255** The device **shall** reject the application to be launched if its profile has a
5 lower priority than the profile mapping to the existing application.

6 **DSR65-260** The device **shall** allow LBS to share data sessions with other applications if
7 the configuration for the operator allows this.

8 *The LBS requirements from DSR65-265 to DSR65-275 below apply only for devices that*
9 *use 3GPD profiles from the R-UIM.*

10 **DSR65-265** Since LBS can be present in multiple profiles, as defined in the 3GPD
11 section of [CDG166], it **shall** share data sessions with one, many, or all the
12 other applications on the device based on the provisioning of the R-UIM.

13 **DSR65-270** If there are multiple profiles containing LBS in the APPLICATIONS bit mask,
14 the one having the lowest priority **shall** be used when an LBS data session
15 needs to be established and there is no existing data session active.

16 **DSR65-275** If an LBS data session is active and a new application is launched that has a
17 higher priority, the current data session **shall** be released and a new data
18 session **shall** be established by using this higher priority profile. Then, if the
19 new profile also contains LBS, the LBS application should be launched
20 again, which will share the same data session with the new application.

21 **5.3 Protocols**

22 **DSR65-400** The device **shall** support [CS0017].

23 **DSR65-405** The device **shall** support service option 33.

24 **DSR65-410** The device **shall** support IPv4.

25 **DSR65-415** The device **shall** support Simple IP operation.

26 **DSR65-420** The device **shall** support Simple IP establishment without authentication.

27 **DSR65-425** The device **shall** support Simple IP establishment with PAP authentication.

28 **DSR65-430** The device **shall** support Simple IP establishment with CHAP
29 authentication.

30 **DSR65-435** The device should support Mobile IP operation.

31 **DSR65-440** If the device supports Mobile IP, the device **shall** support Mobile IP Inter-
32 PDSN Handoff in Active State.

33 **DSR65-445** If the device supports Mobile IP, the device **shall** support Mobile IP Inter-
34 PDSN Handoff in Dormant State.

35 **DSR65-450** If the device supports Mobile IP, the device **shall** support Mobile IP Intra-
36 PDSN Handoff in Active State.

37 **DSR65-455** If the device supports Mobile IP, the device **shall** support Mobile IP Intra-
38 PDSN Handoff in Dormant State.

39 **DSR65-460** The device **shall** support Simple IP Inter-PDSN Idle Handoff.

- 1 **DSR65-465** The device **shall** support Simple IP Intra-PDSN Handoff in Dormant State.
- 2 **DSR65-470** If the device supports Mobile IP, the device **shall** support successful Mobile
3 IP Point-to-Point (PPP) negotiation and termination.
- 4 **DSR65-475** If the device supports Mobile IP, the device **shall** support Agent Discovery
5 and Registration using dynamic Home Address assignment.
- 6 **DSR65-480** If the device supports Mobile IP, the device **shall** support Agent Discovery
7 and Registration using static Home Address assignment.
- 8 **DSR65-485** If the device supports Mobile IP, the device **shall** support Router
9 Advertisement lifetime expiry.
- 10 **DSR65-490** If the device supports Mobile IP, the device **shall** support Mobile IP
11 Registration Request retry.
- 12 **DSR65-495** If the device supports Mobile IP, the device **shall** support Mobile IP
13 Registration Lifetime processing.
- 14 **DSR65-500** If the device supports Mobile IP, the device **shall** support Mobile IP De-
15 Registration.
- 16 **DSR65-505** If the device supports Mobile IP, the device **shall** support RADIUS
17 authentication.
- 18 **DSR65-510** If the device supports Mobile IP, the device **shall** support IPSec Security
19 with preserving of existing security association.
- 20 **DSR65-515** If the device supports Mobile IP, the device **shall** support Foreign Agent
21 Reverse Tunnel Registration.
- 22 **DSR65-520** If the device supports Mobile IP, the device **shall** support Private Network.
- 23 **DSR65-525** If the device supports Mobile IP, the device **shall** support Successful
24 Authentication using the MN-AAA extension.
- 25 **DSR65-530** If the device supports Mobile IP, the device should support simultaneous
26 Mobile IP and Simple IP.
- 27 **DSR65-535** The device **shall** support soft handoff of fundamental channel and
28 supplemental channel together.
- 29 **DSR65-540** The device **shall** support soft handoff of fundamental channel only.
- 30 **DSR65-545** The device **shall** support hard handoff to high-speed packet data capable
31 system.
- 32 **DSR65-550** The device **shall** support hard handoff to a high-speed packet data capable
33 system with a different Radio Configuration if available.
- 34 **DSR65-555** The device **shall** support high-speed packet data PPP or IP Expiration.
- 35



6. HRPD (1xEV-DO) (DSR70)

This section presents additional requirements for the 3G Packet Data section to support HRPD.

6.1 General and R-UIM

DSR70-1 For HRPD, the device **shall** perform A12 (AN-AAA) authentication for HRPD access using access credentials and authentication algorithms on the R-UIM.

DSR70-5 The device should support HRPD Rev 0.

DSR70-10 The device should support HRPD Rev A.

DSR70-15 The device should support 1x and HRPD hybrid operations.

DSR70-20 The device should support Receive Diversity.

6.2 Protocols

DSR70-100 The device **shall** support the functions defined in [CS0024].

DSR70-105 The device **shall** satisfy the conformance requirements defined in [CS0038].

DSR70-110 The device **shall** satisfy the performance requirements defined in [CS0033].

DSR70-120 The device **shall** support the Forward and Reverse Test Application Protocol specification (FTAP and RTAP) defined in [CS0029].

DSR70-125 The device **shall** support the HRPD band classes defined in [CS0057].

DSR70-130 The device **shall** satisfy the Interoperability Specification for CDMA2000 Air Interface defined in [CS0044].

DSR70-135 The device **shall** support Default Signaling Application.

DSR70-140 The device **shall** support Default Packet Application.

DSR70-145 The device **shall** support Default Stream Protocol.

DSR70-150 The device **shall** support Default Session Management Protocol.

DSR70-155 The device **shall** support Default Address Management Protocol.

DSR70-160 The device **shall** support Default Session Configuration Protocol.

DSR70-165 The device **shall** support Default Air Link Management Protocol.

DSR70-170 The device **shall** support Default Idle State Protocol.

- 1 **DSR70-175** The device **shall** support Default Connected State Protocol.
- 2 **DSR70-180** The device **shall** support Default Route Update Protocol.
- 3 **DSR70-185** The device **shall** support Default Packet Consolidation Protocol.
- 4 **DSR70-190** The device **shall** support Overhead Messages Protocol.
- 5 **DSR70-195** The device **shall** support Default Initialization State Protocol.
- 6 **DSR70-200** The device **shall** support Default Security Protocol.
- 7 **DSR70-205** The device **shall** support Default Key Exchange Protocol.
- 8 **DSR70-210** The device **shall** support Default Authentication Protocol.
- 9 **DSR70-215** The device **shall** support Default Encryption Protocol.
- 10 **DSR70-220** The device **shall** support Default Control Channel MAC Protocol.
- 11 **DSR70-225** The device **shall** support Default Access Channel MAC Protocol.
- 12 **DSR70-230** The device **shall** support Default Forward Traffic Channel MAC Protocol.
- 13 **DSR70-235** The device **shall** support Default Reverse Traffic Channel MAC Protocol.
- 14 **DSR70-240** The device **shall** support Default Physical Layer Protocol.

15 **6.3 HRPD Rev A Specific**

- 16 **DSR70-400** The device **shall** support Multi-Flow Packet Application.
- 17 **DSR70-415** The device **shall** support Enhanced Idle State Protocol.
- 18 **DSR70-420** The device **shall** support Enhanced Control Channel MAC Protocol.
- 19 **DSR70-425** The device **shall** support Enhanced Access Channel MAC Protocol.
- 20 **DSR70-430** The device **shall** support Enhanced Forward Traffic Channel MAC Protocol.

21 **6.4 1x and HRPD Interworking**

- 22 **DSR70-600** The device **shall** support Voice Origination in HRPD Idle Mode.
- 23 **DSR70-605** The device **shall** support Voice Termination in HRPD Idle Mode.
- 24 **DSR70-610** The device **shall** support SMS Origination in HRPD Idle Mode.
- 25 **DSR70-615** The device **shall** support SMS Termination in HRPD Idle Mode.
- 26 **DSR70-620** The device **shall** support Voice Origination in HRPD Active Mode.
- 27 **DSR70-625** The device **shall** support Voice Termination in HRPD Active Mode.
- 28 **DSR70-630** The device **shall** support SMS Origination in HRPD Active Mode.
- 29 **DSR70-635** The device **shall** support SMS Termination in HRPD Active Mode.
- 30 **DSR70-640** The device **shall** support Voice Origination in HRPD Dormant Mode.
- 31 **DSR70-645** The device **shall** support Voice Termination in HRPD Dormant Mode.
- 32 **DSR70-650** The device **shall** support SMS Origination in HRPD Dormant Mode.
- 33 **DSR70-655** The device **shall** support SMS Termination in HRPD Dormant Mode.

- 1 **DSR70-660** The device ***shall*** support Inter-Technology switching from HRPD to
2 cdma2000 1x in Dormant Mode.
- 3 **DSR70-665** The device ***shall*** support Inter-Technology switching from HRPD to
4 cdma2000 1x in Active Mode.
- 5 **DSR70-670** The device ***shall*** support Inter-Technology switching from cdma2000 1x to
6 HRPD in Dormant Mode.
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7. WAP Browser (DSR75)

7.1 General, R-UIM, and User Interface (UI)

DSR75-1 The device should support WAP Browser.

DSR75-5 The device **shall** use the WAP Browser configuration from the operator configuration set for the selected operator. See the WAP related device configuration parameters in 12. *Appendix: Device Configuration for the Operator*.

DSR75-10 If the operator configuration set indicates that the WAP Browser is mapped to a specific 3GPD user profile, the device **shall** use that 3GPD user profile when WAP Browser is launched

DSR75-15 If the operator configuration set indicates that WAP Browser is not mapped to any 3GPD user profile, the device **shall** use the default 3GPD user profile when WAP Browser is launched.

DSR75-20 If there is more than one WAP gateway configured for the operator, the device should fall back to the next WAP Gateway parameter set if the device fails to connect to the WAP Gateway using the current connectivity parameter set.

DSR75-25 If the device has pre-provisioned bookmarks, the device **shall** present these bookmarks to the user.

DSR75-30 The device should allow the user to save additional bookmarks.

DSR75-35 The device **shall** be capable of displaying the web pages based on the bookmarks configured for the operator.

DSR75-40 The device should allow the user to change any bookmark.

DSR75-45 The device should have a visual indicator to indicate the sending and receiving of data packets for WAP sessions.

DSR75-50 The device **shall** allow the user to enter a URL directly.

DSR75-55 The device should allow the user to navigate forward and backward in the history list.

DSR75-60 The device should allow the user to save a Wireless Markup Language (WML) card or eXtensible Hypertext Markup Language (xHTML) document for offline viewing and to update and delete the snapshot.

DSR75-65 The device should allow the user to cache user ID and password information on the client.

- 1 **DSR75-70** The device should provide an auto-fill capability that assists users in text
2 entry for frequently used fields.
- 3 **DSR75-75** The device should allow the user to use predictive text entry, if this capability
4 is supported by the device.
- 5 **DSR75-80** The device should provide visual Secured Browser connection indicators.
- 6 **DSR75-85** The device should provide visual Error and Warning Dialogs for HTTP
7 errors.
- 8 **DSR75-90** The device should provide visual Error and Warning Dialogs for Repost form
9 data warning.
- 10 **DSR75-95** The device should provide a single key/touch access to the browser from the
11 idle screen.
- 12 **DSR75-100** The device should support languages that are supported by the device in
13 general.
- 14 **DSR75-105** The device should display all error messages in the local language.
- 15 **DSR75-110** The device should provide browser version information.

16 **7.2 Protocols**

- 17 **DSR75-300** The device **shall** support WAP 2.0.
- 18 **DSR75-302** The device should use cdma2000 as the data bearer.
- 19 **DSR75-305** The device **shall** support HTTP 1.1 basic authentication.
- 20 **DSR75-310** The device should support HTTP 1.1 digest authentication.
- 21 **DSR75-315** The device should support Transport Layer Security (TLS) server
22 authentication for transport layer security and SSL 3.0.
- 23 **DSR75-320** The device should support certificate chaining.
- 24 **DSR75-325** The device should support loading of root certificates in support of Wireless
25 Public Key Infrastructure (PKI).
- 26 **DSR75-330** The device should support WAP certificate profiles.
- 27 **DSR75-335** The device should support WAP 2.0 caching, i.e., the HTTP 1.1 caching
28 model.
- 29 **DSR75-340** The device should support HTTP State Management with local cookie
30 storage.
- 31 **DSR75-345** The device **shall** support Domain Name Server (DNS) Resolution of Host
32 Names for Proxy.
- 33 **DSR75-350** The device should support multiple proxies.
- 34 **DSR75-355** If the device supports multiple proxies, the device should support HTTP
35 Proxy fail-over.
- 36 **DSR75-360** The device should support the “profile URI” header for User Agent Profile.
- 37 **DSR75-365** The device should support the “profile diff” header for User Agent Profile.

- 1 **DSR75-370** The device's User Agent Profile **shall** successfully pass validation using the
2 Open Mobile Alliance (OMA) Delivery Context Library for CC/PP and UAProf
3 (DELI) UAProf Validator tool at <http://validator.openmobilealliance.org/cgi/>.
- 4 **DSR75-375** The device **shall** support both HTTP and HTTPS, which will be routed via
5 the WAP gateway provisioned for operator.
- 6 **DSR75-380** The device should support WML 1.3 in binary form.
- 7 **DSR75-385** The device should support WML 1.3 in textual form.
- 8 **DSR75-390** The device should support WMLScript, which is the compiled binary form
9 including WMLScript standard libraries.
- 10 **DSR75-395** The device should support Make Call for the public Wireless Telephony
11 Application (WTA) function.
- 12 **DSR75-400** The device should support Send DTMF for the public WTA function.
- 13 **DSR75-405** The device should support Add Phonebook Entry for the public WTA
14 function.
- 15 **DSR75-410** The device should notify the user when it is directed to initiate a call.
- 16 **DSR75-415** The device should support Connection-Oriented Push over HTTP.
- 17 **DSR75-420** If the device supports WAP Push, the device **shall** provide a visual message
18 arrival notification.
- 19 **DSR75-425** The device should allow the user to view recently received Service
20 Indication or WAP Push notifications without establishing a WAP session.
- 21 **DSR75-430** The device should first alert the user that a connection is about to be started
22 for any push that initiates a background connection.
- 23 **DSR75-435** The device should turn on an annunciator/icon to allow the user to view
24 unread Service Indication or WAP Push notifications without establishing a
25 WAP session.
- 26 **DSR75-440** The device **shall** support the HTTP Content-Type header.
- 27 **DSR75-445** The device **shall** support the HTTP Content-Disposition header.

28 **7.3 Download**

- 29 **DSR75-600** The device should support OMA Download 1.0.
- 30 **DSR75-605** If the device supports OMA Download 1.0, the device **shall** support separate
31 delivery of Download Descriptor and Media Object for OMA Download.
- 32 **DSR75-610** If the device supports OMA Download 1.0, the device **shall** support
33 combined delivery of Download Descriptor and Media Object with status
34 report.
- 35 **DSR75-615** If the device supports OMA Download 1.0, the device **shall** support
36 combined delivery of Download Descriptor and Media Object without status
37 report.
- 38 **DSR75-620** If the device supports OMA Download 1.0, the device **shall** support
39 Installation Notification, which is to be sent to the network after the Media
40 Object is installed successfully.

- 1 **DSR75-625** If the device supports OMA Download 1.0, the device **shall** support
2 Installation Notification for installation failures with (901) Insufficient memory.
- 3 **DSR75-630** If the device supports OMA Download 1.0, the device **shall** support
4 Installation Notification for installation failures with (902) User Canceled.
- 5 **DSR75-635** If the device supports OMA Download 1.0, the device **shall** support
6 Installation Notification for installation failures with (906) Invalid descriptor.
- 7 **DSR75-640** If the device supports OMA Download 1.0, the device **shall** support
8 Installation Notification for installation failures with (951) Invalid DD Version.
- 9 **DSR75-645** If the device supports OMA Download 1.0, the device **shall** support
10 Installation Notification for installation failures with (952) Device Aborted.
- 11 **DSR75-650** If the device supports OMA Download 1.0, the device **shall** support
12 Installation Notification for installation failures with (953) Non-Acceptable
13 Content for unknown or unsupported media object types.
- 14 **DSR75-655** If the device supports OMA Download 1.0, the device **shall** support
15 Installation Notification without server reply and make the downloaded
16 media object available for use by the user.
- 17 **DSR75-660** If the device supports OMA Download 1.0, the device **shall** support
18 Installation Notification with server error and make the downloaded media
19 object not available for use by the user.
- 20 **DSR75-665** If the device supports OMA Download 1.0, when the user selects to continue
21 with a browsing operation after a successful download, the device **shall**
22 invoke the URL defined in the NextURL attribute in the Download Descriptor.
- 23 **DSR75-670** If the device supports OMA Download 1.0, the device **shall** ignore the
24 optional attributes that are not supported and ignore unknown attributes
25 when processing Download Descriptor.
- 26 **DSR75-675** If the device supports OMA Download 1.0, when an attribute occurs multiple
27 times in the Download Descriptor, the device **shall** process the first
28 occurrence and ignore the remaining occurrences. The exception is the
29 attribute Type, which is allowed to occur multiple times.

30 **7.4 Media**

- 31 **DSR75-800** The device should support the display of BMP Image content.
- 32 **DSR75-805** The device should support the display of PNG Image content.
- 33 **DSR75-810** The device should support the display of JPEG Image content.
- 34 **DSR75-815** The device should support the display of GIF Image content.
- 35 **DSR75-820** The device should support all audio types in the browser that are supported
36 by the device in general.
- 37 **DSR75-825** The device should support all video types in the browser that are supported
38 by the device in general.
- 39 **DSR75-830** If the device supports video services, it should support links from the
40 browser to those video services.

- 1 **DSR75-835** The device should support application service discovery for video services,
2 BREW, Java, etc.³
- 3 **DSR75-840** The device ***shall*** support the Service Indication (SI) content type.
- 4 **DSR75-845** The device should support the Service Loading (SL) content type.
- 5 **DSR75-850** The device should support the Cache Operation (CO) content type.
- 6 **DSR75-855** The device should support OMA Digital Rights Management (DRM) 1.0.
- 7 **DSR75-860** If the device supports OMA DRM, it ***shall*** support OMA DRM Forward Lock.
- 8 **DSR75-865** The device should support OMA DRM Combined Delivery. If the device
9 supports DRM Separate Delivery, it ***shall*** support DRM Combined Delivery.
- 10 **DSR75-870** The device should support OMA DRM Separate Delivery.
- 11 **DSR75-875** The device should support the Session Initiation Request (SIR) content type.
- 12 **DSR75-880** The device should support the WAP Pictograms.
- 13 **DSR75-885** The device should support Unicode and UTF-8 encoding.
- 14

³ For example, if the web page displays a link to a streaming video, the device should allow the user to click on it in order to launch the video streaming application.

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8. MMS (DSR80)

8.1 General, R-UIM, and UI

DSR80-1 The device should support MMS.

DSR80-5 The MMS client on the device **shall** use the MMS configuration from the operator configuration set for the selected operator. See the MMS related device configuration parameters in 12. *Appendix: Device Configuration for the Operator*.

DSR80-10 If the operator configuration set indicates that MMS is mapped to a specific 3GPD user profile, the device **shall** use that 3GPD user profile when MMS is launched.

DSR80-15 If the operator configuration set indicates that MMS is not mapped to a specific 3GPD user profile, the device **shall** use the default 3GPD user profile when MMS is launched.

DSR80-20 The device **shall** support MMS WAP gateway provisioned as either a domain name (PXADDR-FQDN) or IP address (PXADDR).

DSR80-25 If there is more than one MMS connectivity parameter set including the WAP gateway provisioned for the operator, the device should fall back to the next MMS connectivity parameter set, if the device fails to connect to the MMS server using the current connectivity parameter set.

DSR80-30 If the Max Message Size is provisioned for the operator, the device **shall not** send messages larger than the provisioned value.

DSR80-35 If MMS retries and retry interval are provisioned for the operator, the device **shall** perform MMS retries based on retry times and retry interval values provisioned for the operator.

DSR80-40 If the Multimedia Messaging Service Center (MMSC) timeout value is provisioned for the operator, the device **shall** wait for a duration indicated in the MMSC timeout value provisioned for the operator before declaring an MMSC timeout.

DSR80-45 The device should use MMS User Preferences, as defined in [XS0016-3].

DSR80-50 The device should support the capability of updating MMS User Preferences.

DSR80-55 The device should provide an option for the user to specify which MMS User Preferences record will be used when there are multiple User Preferences records.

DSR80-60 The device should support MMS notifications.

- 1 **DSR80-65** The device should allow the user to preview a message before it is sent.
- 2 **DSR80-70** The device should display a progress bar when a message is being
3 submitted.
- 4 **DSR80-75** The device should allow the user to access the phonebook when the device
5 displays the MMS application menus.
- 6 **DSR80-80** The device should allow the user to distinguish between read and unread
7 messages.
- 8 **DSR80-85** The device should allow the user to enter multiple recipient addresses when
9 a message is composed.
- 10 **DSR80-90** The device should allow the pictures and audios stored in the device's
11 gallery or downloads folder to be attached while sending a message.
- 12 **DSR80-95** The device should use MMS to upload a picture taken by the camera to a
13 server when selected.

14 **8.2 Protocols**

- 15 **DSR80-200** The device **shall** support the 3GPP2 OMA/WAP MM1 implementation of
16 MMS using HTTP as the transport.
- 17 **DSR80-205** The device **shall** comply with WAP requirements identified in *Section 7.*
18 *WAP Browser (DSR75)* of this document.
- 19 **DSR80-210** The device **shall** comply with the SMS requirements identified in *Section 4.*
20 *SMS (DSR60)* of this document.
- 21 **DSR80-220** The device should support OMA DRM Forward Lock.
- 22 **DSR80-225** The device should support OMA DRM Combined Delivery. If the device
23 supports DRM Separate Delivery, it **shall** support DRM Combined Delivery.
- 24 **DSR80-230** The device should support OMA DRM Separate Delivery.
- 25 **DSR80-235** The device **shall** provide User Agent Profile (UAProf) information to the
26 MMS Relay/Server.
- 27 **DSR80-240** The device **shall** support forward, reply to, and delete functionality.
- 28 **DSR80-242** The device **shall** send and receive images, audios, and videos indicated in
29 the UAProf.
- 30 **DSR80-245** The device should support sending messages to email addresses.
- 31 **DSR80-250** The device should support receiving messages from an email address.
- 32 **DSR80-255** The device should not reject an incoming multimedia message based on the
33 message size indicated in the MM notification.
- 34 **DSR80-260** The device **shall** correctly receive and reasonably present a message with
35 an unrecognized field in the MMS header.
- 36 **DSR80-265** The device **shall** correctly receive and reasonably present a message with a
37 recognized field but with an unrecognized value in the MMS header.
- 38 **DSR80-270** The device should receive a Delivery Report for a successfully retrieved
39 message.

- 1 **DSR80-275** The device should receive a Delivery Report for a rejected message.
- 2 **DSR80-280** The device should receive a Delivery Report for an expired message.
- 3 **DSR80-285** The device should receive multiple Delivery Reports, each with a different
4 status, for a message sent to multiple recipients.
- 5 **DSR80-290** The device should receive a Read-Reply Report with the date that the
6 message is read.
- 7 **DSR80-295** The device should send a Read-Reply Report for a received message that
8 requests read reply.
- 9 **DSR80-300** The device should receive multiple Read-Reply Reports, each with a
10 different status, for a message sent to multiple recipients.
- 11 **DSR80-305** The device should receive a Read-Reply Report with the date that the
12 message is read.
- 13 **DSR80-310** The device should support Immediate Retrieval of a message.
- 14 **DSR80-315** The device should support Deferred Retrieval of a message.
- 15 **DSR80-320** The device should support Rejected Retrieval of a message.
- 16 **DSR80-325** The device **shall** support the X-Mms-Message-Type field when sending a
17 message.
- 18 **DSR80-330** The device **shall** support the X-Mms-Transaction-ID field when sending a
19 message.
- 20 **DSR80-335** The device should support the Date field when sending a message.
- 21 **DSR80-340** The device **shall** support the From field when sending a message.
- 22 **DSR80-345** The device **shall** support the To field when sending a message.
- 23 **DSR80-350** The device should support the Cc field when sending a message.
- 24 **DSR80-355** The device should support the Bcc field when sending a message.
- 25 **DSR80-360** The device **shall** support the Subject field when sending a message.
- 26 **DSR80-365** The device should support the X-Mms-Expiry field with Relative option when
27 sending a message.
- 28 **DSR80-370** The device should support the X-Mms-Delivery-Time field with Relative
29 option when sending a message.
- 30 **DSR80-375** The device should support the X-Mms-Priority field with different priorities
31 when sending a message.
- 32 **DSR80-380** The device should support the X-Mms-Delivery-Report field when sending a
33 message.
- 34 **DSR80-385** The device should support the X-Mms-Read-Report field when sending a
35 message.
- 36 **DSR80-390** The device should support all the mandatory message fields, and when
37 none of the mandatory fields "To," "Cc," and "Bcc" are present in the
38 message to be sent, the device should reject the message with an error
39 displayed to the user.

- 1 **DSR80-395** The device should support Long Subject field.
- 2 **DSR80-400** The device should support Empty text file.
- 3 **DSR80-405** The device should support cancellation of a message by using the Cancel
4 Protocol Data Units (PDUs).
- 5 **DSR80-410** The device should support the X-Mms-Message-Class field.
- 6 **DSR80-415** The device should support the X-Mms-Expiry field – Relative.
- 7 **DSR80-420** The device should support the X-Mms-Expiry field – Absolute.
- 8 **DSR80-425** The device should support the X-Mms-Delivery-Time field – Relative.
- 9 **DSR80-430** The device should support the X-Mms-Delivery-Time field – Absolute.
- 10 **DSR80-435** The device should support the X-Mms-Priority field – Low.
- 11 **DSR80-440** The device should support the X-Mms-Priority field – Normal.
- 12 **DSR80-445** The device should support the X-Mms-Priority field – High.
- 13 **DSR80-450** The device should support the X-Mms-Delivery-Report field.
- 14 **DSR80-455** The device should support the X-Mms-Read-Report field.
- 15 **DSR80-460** The device should support the X-MMS-Adaptation-Allowed field.
- 16 **DSR80-465** The device should be able to reject sending of delivery and read-reply
17 reports.
- 18 **DSR80-470** The device should support recording of a voice message when composing
19 MMS.
- 20 **DSR80-475** The device should gracefully handle MMS concurrently with other activities,
21 such as voice and SMS.

8.3 Media Types

- 22 **DSR80-700** The device should support the audio type MIDI.
- 23 **DSR80-705** The device should support the audio 3GPP2 13k speech.
- 24 **DSR80-710** The device should support the Adaptive Multi-Rate Narrow Band (AMR NB)
25 audio.
- 26 **DSR80-715** The device **shall** support the Subject field with UTF8 encoding in sent and
27 received messages.
- 28 **DSR80-720** The device **shall** support the Text field with US-ASCII encoding in sent and
29 received messages.
- 30 **DSR80-725** The device **shall** support the Text field with UTF-8 encoding in sent and
31 received messages.
- 32 **DSR80-730** The device **shall** support Text with UTF-16 (LE) encoding in received
33 messages.
- 34 **DSR80-735** The device should support JPEG Image size 160x120.
- 35 **DSR80-740** The device should support JPEG Image size 640x480.
- 36 **DSR80-745** The device should support GIF Image size 160x120.
- 37

- 1 **DSR80-750** The device should support GIF Image size 640x480.
- 2 **DSR80-755** The device should support Animated GIF Image size 160x120.
- 3 **DSR80-760** The device should support Animated GIF Image size 640x480.
- 4 **DSR80-765** The device should support Wireless Bitmap (WBMP) Image size 160x120.
- 5 **DSR80-770** The device should support WBMP Image size 640x480.
- 6 **DSR80-775** The device should support BMP Images.
- 7 **DSR80-780** The device should support the Long Content-Location field.
- 8 **DSR80-785** The device should support Synchronized Multimedia Integration Language
9 (SMIL) portrait layout with text above the image.
- 10 **DSR80-790** The device should support SMIL portrait layout with text below the image.
- 11 **DSR80-795** The device should support SMIL landscape layout with text to the left of the
12 image.
- 13 **DSR80-800** The device should support SMIL landscape layout with text to the right of the
14 image.
- 15 **DSR80-805** The device should support SMIL multiple objects in same page.
- 16 **DSR80-810** The device should support SMIL multiple pages.
- 17 **DSR80-815** The device should support SMIL multiple pages with page timing and time
18 dependent content.
- 19 **DSR80-820** The device may support 3GPP Video QCIF and sub-QCIF.
- 20 **DSR80-825** The device may support 3GPP2 Video QCIF (MPEG4+13k).
- 21 **DSR80-830** The device may support 3GPP2 Video QCIF (MPEG4+AMR).
- 22 **DSR80-835** The device may support 3GPP2 Video QCIF (H.263+13k).
- 23 **DSR80-840** The device may support 3GPP2 Video QCIF (H.263+AMR).
- 24 **DSR80-845** The device may support 3GPP2 Video sub-QCIF (MPEG4+13k).
- 25 **DSR80-850** The device may support 3GPP2 Video sub-QCIF (MPEG4+AMR).
- 26 **DSR80-855** The device may support 3GPP2 Video sub-QCIF (H.263+13k).
- 27 **DSR80-860** The device may support 3GPP2 Video sub-QCIF (H.263+AMR).
- 28 **DSR80-865** The device may support vCard.
- 29 **DSR80-870** The device may support vCalendar.
- 30 **DSR80-875** The device may support the sending of a Postcard using X-MMS-
31 GREETINGTEXT header.
- 32 **DSR80-880** The device may support the sending of a Postcard vCard attachment to
33 multiple recipients.
- 34 **DSR80-885** The device may support the sending of a Postcard vCard attachment to
35 multiple recipients with additional vCard properties.
- 36 **DSR80-890** The device may support the sending of a Postcard vCard attachment with
37 the ADR field empty.

- 1 **DSR80-895** The device should support the sending of full conformance to megapixel
2 class for creation and submission of single object.
- 3 **DSR80-900** The device should support Rich Text in various content classes.
- 4 **DSR80-902** The device should support xHTML Family User Agent.
- 5 **DSR80-905** The device should support full conformance to megapixel class for creation
6 and submission of multiple objects.
- 7 **DSR80-910** The device should support the sending and receiving of MMS messages
8 with JPEG containing Huffman table.
- 9 **DSR80-915** The device should support the sending of MMS message without defining
10 the duration parameter value (i.e., <par> dur).
- 11 **DSR80-920** The device should support the sending of MMS message with a user-
12 specific duration parameter value (i.e., <par> dur).
- 13 **DSR80-925** The device should support the retrieval and presentation of the Content
14 Basic content class.
- 15 **DSR80-930** The device should support the retrieval and presentation of Content Rich
16 content class.
- 17 **DSR80-935** The device should support the retrieval and presentation of Mega-pixel
18 content class.
- 19 **DSR80-940** The device should support the EXIF compressed image file format as the
20 JPEG interchange format.
- 21 **DSR80-945** The device should handle messages with corrupted content by presenting
22 the content that is not corrupted.
- 23 **DSR80-950** The device should handle message with unsupported content (e.g., PDF) by
24 presenting the content that is supported.
- 25 **DSR80-955** The device should support 3GPP PSS6 SMIL Language Profile.
- 26 **DSR80-960** The device should recognize the hyperlink in the message for launching the
27 browser.
- 28 **DSR80-965** The device should support Creation Mode Restricted.
- 29 **DSR80-970** The device should support Creation Mode Warning.
- 30 **DSR80-975** The device should support Creation Mode Free.
- 31 **DSR80-980** The device should support the ability to reduce in size any image taken by
32 the integrated camera to fit into a message of the Core MM Content Domain.
- 33 **DSR80-985** The device should support Re-submission Mode Restricted.
- 34 **DSR80-990** The device should support Re-submission Mode Free.
- 35 **DSR80-995** The device should support Re-submission Mode Warning.
- 36 **DSR80-1000** The device should support Message Template functions.



9. *Java (DSR85)*

- DSR85-1** The device should support Java Virtual Machine (JVM) required to support Java applications.
- DSR85-5** If a Java download URL is configured in the operator configuration set for the selected operator, the Java download client on the device **shall** use this URL.
- DSR85-10** If the operator configuration set indicates that Java download is mapped to a specific 3G Packet Data (3GPD) user profile, the device **shall** use that 3GPD user profile when establishing a data session for the Java download application.
- DSR85-15** If the operator configuration set indicates that Java download is not mapped to a specific 3GPD user profile, the device **shall** use the default 3GPD user profile when establishing a data session for the Java download application.

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10. BREW (DSR90)

- DSR90-1** The BREW client on the device **shall** use the BREW configuration from the operator configuration set for the selected operator. See the BREW related device configuration parameters in 12. *Appendix: Device Configuration for the Operator.*
- DSR90-5** If the operator configuration set indicates that BREW is mapped to a specific 3GPD user profile, the device **shall** use that 3GPD user profile when establishing a data session for BREW Mobile Shop.
- DSR90-10** If the operator configuration set indicates that BREW is not mapped to a specific 3GPD user profile, the device **shall** use the default 3GPD user profile when establishing a data session for BREW Mobile Shop.
- DSR90-15** The device **shall** allow the user to use a BREW icon or menu item to connect to the BREW download server for the operator.
- DSR90-20** The device **shall** perform BREW download based on BREW Download Flag values for the operator.
- DSR90-25** The device **shall** perform BREW authentication based on the BREW Download Authentication Policy value for the operator.
- DSR90-30** The device **shall** use the BREW Carrier ID Subscriber ID for the operator.
- DSR90-35** The device **shall** ensure that the previously downloaded BREW configuration and applications for one operator are not accessible when the device is active with another operator configuration.
- DSR90-40** The device **shall** perform BREW application execution based on the BREW Application Execution Policy configured for the operator.
- DSR90-45** If the subscriber ID changes as a result of R-UIM change while the Carrier ID remains the same, the device **shall** prevent the applications downloaded by the previous subscriber ID from being launched.
- DSR90-50** If the subscriber ID changes as a result of R-UIM change while the Carrier ID remains the same, the device **shall not** delete the applications downloaded by the previous subscriber.
- DSR90-55** If the subscriber ID changes as a result of R-UIM change while the Carrier ID remains the same, the device **shall** allow the user to manually delete the applications associated with the previous subscriber ID if the RUI_M_DEL_OVERRIDE flag in the operator configuration is enabled.
- DSR90-60** The OEM **shall** obtain a single Platform ID for an OMH device that will be used among all OMH operators.

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11. LBS (DSR95)

- DSR95-1** The device **shall** use the LBS configuration from the operator configuration set for the selected operator. See the LBS related device configuration parameters in 12. *Appendix: Device Configuration for the Operator*.
- DSR95-5** If the operator configuration set indicates that LBS is mapped to a specific 3GPD user profile, the device **shall** use that 3GPD user profile when establishing a data session for LBS.
- DSR90-10** If the operator configuration set indicates that LBS is not mapped to a specific 3GPD user profile, the device **shall** use the default 3GPD user profile when establishing a data session for LBS.
- DSR95-15** The device **shall** support Standalone GPS.
- DSR95-20** If the device supports Standalone GPS, it should support XTRA.
- DSR95-25** The device should support V2 User Plane LBS functions.
- DSR95-30** If the device supports V2 User Plane LBS, it **shall** support IS-801-1 LBS User Plane call flows.
- DSR95-35** If the device supports V2 User Plane LBS, it **shall** support Trusted Mode for Mobile-Resident and Network-Initiated LBS sessions, and use the Position Determination Entity (PDE) addresses configured for the operator.
- DSR95-40** If the device supports V2 User Plane LBS, it should support Non-Trusted Mode for Network-Initiated LBS sessions, and use the Mobile Positioning Center (MPC) address configured for the operator.
- DSR95-45** If the device supports V2 User Plane LBS, for Non-Trusted Network-Initiated LBS sessions, the device **shall** support SMS Teleservice 65001 for receiving the LBS trigger from the network.
- DSR95-50** If the device supports V2 User Plane LBS, for Non-Trusted Network-Initiated LBS sessions, the device **shall** support the notification and verification procedure involving the user's response.
- DSR95-55** If the device supports V2 User Plane LBS, the device **shall** support WAP Pull as the trigger from the network to initiate an LBS session.
- DSR95-60** If the device supports V2 User Plane LBS, it **shall** support Dynamic Mode (i.e., falling back to standalone GPS as needed).
- DSR95-65** The device should allow the user to turn on/off all LBS functions.
- DSR95-70** When the device is out of CDMA coverage, the device should continue to support LBS using mechanisms not requiring CDMA service.

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12. Appendix: Device Configuration for the Operator

The following tables contain the parameters that should be configured for the operator on the device or can be configured by user input. Although it is preferred that these parameters be provisioned on the R-UIM to fully utilize R-UIM capabilities, some OMH devices can choose to support any of the following parameters that are not provisioned on the R-UIM.

12.1 Mechanisms

Mechanisms Device Configuration
Service Provider Name
Application Label for MMS
Application Label for WAP Browser
Application Label for BREW Mobile Shop
Application Label for Java Downloader

12.2 Voice

Voice Device Configuration
Feature Codes: <ul style="list-style-type: none">- CD activate- CD de-activate- CFB register new forward-to number- CFB register to voice mail- CFB de-register- CFB activate- CFB de-activate- CFD register new forward-to number- CFD register to voice mail- CFD de-register- CFD activate- CFD de-activate- CFNA register new forward-to num- CFNA register to voice mail- CFNA de-register- CFNA activate- CFNA - de-activate

Voice Device Configuration

- CFU register new forward-to number
- CFU register to voice mail
- CFU de-register
- CFU - activate
- CFU de-activate
- CW activate
- CW de-activate
- CW cancel (temporarily)
- CNIR activate (per-call blocking)
- CNIR de-activate (per-call allowed)
- CC invoke
- CC invoke drop last party
- DND activate
- DND de-activate
- MWN activate alert pip tone
- MWN de-activate alert pip tone
- MWN activate pip tone
- MWN de-activate pip tone
- MWN cancel (temporarily)
- PACA invoke
- VMR invoke
- CNAP activate
- CNAP de-activate
- CNAR activate
- CNAR de-activate
- AC activate
- AC de-activate
- AR activate
- AR de-activate
- USCF register new directory number
- RUAC activate
- RUAC de-activate
- AOC invoke
- COT invoke

12.3 SMS

SMS Device Configuration

SMS Retry Period

SMS Retry Interval

SMS Send on Access

SMS Send on Traffic

SMS Send Standard EMS

SMS Preferred Service Option

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12.4 3GPD

3GPD Device Configuration
One or more Simple IP User Profiles: <ul style="list-style-type: none"> ▪ User Name (NAI) ▪ Password for PAP ▪ Password for CHAP
One or more Mobile IP User Profiles: <ul style="list-style-type: none"> ▪ User Name (NAI) ▪ T_BIT ▪ Home Address ▪ Primary Home Agent ▪ Secondary Home Agent ▪ MN-AAA SPI ▪ MN-HA SPI ▪ MN-AAA Shared Secret ▪ MN-HA Shared Secret
Mapping from applications to Simple IP/Mobile IP User Profiles
3GPD Operation Mode (SIP/MIP/SIP with MIP fallback)
Data Dormant Timer
Mobile IP Retries: <ul style="list-style-type: none"> ▪ MIP Registration Max Retries ▪ MIP Registration First Retry Timeout ▪ MIP Re-registration Threshold
Mobile IP Flags: <ul style="list-style-type: none"> ▪ MIP 2002bis MN-HA Authentication ▪ MIP Pre-Rev 6 handoff optimization ▪ MIP PPP Re-sync during hand-down ▪ MIP Re-registration to extend address lifetime

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12.5 WAP Browser

WAP Browser Device Configuration
One or more WAP Gateway Info sets: <ul style="list-style-type: none"> ▪ Gateway Address ▪ Port Number ▪ HTTP Authentication Type ▪ Proxy username ▪ Proxy Password ▪ Service Type ▪ Home URL

1 **12.6 MMS**

MMS Device Configuration
One or more MMS Connectivity Info sets: <ul style="list-style-type: none">▪ MMS Relay Server▪ WAP Gateway Info (see WAP Gateway Info in WAP Device Configuration)
Max Message Size
MMS Retry Time
MMS Retry Interval
MMSC Timeout

2 **12.7 Java**

Java Device Configuration
Java Download URL

3 **12.8 BREW**

BREW Device Configuration
BREW Carrier ID
BREW A-Key
BREW Download Server
BREW Download Flags: <ul style="list-style-type: none">▪ BREW Use A-Key Flag▪ BREW Use MIN for SID Flag▪ BREW Prepaid Flag▪ BREW No Auto Ack Flag▪ BREW App Encoding Flag▪ BREW Validate All Apps Flag▪ BREW RUIM Delete Override Flag▪ BREW Auto Upgrade Flag▪ BREW Launch when MOD_ACK_DISABLED Is Set Flag
BREW Download Auth Policy
BREW Teleservice ID
BREW Subscriber ID
BREW App Execution Policy

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12.9 LBS

LBS Device Configuration
LBS V2 Configuration Flags: <ul style="list-style-type: none">▪ LBS V2 Allow Sending System Parameter Info Message▪ LBS V2 Allow Seed Position Use▪ LBS V2 Allow Dynamic Mode
LBS V2 PDE: <ul style="list-style-type: none">▪ LBS V2 PDE Address▪ LBS V2 PDE Port Number
LBS V2 MPC: <ul style="list-style-type: none">▪ LBS V2 MPC Address▪ LBS V2 MPC Port Number
XTRA Info: <ul style="list-style-type: none">▪ gpsOneXTRA Download Interval▪ gpsOneXTRA Download Retries▪ gpsOneXTRA Download Retry Interval
XTRA Flags: <ul style="list-style-type: none">▪ Allow gpsOneXTRA▪ Allow gpsOneXTRA automatic download

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13. Appendix: Concatenated PRL Usage

13.1 Overview

[IS683C] defines a newer version of PRL called EPRL (Extended Preferred Roaming List) to support 1xEV-DO AT's system selection and acquisition. It includes 1xEV-DO acquisition records and 1xEV-DO system records, in addition to 1x records.

Concatenated PRL (cPRL) accommodates storage of IS-683A PRLs (legacy format) and IS-683C PRLs (the newer EPRL format) together in the existing EF_{PRL} file on the R-UIM. This solution preserves backward compatibility while accommodating forward compatibility.

Usage by device:

The device (1x only or hybrid) reads the cPRL from the EF_{PRL} in the R-UIM and parses it, as described in Section 13.2 below. The device performs 1x or 1xEV-DO system selection based on the IS-683A or IS-683C PRL in the cPRL.

The OTASP/OTAPA download procedures and SMS-PP download procedure for cPRL are the same as that used for downloading an existing IS-683A PRL.

Usage by network:

If the network is 1xEV-DO capable, it uses the cPRL format to download the cPRL to the devices and R-UIMs for updating the PRL and EPRL information. If the network is not 1xEV-DO capable, it uses the existing IS-683A PRL format to download to the devices and R-UIMs for updating.

The OTASP/OTAPA download procedure and SMS-PP download procedure used by the network for cPRL are the same as those used for downloading a normal PRL.

13.2 cPRL Format and Parsing

Below is the format of cPRL, which is defined as a package with Package Cyclical Redundancy Checking (CRC) at the end after concatenating IS-683A PRL and IS-683C EPRL.

	cPRL Fields	Length (bits)	Comments
PRL: 1x information	PR_LIST_SIZE	16	
	PR_LIST_ID	16	
	PREF_ONLY	1	
	DEF_ROAM_IND	8	
	NUM_ACQ_RECS	9	
	NUM_SYS_RECS	14	
	ACQ_TABLE	Variable	
	SYS_TABLE	Variable	
	RESERVED	0 to 7	
	PR_LIST_CRC	16	CRC of PRL
EPRL: 1x and 1xEV-DO information	PR_LIST_SIZE	16	
	PR_LIST_ID	16	
	CUR_SSPP_P_REV	8	
	PREF_ONLY	1	
	DEF_ROAM_IND	8	
	NUM_ACQ_RECS	9	
	NUM_COMMON_SUBNET_RECS	9	
	NUM_SYS_RECS	14	
	RESERVED	7	
	EXT_ACQ_TABLE	Variable	
	COMMON_SUBNET_TABLE	Variable	
	EXT_SYS_TABLE	Variable	
	RESERVED	As needed	
	PR_LIST_CRC	16	CRC of EPRL
PACKAGE CRC	PACKAGE_CRC	16	CRC for cPRL

- 1 The general steps to parse the cPRL are as follows:
- 2 1. Parse the PRL part, and use PR_LIST_CRC of the PRL to verify its integrity.
 - 3 2. Parse the EPRL part, and use PR_LIST_CRC of the EPRL to verify its integrity.
 - 4 a. If the CRC check fails, it is assumed that the whole data block contains PRL
 - 5 only and has no EPRL in it. The parsing stops here.
 - 6 b. If the CRC check succeeds, the integrity of the whole data block is verified by
 - 7 checking the PACKAGE_CRC.
 - 8 1. If the PACKAGE_CRC check fails, the whole data block is then not valid.
 - 9 2. If the PACKAGE_CRC check succeeds, the whole data block is valid with
 - 10 both PRL and EPRL in it. Parsing stops here.
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14. Terminology

Acronym	Meaning
3GPD	3G Packet Data
AMR NB	Adaptive Multi-Rate Narrow Band
BREW	Binary Runtime Environment for Wireless
CCAT	CDMA Card Application Toolkit
CHAP	Challenge Handshaking Authentication Protocol
CO	Cache Operation
cPRL	Concatenated PRL
CRC	Cyclical Redundancy Checking
DELI	Delivery Context Library for CC/PP and UAProf
DNS	Domain Name Server
DRM	Digital Rights Management
DTMF	Dual Tone Multi Frequency
EPRL	Extended PRL
EPZID	Extended Packet Zone Identifier
ESN	Electronic Serial Number
ESN/MEID	Electronic Serial Number/Mobile Equipment Identifier
EUMID	Expanded UIM Identifier
EVRC-B	•Enhanced Variable Rate Codec B
FTAP	Forward Test Application Protocol
HAT	Hysteresis Activation Timer
HRPD	High-Rate Packet Data
IP	Internet Protocol
JVM	Java Virtual Machine
MEID	Location Based Services

<i>Acronym</i>	<i>Meaning</i>
MEID	Mobile Equipment Identifier
MMS	Multimedia Messaging Service
MMSC	Multimedia Messaging Service Center
MN-AAA	Mobile Node Authentication, Authorization, and Accounting
MN-HA	Mobile Node Home Agent
MO	Mobile Originated
MPC	Mobile Positioning Center
MT	Mobile Terminated
NAI	Network Address Identifier
OEM	Original Equipment Manufacturer
OMA	Open Mobile Alliance
OMH	Open Market Handsets
OTA	Over-the-Air
OTAPA	Over-the-Air Parameter Administration
OTASP	Over-the-Air Service Provisioning
PAP	Password Authentication Protocol
PDE	Position Determination Entity
PDU	Protocol Data Unit
pESN	Pseudo Electronic Serial Number
PKI	Public Key Infrastructure
PPP	Point-to-Point Protocol
PRL	Preferred Roaming List
QCIP	Quarter Common Intermediate Format (176 pixels x 144 pixels)
RTAP	Reverse Test Application Protocol
R-UIM	Removable User Identity Module
SI	Service Indication
SIR	Session Initiation Request
SL	Service Loading
SMIL	Synchronized Multimedia Integration Language
SMS	Short Message Service

<i>Acronym</i>	<i>Meaning</i>
SMS-PP	Short Message Service Point to Point
SSD	Shared Secret Data
SSPR	System Selection for Preferred Roaming
TLS	Transport Layer Security
UAProf	User Agent Profile
UI	User Interface
UIMID	UIM Identifier
UTK	UIM Toolkit
VPM	Voice Privacy Mask
WAP	Wireless Application Protocol
WBMP	Wireless Bitmap
WML	Wireless Markup Language
WTA	Wireless Telephony Application
xHTML	eXtensible Hypertext Markup Language

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