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CDMA Card Application Toolkit (CCAT)

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FOREWORD

1
2
3 This document contains the requirements for CDMA Card Application Toolkit (CCAT). It
4 extends the Card Application Toolkit [1]¹ to enable operation in [4/5/6]. CCAT is a set of
5 commands and procedures for use during the network operation phase of CDMA, in addition
6 to those defined in [13]. Specifying the interface is to ensure interoperability between an R-UIM
7 and an ME independently of the respective manufacturers and operators. CCAT will allow
8 Service Providers to offer unique services to their subscribers by placing applications they have
9 designed (or third party applications) on the R-UIM that would function on any particular
10 manufacture's ME that supports the Toolkit features.

11 These requirements are expressed as additions to current release of [1]. The composite CCAT
12 specification is comprised of [1] and this ancillary document.

13 As stated in [1], the UICC refers to an ICC that supports a Network Access Application. All
14 references to UICC in [1] shall be interpreted as a card holding a network access application,
15 e.g. an R-UIM, in this document. The term R-UIM is used in the present document in a generic
16 way to specifically refer to an ICC holding a CDMA network access application.

¹ [] indicates the corresponding document to be cross referenced

REFERENCES

The following standards are referenced in this text. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. ANSI and TIA maintain registers of currently valid national standards published by them.

1. ETSI TS 102 223, *Smart Cards; Card Application Toolkit*, Release 6.
2. ANSI/INCITS 4-1986(R 1997), *Information Processing – Coded Character Sets – 7-bit American National Standard Code for Information Interchange (7-bit ASCII)*, 1986.
3. C.S0015-B, *Short Message Service (SMS) for Wideband Spread Spectrum Systems- Release B*, 2004.
4. IETF RFC 1962, *The PPP Compression Control Protocol (CCP)*, June 1996.
5. 3GPP TS 22.001, *Principles of circuit telecommunication services supported by a Public Land Mobile Network (PLMN)*.
6. ITU-T T.50, *International reference alphabet (IRA) (Formerly International Alphabet n5 or IA5) information technology – 7bit Coded Characters Set for Information Interchange* 1992.
7. ETSI TS 102 221, *Smart Cards; UICC – ME Interface; Physical and Logical Characteristics*, Release 6.
8. ANSI/TIA/EIA-41-E, *Cellular Radio Telecommunication Intersystem Operations*.
9. Reserved.
10. ITU-T Recommendation E.212, *Identification Plan for Land Mobile Stations*, 1988.
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12. ETSI TS 122.016, *International Mobile Equipment Identities (IMEI)*, 3GPP TS 22.016 Release6.
13. C.S0023-B, *Removable User Identity Module for Spread Spectrum Systems- Release B*, 2004.
14. C.S0017-012-A, *Data Service Options for Spread Spectrum Systems: Service Option 33 and 66*, 2004.
15. 3GPP2 C.S0074-0, UICC-Terminal interface Physical and Logical characteristics for cdma2000 Spread Spectrum Systems, December 2005

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16. 3GPP2 C.S0001-D, *Introduction to cdma2000 Standards for Spread Spectrum Systems*, March 2004.

- 1 17. 3GPP2 C.S0002-D, *Physical Layer Standard for cdma2000 Spread Spectrum Systems*,
2 March 2004.
- 3 18. 3GPP2 C.S0003-D, *Medium Access Control (MAC) Standard for cdma2000 Spread*
4 *Spectrum Systems*, March 2004.
- 5 19. 3GPP2 C.S0004-D, *Signaling Link Access Control (LAC) Standard for cdma2000 Spread*
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- 7 20. 3GPP2 C.S0005-D, *Upper Layer (Layer 3) Signaling Standard for cdma2000 Spread*
8 *Spectrum Systems*, March 2004.
- 9 21. 3GPP2 C.S0006-D, *Analog Signaling Standard for cdma2000 Spread Spectrum Systems*,
10 March 2004.
- 11 22. TIA/EIA/IS-95-B, *Mobile Station – Base Station Compatibility Standard for Wideband*
12 *Spread Spectrum Cellular Standards*, December 1998.
- 13 23. C.R1001-D, *Administration of Parameter Value Assignments for cdma2000 Spread*
14 *Spectrum Standards- release D*, 2003.

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2 **1 GENERAL**3 **1.1 Terms**

4 **Base Station.** A fixed station used for communicating with mobile stations. Depending upon
5 the context, the term base station may refer to a cell, a sector within a cell, a MSC, an OTAF or
6 other part of the wireless system. (See also MSC and OTAF).

7 **Card Application Toolkit.** A set of generic commands and procedures for use by the ICC,
8 irrespective of the access technology of the network.

9 **CAT.** See Card Application Toolkit.

10 **CCAT.** See CDMA Card Application Toolkit.

11 **CDMA Card Application Toolkit.** A set of commands and procedures for use during the
12 network operation phase of CDMA.

13 **Global Emergency Call Indicator.** Used by the Mobile Station to identify an Emergency Call
14 as specified in [20].

15 **ICC.** Integrated Circuit(s) Card.

16 **IMEI.** International Mobile Equipment Identity.

17 **IMSI.** See International Mobile Subscriber Identity.

18 **International Mobile Equipment Identity.** A method of identifying a mobile equipment in the
19 land mobile service as specified in [10].

20 **International Mobile Subscriber Identity.** A method of identifying a subscriber in the land
21 mobile service as specified in [12].

22 **M/O.** Mandatory / Optional.

23 **MCC.** Mobile Country Code.

24 **ME.** Mobile Equipment.

25 **MEID.** Mobile Equipment Identifier.

26 **Min.** Minimum.

27 **MNC.** Mobile Network Code.

28 **MSC.** Mobile Switching Center.

29 **Network Identification.** A number that uniquely identifies a network within a wireless system.
30 See also System Identification.

31 **NID.** See Network Identification.

32 **NITZ.** Network Identity and Time Zone.

33 **OTAF.** See Over-the-Air Provisioning Function.

34 **OTASP.** See Over-the-Air Service Provisioning.

- 1 **Over-the-Air Provisioning Function.** A configuration of network equipment that controls
2 OTASP functionality messaging protocols.
- 3 **Over-the-Air Service Provisioning.** A process of provisioning mobile station operational
4 parameters over the air interface.
- 5 **RFU.** Reserved for Future Use.
- 6 **R-UIM.** Removable User Identity Module.
- 7 **SID.** See System Identification.
- 8 **Simple TLV.** A data object that consists of a tag of length one byte, a length indicator, which
9 gives the number of bytes in the value field and a value part of variable length. (Called
10 Comprehension TLV in [1]).
- 11 **SMS.** Short Message Service.
- 12 **SMS-MO.** Short Message Service Mobile Originated.
- 13 **SMS-MT.** Short Message Service Mobile Terminated.
- 14 **SW1/SW2.** Status Word 1/Status Word 2.
- 15 **System Identification.** A number uniquely identifying a wireless system.
- 16 **Terminal Response.** This function is used to transfer from the ME to the UICC the response to
17 a previously fetched proactive command.
- 18 **TLV.** Tag Length Value.
- 19 **TPDU.** See Transfer Protocol Data Unit.
- 20 **Transfer Protocol Data Unit.** Command and response format used for communication
21 between the ME and R-UIM.
- 22 **UICC.** Within the scope of this document, an ICC supporting at least one network access
23 application, e.g. an R-UIM.
- 24

1 **2 SCOPE**

2 The present document defines the interface between the R-UIM and the Mobile Equipment
3 (ME), and mandatory ME procedures, specifically for CDMA Card Application Toolkit (CCAT).

4 As stated in [1], the UICC refers to an ICC that supports a Network Access Application. All
5 references to UICC in [1] shall be interpreted as a card holding a network access application,
6 e.g. an R-UIM, in this document. In the present document, the term R-UIM is used in a generic
7 way to specifically refer to an ICC holding a CDMA network access application.

8 The present document refers in its majority to [1], which describes the generic aspects of
9 application toolkits within the UICC. CCAT is a set of commands and procedures for use
10 during the network operation phase of CDMA, in addition to those defined in [13].

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11 Specifying the interface is needed to ensure interoperability between an R-UIM and an ME
12 independently of the respective manufacturers and operators.

13 The present document defines for CDMA technology:

- 14 - The commands;
- 15 - The application protocol;
- 16 - The mandatory requirements on the R-UIM and ME for each procedure.

17 CCAT will allow Service Providers to offer unique services to their subscribers by placing
18 applications they have designed (or third party applications) on the R-UIM that would function
19 on any particular manufacturer's ME that supports the Toolkit features.

20 These requirements are expressed as additions to current release of [1]. The composite CCAT
21 specification is comprised of [1] and this ancillary document.

22 The present document does not specify any aspects related to the administrative management
23 phase. Any internal technical realizations of either the R-UIM or the ME are only specified
24 where these reflect over the interface. The present document does not specify any of the
25 security algorithms, which may be used.

26 Within the context of the present document, the term "terminal" used in [1] refers to the Mobile
27 Equipment (ME).

28 Within the context of the present document, the term "NAA" used in [1] refers to the CDMA
29 Card Application Toolkit (CCAT).

1

2 3 RESERVED**3 4 OVERVIEW OF CCAT**

4 The CCAT provides mechanisms, which allow applications, existing in the R-UIM, to interact
5 and operate with any ME, which supports the specific mechanism(s), required by the
6 application.

7 The following mechanisms have been defined. These mechanisms are dependent upon the
8 commands and protocols relevant to CCAT in [7].

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9 4.1 Profile Download

10 See [1].

11 4.2 Proactive UICC

12 A proactive R-UIM provides a mechanism whereby the R-UIM can initiate actions to be taken
13 by the ME.

14 4.3 Data download to UICC

15 See [1].

16 4.4 Menu selection

17 See [1].

18 4.5 Call control by network access application

19 See [1].

20 4.6 Reserved**21 4.7 Event download**

22 See [1].

23 4.8 Security

24 See [1].

25 4.9 Multiple card

26 See [1].

27 4.10 Timer Expiration

28 See [1].

1 **4.11 Bearer Independent Protocol**

2 See [1].

3 **4.12 Description of the access technology indicator mechanism**

4 See [1].

5 **4.13 Tag allocation guidelines**

6 See [1].

7 **5 PROFILE DOWNLOAD**

8 **5.1 Procedure**

9 The profile download instruction is sent by the ME to the R-UIM as part of the R-UIM
 10 initialization procedure. This procedure is specified as TERMINAL PROFILE in [7]. The profile
 11 sent by the ME shall state the facilities relevant to CCAT that are supported by the ME.

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12 See additional details for TERMINAL PROFILE in [1].

13 **5.2 Structure and coding of TERMINAL PROFILE**

14 Direction: ME to R-UIM.

15 The command header is the one specified for TERMINAL PROFILE in [7].

16 Command parameters/data:

Description	Clause	M/O/C	Length
Profile	-	M	lgth

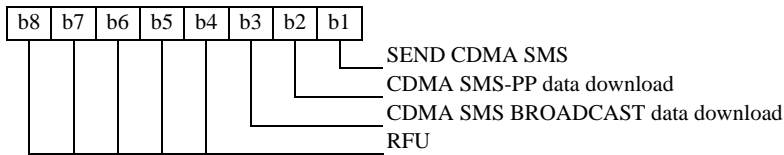
17 Profile:

- 18 - Contents:
 - 19 • The list of CCAT facilities that are supported by the ME.
- 20 - Coding (1 bit is used to code each facility):
 - 21 • bit = 1: facility supported by ME.
 - 22 • bit = 0: facility not supported by ME.

23 NOTE: several bits may need to be set to 1 for the support of the same facility. This is because of backward
 24 compatibility with SAT: several options existed in SAT for a given facility, and they are mandatory in
 25 CCAT when this facility is supported.

26 This section lists only CDMA specific bytes (e.g. Twentieth Byte) of the TERMINAL PROFILE.
 27 All other bytes of the TERMINAL PROFILE can be found in [1].

28
 29 Twentieth byte (Proactive R-UIM):



1 Response parameters/data:

2 - None.

3 **5.3 Definition of display parameters in Profile download**

4 See [1].

5 **6 PROACTIVE UICC**

6 **6.1 Introduction**

7 See [1].

8 **6.2 Identification of ME support**

9 See [1].

10 **6.3 General procedure**

11 See [1].

12 **6.4 Proactive UICC commands and procedures**

13 6.4.1 DISPLAY TEXT

14 See [1].

15 6.4.2 GET INKEY

16 See [1].

17 6.4.3 GET INPUT

18 See [1].

19 6.4.4 MORE TIME

20 See [1].

21 6.4.5 PLAY TONE

22 See [1].

23 NOTE: Some supervisory tones are optional for mobile equipment (see [5]).

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24 6.4.6 POLL INTERVAL

25 See [1].

1 6.4.7 REFRESH

2 See [1].

3 6.4.8 SET UP MENU

4 See [1].

5 6.4.9 SELECT ITEM

6 See [1].

7 6.4.10 SEND SHORT MESSAGE

8 Two types are defined:

- 9 - A short message to be sent to the network in an SMS-SUBMIT message where the
10 user data can be passed transparently;
- 11 - A short message to be sent to the network in an SMS-SUBMIT message where the
12 text needs to be packed by the ME.

13 Where packing by the ME is not required, the CDMA SMS TPDU shall be coded as defined in
14 [3]. The text length given by the R-UIM shall state the number of characters in the text string.
15 The command details shall indicate, "Packing is not required".

16 Where packing by the ME is required, the R-UIM shall use the "7-bit ASCII" as defined in [2],
17 "IA5" as defined in [6] or "GSM 7-bit default alphabet" packed into 8-bit octets as defined in
18 [11]. The text length given by the R-UIM shall state the number of characters in the text string.
19 The ME shall pack the text string before submitting the message to the network. The command
20 details shall indicate, "Packing is required".

21 Optionally, the R-UIM may include in this command an alpha identifier. The use of this alpha
22 identifier by the ME is described below.

- 23 - If the alpha identifier is provided by the R-UIM and is not a null data object, the ME
24 shall use it to inform the user. This is also an indication that the ME should not
25 give any other information to the user on the fact that the ME is sending a short
26 message. If an icon is provided by the R-UIM, the icon indicated in the command
27 may be used by the ME to inform the user, in addition to or instead of the alpha
28 identifier, as indicated with the icon qualifier.
- 29 - If the alpha identifier is provided by the R-UIM and is a null data object (i.e. length
30 = '00' and no value part), this is an indication that the ME should not give any
31 information to the user on the fact that the ME is sending a short message.
- 32 - If the alpha identifier is not provided by the R-UIM, the ME may give information to
33 the user concerning what is happening.

34 If the ME is capable of SMS-MO, then it shall send the data as a Short Message TPDU to the
35 destination address. The ME shall give the result to the R-UIM using TERMINAL RESPONSE
36 (indicating successful or unsuccessful transmission of the Short Message) after receiving an
37 SMS Acknowledgement Message from the network. If an alpha identifier was provided by the

1 R-UIM, the ME should not give any information to the user at the reception of SMS
2 Acknowledgement Message.

3 If the network unsuccessfully receives the Short Message TPDU, the ME shall inform the R-
4 UIM using TERMINAL RESPONSE (network currently unable to process command). If a null
5 alpha identifier was provided by the R-UIM, the ME should not give any information to the user
6 at the unsuccessful network reception.

7 6.4.11 Reserved

8 6.4.12 Reserved

9 6.4.13 SET UP CALL

10 This command is issued by the R-UIM to request a call set up. The procedure is defined in [1],
11 except when stated otherwise in the present document.

12 The R-UIM may request the use of an automatic redial mechanism according to [5].

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14 It is possible for the R-UIM to request the ME to set up an emergency call by supplying an
15 Emergency Call object (see 8.77). Upon receiving this Emergency Call object, the ME shall set
16 the global emergency call indicator if the indicator is supported by the ME.

17 If the command from the R-UIM card contains an Emergency Call object, then the ME shall
18 follow the procedure below:

- 19 - if the R-UIM supplies an Address object with a data, this shall result in an emergency
20 call if possible using the number supplied by the R-UIM card;
- 21 - if the R-UIM supplies a null data object (i.e. length = '00' and no value part) as the
22 Address object, this shall result in an emergency call. If a number is needed for setting
23 up the emergency call, then the first entry in the EF_{ECC} list shall be used. If the EF_{ECC} list
24 is empty then the ME informs the R-UIM using TERMINAL RESPONSE (Command
25 beyond ME's capabilities). The operation is aborted.
- 26 - if the UICC supplies a number stored in EF_{ECC}, this shall not result in setting the global
27 emergency call indicator even if the indicator is supported by the ME.

28 If the R-UIM supplies "112" as number without an Emergency Call object, this shall not result
29 an emergency call;

30 If the R-UIM supplies a number stored in EF_{ECC} without an Emergency Call object, this shall
31 not result in an emergency call;

32 Upon receiving this command, the ME shall decide if it is able to execute the command. One
33 example is given below, but the list is not exhaustive:

- 34 - if the command is rejected because the ME is busy on another call, the ME informs the
35 R-UIM using TERMINAL RESPONSE (ME unable to process command - currently busy
36 on call);

37 6.4.14 POLLING OFF

38 See [1].

1 6.4.15 PROVIDE LOCAL INFORMATION

2 This command requests the ME to send current local information to the R-UIM. At present,
3 this information is restricted to:

- 4 - Location information: the mobile country code (MCC), 11th and 12th digits of IMSI
5 (IMSI_11_12), system identification (SID), network identification (NID), base station
6 identification (BASE_ID), longitude (BASE_LONG) and latitude (BASE_LAT) of the
7 current base station;
- 8 - The ESN or MEID of the ME;
- 9 - The current date, time and time zone;
- 10 - The current ME language setting;
- 11 - The current access technology.

12 The ME shall return the requested local information, as stored in the ME, within a TERMINAL
13 RESPONSE. Note, this information may not reflect the BASE_ID, BASE_LONG and BASE_LAT
14 of the serving base station.

- 15 - When location information has been requested and no service is currently available,
16 the ME shall return the data requested in the TERMINAL RESPONSE with the
17 result "ME currently unable to process command - no service".
- 18 - When location information has been requested and the ME is on limited service (e.g.
19 emergency calls only), the ME shall return the data requested in the TERMINAL
20 RESPONSE with the result "Limited Service".

21 The ME shall return the current date and time as set by the user. If available, the ME shall
22 also return the time zone from the network. If the time zone information is not available, the
23 ME shall return 'FF' for this element.

24 6.4.16 SET UP EVENT LIST

25 See [1].

26 6.4.17 PERFORM CARD APDU

27 See [1].

28 6.4.18 POWER OFF CARD

29 See [1].

30 6.4.19 POWER ON CARD

31 See [1].

32 6.4.20 GET READER STATUS

33 See [1].

1 6.4.21 TIMER MANAGEMENT

2 See [1].

3 6.4.22 SET UP IDLE MODE TEXT

4 See [1].

5 6.4.23 RUN AT COMMAND

6 See [1].

7 6.4.24 SEND DTMF

8 See [1].

9 6.4.25 LANGUAGE NOTIFICATION

10 See [1].

11 6.4.26 LAUNCH BROWSER

12 See [1].

13 6.4.27 OPEN CHANNEL

14 See [1].

15 6.4.28 CLOSE CHANNEL

16 See [1].

17 6.4.29 RECEIVE DATA

18 See [1].

19 6.4.30 SEND DATA

20 See [1].

21 6.4.31 GET CHANNEL STATUS

22 See [1].

23 6.4.32 SERVICE SEARCH

24 See [1].

25 6.4.33 GET SERVICE INFORMATION

26 See [1].

27 6.4.34 DECLARE SERVICE

28 See [1].

1 **6.5 Common elements in proactive UICC commands**

2 See [1].

3 **6.6 Structure of proactive UICC commands**

4 The general structure of proactive R-UIM commands using TLV objects is described in annex
5 C.

6 6.6.1 DISPLAY TEXT

7 See [1].

8 6.6.2 GET INKEY

9 See [1].

10 6.6.3 GET INPUT

11 See [1].

12 6.6.4 MORE TIME

13 See [1].

14 6.6.5 PLAY TONE

15 See [1].

16 6.6.6 POLL INTERVAL

17 See [1].

18 6.6.7 SET-UP MENU

19 See [1].

20 6.6.8 SELECT ITEM

21 See [1].

22 6.6.9 SEND SHORT MESSAGE

23 See [1].

24 6.6.10 Reserved

25 6.6.11 Reserved

26 6.6.12 SET UP CALL

27

Description	Clause	M/O/C	Min	Length
Proactive UICC command Tag	9.2	M	Y	1
Length (A+B+C+D+E+F+G+H+I+J+K+L+M+N)	-	M	Y	1 or 2
Command details	8.6	M	Y	A
Device identities	8.7	M	Y	B
Alpha identifier (user confirmation phase)	8.2	O	N	C
Address	8.1	M	Y	D
Capability configuration parameters	8.4	O	N	E
Subaddress	8.3	O	N	F
Duration	8.8	O	N	G
Icon identifier (user confirmation phase)	8.31	O	N	H
Alpha identifier (call set up phase)	8.2	O	N	I
Icon identifier (call set up phase)	8.31	O	N	J
Text Attribute (user confirmation phase)	8.72	C	N	K
Text Attribute (call set up phase)	8.72	C	N	L
Emergency Call	8.74	O	N	N

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1 If the capability configuration parameters are not present, the ME shall assume the call is a
2 speech call.

3 If the subaddress is not present, the ME shall not provide a called party subaddress to the
4 network.

5 If the duration is not present, the R-UIM imposes no restrictions on the ME of the maximum
6 duration of redials.

7 The Text Attribute (user confirmation phase) applies to the Alpha Identifier (user confirmation
8 phase). The Text Attribute (call set up phase) applies to the Alpha identifier (call set up call
9 phase). One Text Attribute may be present, only if at least one Alpha Identifier is present. Both
10 Text Attributes may be present only if both Alpha Identifiers are present. If only one Text
11 Attribute data object is present, it shall apply to the first or unique alpha identifier present in
12 the command.

13 If the R-UIM is requesting an emergency call set up, then the Emergency Call shall be
14 provided.

15 6.6.13 REFRESH

16 See [1].

17 6.6.14 POLLING OFF

18 See [1].

19 6.6.15 PROVIDE LOCAL INFORMATION

20 See [1].

21 6.6.16 SET UP EVENT LIST

22 See [1].

1 6.6.17 PERFORM CARD APDU

2 See [1].

3 6.6.18 POWER OFF CARD

4 See [1].

5 6.6.19 POWER ON CARD

6 See [1].

7 6.6.20 GET READER STATUS

8 See [1].

9 6.6.21 TIMER MANAGEMENT

10 See [1].

11 6.6.22 SET UP IDLE MODE TEXT

12 See [1].

13 6.6.23 RUN AT COMMAND

14 See [1].

15 6.6.24 SEND DTMF COMMAND

16 See [1].

17 6.6.25 LANGUAGE NOTIFICATION

18 See [1].

19 6.6.26 LAUNCH BROWSER

20 See [1].

21 6.6.27 OPEN CHANNEL

22 See [1].

23 6.6.28 CLOSE CHANNEL

24 See [1].

25 6.6.29 RECEIVE DATA

26 See [1].

27 6.6.30 SEND DATA

28 See [1].

1 6.6.31 GET CHANNEL STATUS

2 See [1].

3 6.6.32 SERVICE SEARCH

4 See [1].

5 6.6.33 GET SERVICE INFORMATION

6 See [1].

7 6.6.34 DECLARE SERVICE

8 See [1].

9 **6.7 Command results**

10 Once the ME has made its attempt to execute a proactive command from the R-UIM, the ME
11 shall inform the R-UIM of the success or otherwise of that command, by using TERMINAL
12 RESPONSE.

13 This procedure is defined in [1].

14 **6.8 Structure of TERMINAL RESPONSE**

15 See [1].

16 6.8.1 Command details

17 See [1].

18 6.8.2 Device identities

19 See [1].

20 6.8.3 Result

21 See [1].

22 6.8.4 Duration

23 See [1].

24 6.8.5 Text string

25 See [1].

26 6.8.6 Item identifier

27 See [1].

28 6.8.7 Local information

29 See [1].

1 6.8.8 Call control requested action

2 See [1].

3 6.8.9 Result data object 2

4 See [1].

5 6.8.10 Card reader status

6 See [1].

7 6.8.11 Card ATR

8 See [1].

9 6.8.12 R-APDU

10 See [1].

11 6.8.13 Timer identifier

12 See [1].

13 6.8.14 Timer value

14 See [1].

15 6.8.15 AT Response

16 See [1].

17 6.8.16 Text string 2

18 See [1].

19 6.8.17 Channel data

20 See [1].

21 6.8.18 Channel status

22 See [1].

23 6.8.19 Channel data length

24 See [1].

25 6.8.20 Bearer description

26 See [1].

27 6.8.21 Buffer size

28 See [1].

1 6.8.22 Total Display Duration

2 See [1].

3 6.8.23 Service Availability

4 See [1].

5 6.8.24 Service Record

6 See [1].

7 **6.9 Proactive UICC session and ME display interaction**

8 See [1].

9 **6.10 Handling of unknown, unforeseen and erroneous messages**

10 See [1].

11 **6.11 Proactive commands versus possible terminal response**

12 See [1].

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7 ENVELOPE COMMANDS

7.1 Data Download to R-UIM

7.1.1 SMS-PP data download

7.1.1.1 Procedure

If the service “data download via SMS-PP” is allocated and activated in the CDMA Service Table, then the ME shall follow the procedure below:

- When the ME receives a Short Message with:

Teleservice Identifier = Card Application Toolkit Protocol Teleservice (CATPT)

then the ME shall pass the message transparently to the R-UIM using the ENVELOPE (SMS-PP DATA DOWNLOAD) command as defined below:

- The ME shall not display the message, or alert the user of a short message waiting.
- The ME shall wait for an acknowledgement from the R-UIM.
- If the R-UIM responds with ‘90 00’, the ME shall acknowledge the receipt of the short message to the network using an SMS User Acknowledgement message.
- If the R-UIM responds with ‘93 00’, the ME shall either retry the command or send back an SMS User Acknowledgement message to the network according to [3] with the User Response Code value indicating “Destination busy” as defined in the SMS_CauseCode table of [8].
- If the R-UIM responds with ‘9F XX’, the ME shall use the GET RESPONSE command to retrieve the response data. The ME shall include the response data received from the R-UIM in the User Data field of the SMS User Acknowledgement message that it will send back to the network according to [3].
- If the ME has indicated in ME PROFILE that it supports the status word ‘9E XX’ and if the R-UIM responds with ‘9E XX’, the ME shall use the GET RESPONSE command to get the response data. The ME shall include the response data received from the R-UIM in the User Data field of the SMS User Acknowledgement message that it will send back to the network according to [3]. The value of the User Response Code of the SMS User Acknowledgement Message shall be “Other Terminal problem” as defined in the SMS_CauseCode table of [8].
- If the service “data download via SMS-PP” is neither allocated nor activated in the CDMA Service Table and the ME receives a SMS Point-to-Point Message with Teleservice_ID = CATPT, then the ME shall store the message in EF_{SMS} under DF_{CDMA}.

MEs not supporting CCAT shall store SMS Point-to-Point Messages in EF_{SMS} under DF_{CDMA}, as if they were normal short messages.

1 7.1.1.2 Structure of ENVELOPE (SMS-PP DOWNLOAD)

2 Direction: ME to R-UIM

3 The command header is specified in [1].

4 Command parameters/data.

5

Description	Section	M/O	Min	Length
SMS-PP DATA DOWNLOAD tag	9.1 of [1]	M	Y	1
Length (A+B)	-	M	Y	1 or 2
Device identities	8.7 of [1]	M	Y	A
CDMA SMS TPDU	8.71	M	Y	B

6 - Device identities: the ME shall set the device identities to:

7 • Source: Network;

8 • Destination: R-UIM.

9 Response parameters/data.

10 It is permissible for the R-UIM not to provide response data. If the R-UIM responds with '90 00'
 11 then no response parameter shall be available, otherwise the R-UIM shall respond with '9F XX'
 12 or '9E XX' and the following data is returned:

13

Byte(s)	Description	Length
1-X (X≤128)	R-UIM Acknowledgement	X

14

15 7.1.2 Cell Broadcast data download

16

17 If the service "data download via SMS CB" is allocated and activated in the CDMA Service
 18 Table, then the ME shall follow the procedure below:

19 - When the ME receives a Short Message with:

20 Teleservice Identifier = Card Application Toolkit Protocol Teleservice (CATPT)

21

22 Procedure

23 If the service "data download via Broadcast SMS" is allocated and activated in the CDMA
 24 Service Table, then the ME shall follow the procedure below:

- 1 - When the ME receives a new Broadcast SMS message, the ME shall check the
- 2 Service Category of the Broadcast SMS message.
- 3 - If the Service Category is CATPT, the ME shall pass the message transparently to
- 4 the R-UIM using the ENVELOPE (BROADCAST SMS DATA DOWNLOAD) command
- 5 defined below.
- 6 - The ME shall not display the message, or alert the user of a short message waiting.
- 7 - If the Service Category is not CATPT, then the ME shall determine if the message
- 8 should be displayed, by following the procedures in [3].

9 The ME shall identify new Broadcast SMS messages by their message identifier and service
10 category.

11 Structure of ENVELOPE (CELL BROADCAST DOWNLOAD)

12 Direction: ME to R-UIM.

13 The command header is specified in [1].

14 Command parameters/data:

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Description	Section	M/O	Min	Length
BROADCAST SMS DATA DOWNLOAD tag	9.1 of [1]	M	Y	1
Length (A+B)	-	M	Y	1 or 2
Device identities	8.7 of [1]	M	Y	A
CDMA SMS TPDU	8.71	M	Y	B

- 16 - Device identities: the ME shall set the device identities to:
- 17 • source: Network;
- 18 • destination: UICC.

19 Response parameters/data: None for this type of ENVELOPE command.

20 **7.2 Menu Selection**

21 See [1].

22 **7.3 Call Control**

23 7.3.1 Call Control by R-UIM

24 7.3.1.1 Procedure for mobile originated calls

25 If the service "call control" is available in the "Service Table", then the ME shall follow
26 the procedure described in [1] with the additional rules listed here:

- If the user dials "112" or an emergency call code stored in EF_{ECC} or in the ME, the ME shall set the global emergency call indicator to '1' if supported, instead of passing the call set-up details to the UICC;
- If the R-UIM supplies "112" as number without an Emergency Call object, this shall not result an emergency call;
- If the R-UIM supplies a number stored in EF_{ECC} without an Emergency Call object, this shall not result in an emergency call;
- If the response from the R-UIM card contains an Emergency Call object, then the ME shall follow the procedure below:
 - if the R-UIM supplies an Address object with data, this shall result in an emergency call if possible using the number supplied by the R-UIM card;
 - if the R-UIM supplies a null data object (i.e. length = '00' and no value part) as the Address object, this shall result in an emergency call. If a number is needed for setting up the emergency call, then the first entry in the EF_{ECC} list shall be used. If the EF_{ECC} list is empty then the ME shall not perform the call set-up, and the operation is aborted.

In the case where the initial call set-up request results from a proactive command SET UP CALL:

- If the R-UIM supplies an Emergency Call object inside the SET UP CALL proactive command, then the ME shall set up an emergency call instead of passing the call set-up details to the R-UIM (the ME shall set the global emergency call indicator if the indicator is supported by the ME);
- If the response from the R-UIM card contains an Emergency Call object, then the ME shall follow the procedure below:
 - if the R-UIM supplies an Address object with data, this shall result in an emergency call if possible using the number supplied by the R-UIM card;
 - if the R-UIM supplies a null data object (i.e. length = '00' and no value part) as the Address object, this shall result in an emergency call. If a number is needed for setting up the emergency call, then the first entry in the EF_{ECC} list shall be used. If the EF_{ECC} list is empty then the ME informs the R-UIM using TERMINAL RESPONSE (Command beyond ME's capabilities). The operation is aborted.

7.3.1.2 Reserved

7.3.1.3 Indication to be given to the user

_____ See [1]

7.3.1.4 Interaction with Fixed Dialling Number (FDN)

_____ See [1]

7.3.1.5 Support of Barred Dialling Number (BDN) service

_____ See [1]

7.3.1.6 Structure of ENVELOPE (CALL CONTROL)

1 Direction: ME to UICC.

2 The command header is specified in [15].

3 Command parameters/data: See [1].

4 Response parameters/data:

5 It is permissible for the R-UIM to provide no response data, by responding with
 6 SW1/SW2 = '90 00'. If the R-UIM does not provide any response data, then this shall
 7 have the same meaning as "allowed, no modification".

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<u>Description</u>	<u>Clause</u>	<u>M/O/C</u>	<u>Min</u>	<u>Length</u>
<u>Call control result</u>	<u>-</u>	<u>M</u>	<u>Y</u>	<u>1</u>
<u>Length (A+B+C+D+E+F+G)</u>	<u>-</u>	<u>M</u>	<u>Y</u>	<u>1 or 2</u>
<u>Address</u>	<u>8.1</u>	<u>O</u>	<u>N</u>	<u>A</u>
<u>Capability configuration parameters 1</u>	<u>8.4</u>	<u>O</u>	<u>N</u>	<u>B</u>
<u>Subaddress</u>	<u>8.3</u>	<u>O</u>	<u>N</u>	<u>C</u>
<u>Alpha identifier</u>	<u>8.2</u>	<u>O</u>	<u>N</u>	<u>D</u>
<u>BC repeat indicator</u>	<u>8.42</u>	<u>C</u>	<u>N</u>	<u>E</u>
<u>Capability configuration parameters 2</u>	<u>8.4</u>	<u>O</u>	<u>N</u>	<u>F</u>
<u>Emergency Call</u>	<u>8.74</u>	<u>O</u>	<u>N</u>	<u>G</u>

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10 **7.4 Timer Expiration**

11 See [1].

12 **7.5 Event download**

13

14 See [1].

15 Regarding all the call events, the following equivalences shall apply:

16 - _____ for MT Call Event, the Transaction Identifier contains the CON REF when the
 17 call control instance is instantiated in the message that triggers MT call setup as
 18 defined in [20] (possible message: Service Connect Message, General Handoff Direction
 19 Message, Universal Handoff Direction Message or Call Assignment Message);

20 - _____ for Call Connected Event, the Transaction Identifier contains the CON REF in
 21 the Connected Order message that triggers the call connection as defined in [20]
 22 (possible message: Service Connect Message, General Handoff Direction Message,
 23 Universal Handoff Direction Message or Call Assignment Message)].

24 - _____ for Call Disconnected Event, the Transaction Identifier contains a list of all
 25 CON REFS that refer to the calls being disconnected whose call control instances are
 26 terminated.

27 Where events occur and the UICC responds with '93 00', the ME shall retry to deliver
 28 the event download messages to the UICC.

1 8 SIMPLE-TLV DATA OBJECTS

2 The coding of the TLV objects is as described in [1], except when stated otherwise in the
3 present document.

4 8.1 Address

5 See [1].

6 8.2 Alpha identifier

7 See [1].

8 8.3 Sub-Address

9 See [1].

10 8.4 Capability Configuration Parameters

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Byte(s)	Description	Length
1	Capability configuration parameters tag	1
2 to (Y-1)+2	Length (X)	Y
(Y-1)+3 to (Y-1)+X+2	CDMA Capability configuration parameters	X

11

12 CDMA Capability configuration parameters:

- 13 • CDMA SO list. Each SO is a 16-bit number as specified in [23]. The SOs listed in CDMA capability configuration parameters should be ordered according to the preference of SOs, i.e., the most preferred SO should be listed as the first SO in the list, and rest is listed in the descending order of preference.

14 CCAT application using SETUP UP CALL command should list all the SOs the application can use for a specific call type (voice or data, SMS or OTA etc) in CDMA Capability configuration parameters so ME can negotiate one of SOs listed with network.

15 If ME receives the CCAT setup call command, with capability configuration parameters Tag included, ME shall use the first service options listed in the CDMA Capability Configuration Parameters as the service option field in CDMA origination message as defined in [20]. ME can put the remaining SO listed in CDMA Capability Configuration Parameters as Alternative SO fields in origination message. If ME receives response message from the network indicating that one of the SO in the CCP is accepted by network, ME shall proceed to establish the call and send terminal response to R-UIM indicating the success of the call setup command. Otherwise, if ME receives the response message from network indicating another SO outside of the CCP list is proposed or receives the response message indicating the origination is rejected, ME shall send the terminal response to R-UIM indicating the failure of the call setup command. If the first SO in CCP is not supported by ME, ME can select one it supported from the CCP and use it as the SO field in origination message.

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1 **8.5 Reserved**

2 **8.6 Command details**

3 See [1].

4 **8.7 Device identities**

5 See [1].

6 **8.8 Duration**

7 See [1].

8 **8.9 Item**

9 See [1].

10 **8.10 Item identifier**

11 See [1].

12 **8.11 Response length**

13 See [1].

14 **8.12 Result**

15 See [1].

16 **8.13 Reserved**

17 **8.14 Reserved**

18 **8.15 Text string**

19 Content and coding is defined [1].

20 **8.16 Tone**

21 See [1].

22 **8.17 Reserved**

23 **8.18 File List**

24 See [1].

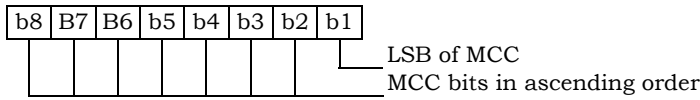
1 **8.19 Location Information**

Byte(s)	Description	Length
1	Location information tag	1
2	Length = '0F'	1
3 - 4	MCC	2
5	IMSI_11_12	1
6 - 7	SID	2
8 - 9	NID	2
10 - 11	BASE_ID	2
12 - 14	BASE_LAT	3
15 - 17	BASE_LONG	3

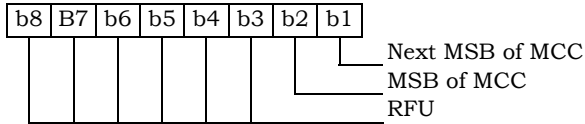
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3 Bytes 3 - 4:

4



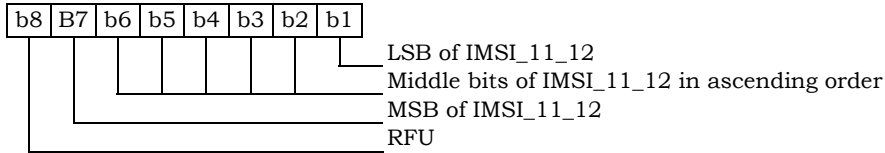
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7 Byte 5:

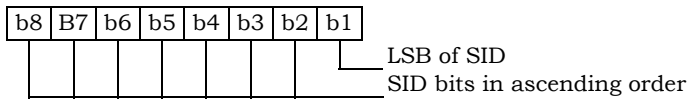
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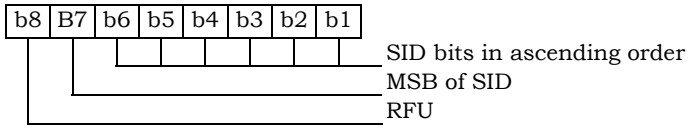
9

10 Bytes 6 - 7:

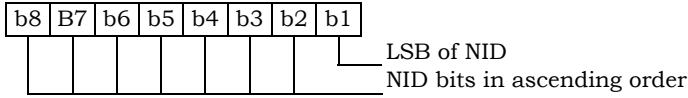
11



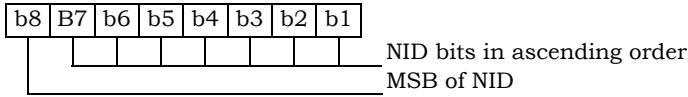
12



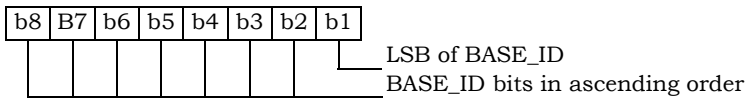
1
2 Bytes 8 – 9:



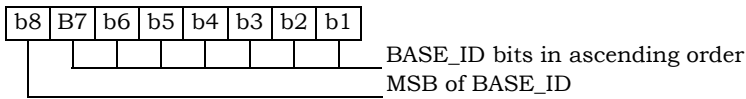
3
4



5
6 Bytes 10 – 11:

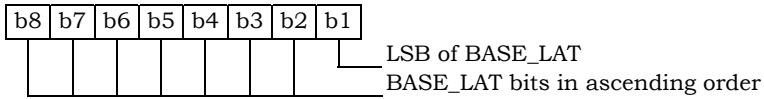


7
8



9

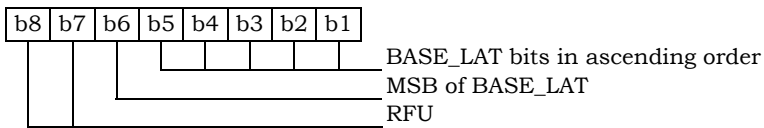
10 Bytes 12 – 14:



11
12

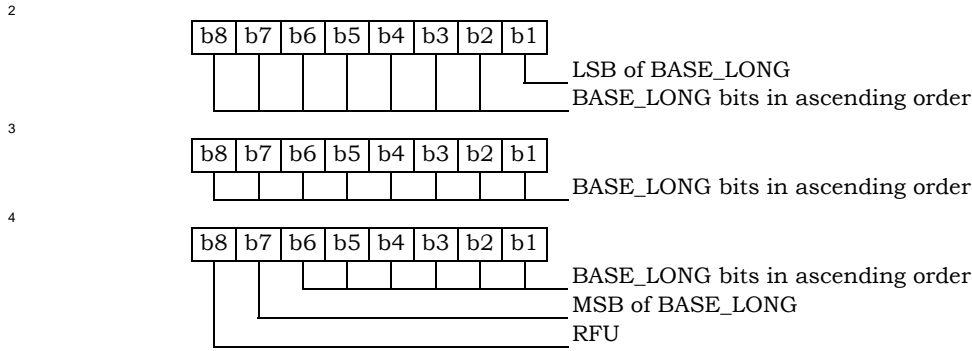


13



14

1 Bytes 15 – 17:



5 **8.20 Reserved**

6 **8.21 Help Request**

7 See [1].

8 **8.22 Network Measurement Results**

9 RFU.

10 **8.23 Default Text**

11 See [1].

12 **8.24 Items Next Action Indicator**

13 See [1].

14 **8.25 Event list**

15 See [1].

16 **8.26 Cause**

Deleted: Reserved

Byte(s)	Description	Length
1	Cause tag	1
2	Length (X) of bytes following. X=0, or 2 ≤ X ≤ 30.	1
3 to X+2	Cause	X

18 There is no cause values defined in current [20] which can be used as Cause data object as
 19 defined in [1] for the Call Disconnected event so this data object is reserved for future use and
 20 should not be included in the Call Disconnected event download.

21 **8.27 Location status**

22 See [1].

8.28 Transaction identifier

Byte(s)	Description	Length
1	Transaction identifier tag	1
2	Length (X) of bytes following	1
3 to X+2	Transaction identifier list	X

- Transaction identifier list:

Contents:

- A list of transaction identifiers, of variable length. Each byte in the list defines a transaction identifier and the transaction identifier is equivalent to CON_REF as defined in [20]. Each transaction identifier shall not appear more than once within the list;

Coding:

- Length of bytes following: if CON_REF is not present in the corresponding messages as defined in 7.5 (for example, if P_REV_IN_USE is less than 7, there is no CON_REF defined, and for some cases, CON_REF is not included in messages even in higher P_REV_IN_USE), the length shall be 0 and the Transaction Identifier list field shall be omitted.

- Each byte in the transaction identifier list shall contain the value of CON_REF in signalling messages as defined in [20].

8.29 Reserved

8.30 Call control requested action

See [1].

8.31 Icon Identifier

See [1].

8.32 Item Icon Identifier list

See [1].

8.33 Card reader status

See [1].

8.34 Card ATR

See [1].

8.35 C-APDU

See [1].

- 1 **8.36 R-APDU**
- 2 See [1].
- 3 **8.37 Timer identifier**
- 4 See [1].
- 5 **8.38 Timer value**
- 6 See [1].
- 7 **8.39 Date-Time**
- 8 See [1].
- 9 **8.40 AT Command**
- 10 See [1].
- 11 **8.41 AT Response**
- 12 See [1].
- 13 **8.42 Reserved**
- 14 **8.43 Immediate response**
- 15 See [1].
- 16 **8.44 DTMF string**
- 17 See [1].
- 18 **8.45 Language**
- 19 See [1].
- 20 **8.46 Reserved**
- 21 **8.47 Browser Identity**
- 22 See [1].
- 23 **8.48 URL**
- 24 See [1].
- 25 **8.49 Bearer**
- 26 See [1].
- 27 **8.50 Provisioning File Reference**
- 28 See [1].

8.51 Browser Termination Cause

See [1].

8.52 Bearer description

Byte(s)	Description	Length
1	Bearer description tag	1
2	Length	1
3	Bearer type	1
4	PPP Payload Compression CCP Option	1
5 to (4+X)	QOS BLOB	X

- Bearer Type coding: in addition to the values defined in [1], the following are defined:

- '01' = NA;
- '02' = NA;
- '08' = 3GPP2 packet data service.

- Bearer parameters coding:

Contents: parameters describing the Quality of Service (QoS) and the type of PPP Payload Compression CCP Option.

- The PPP Payload Compression CCP Option is coded as specified in [4].
- The QoS BLOB coded as specified in [14].

To use the default set of QoS parameters for 3GPP2 packet data service, the parameters should not include a QOS BLOB in the BEARER description parameters.

To propose any non-default parameters, the BEARER description parameters shall include a QOS BLOB, as specified in [14] and set the parameters in the QOS BLOB using the values defined in [14]. When requesting assured mode packet data service, the R-UIM shall omit any QOS parameter for which it requests and can accept "best effort" service rather than a specific level of service.

8.53 Channel data

See [1].

8.54 Channel data length

See [1].

8.55 Buffer size

See [1].

- 1 **8.56 Channel status**
- 2 See [1].
- 3 **8.57 Card reader identifier**
- 4 See [1].
- 5 **8.58 Other Address**
- 6 See [1].
- 7 **8.59 UICC/ME interface transport level**
- 8 See [1].
- 9 **8.60 AID**
- 10 See [1].
- 11 **8.61 Access Technology**
- 12 See [1].
- 13 **8.62 Display parameters**
- 14 See [1].
- 15 **8.63 Service Record**
- 16 See [1].
- 17 **8.64 Device Filter**
- 18 See [1].
- 19 **8.65 Service Search**
- 20 See [1].
- 21 **8.66 Attribute Information**
- 22 See [1].
- 23 **8.67 Service Availability**
- 24 See [1].
- 25 **8.68 Remote Entity Address**
- 26 See [1].
- 27 **8.69 ESN**
- 28 See [1].

1 **8.70 Network access name**

2 See [1].

3 **8.71 CDMA SMS TPDU**

4

Byte(s)	Description	Length
1	CDMA SMS TPDU tag	1
2 to (Y-1)+2	Length (X)	Y
(Y-1)+3 to (Y-1)+X+2	CDMA SMS TPDU	X

5

6 The CDMA SMS TPDU is formatted as described in [3].

7 A CDMA SMS TPDU will have the following structure:

8

Byte(s)	Description	Length
(Y-1)+3	SMS_MSG_TYPE	1
One or more occurrences of the following segment:		
(Y-1)+4	PARAMETER_ID	1
(Y-1)+5	PARAMETER_LEN (Z)	1
(Y-1)+6 to (Y-1)+Z+5	Parameter Data	Z

9 Note that the definition of CDMA SMS TPDU does allow multiple occurrences of the segment,
 10 which consists of "PARAMETER_ID", "PARAMETER_LEN" and "Parameter Data" as described in
 11 [3]. The number of repetitions of the aforementioned segment is determined by the Length and
 12 PARAMETER_LEN of each segment.

13 **8.72 Text Attribute**

14 See [1].

15 **8.73 Item Text Attribute List**

16 See [1].

17 **8.74 Reserved**

18 **8.75 Network Search Mode**

19 See [1].

20 **8.76 Battery State**

21 See [1].

1 **8.77 Browsing Status**2 See [1].3 **8.78 Emergency Call**

4

<u>Byte(s)</u>	<u>Description</u>	<u>Length</u>
<u>1</u>	<u>Emergency Call tag</u>	<u>1</u>
<u>2</u>	<u>Length (always 0x00)</u>	<u>1</u>

5

1

9 TAG VALUES

3 This clause specifies the tag values used to identify the BER-TLV and SIMPLE-TLV data objects
4 used in the present document, in addition to those defined in [1].

9.1 BER-TLV tags in ME to UICC direction

6 In addition to the values defined in [1], the following are defined:

7

Description	Length of tag	Value
SMS-PP download tag	1	'D1'
SMS Broadcast download tag	1	'D2'

9.2 BER-TLV tags in UICC TO ME direction

9 See [1] and no additional tag is defined for CDMA.

9.3 SIMPLE-TLV tags in both directions

11 In addition to the values defined in [1], the following is defined:

12

Description	Length of tag	Tag value, bits 1-7 (Range: '01' - '7E')	Tag (CR and Tag value)
CDMA SMS-TPDU	1	'48'	'48' or 'C8'

13

9.4 Type of Command and Next Action Indicator

15 See [1] and no additional type of command is defined for CDMA.

1

2 **10 ALLOWED TYPE OF COMMAND AND DEVICE IDENTITY COMBINATIONS**

3 See [1].

1

2 **11 SECURITY REQUIREMENTS**

3 The security requirements of the R-UIM shall follow the definitions specified in Section 11 of
4 [1].

1 ANNEX A (NORMATIVE):
2 Support of CCAT by Mobile Equipment

3 See Annex A of [1].

Deleted: ETSI TS 102.223

4 Support of CCAT is optional for Mobile Equipment. However, if an ME states conformance with
5 a CCAT release, it is mandatory for the ME to support all functions of that release. Optionally,
6 the letter classes defined in [1] may be used.

7

-
- 1 ANNEX B (INFORMATIVE):
 - 2 Example of DISPLAY TEXT Proactive UICC Command
 - 3 See [1].

-
- 1 ANNEX C (NORMATIVE):
 - 2 Structure of CCAT communications
 - 3 See [1].

-
- 1 ANNEX D (INFORMATIVE):
 - 2 ME display in proactive UICC session
 - 3 See [1].

-
- 1 ANNEX E (INFORMATIVE):
 - 2 Help information feature processing
 - 3 See [1].

-
- 1 ANNEX F (INFORMATIVE):
 - 2 Monitoring of events
 - 3 See [1].

¹ ANNEX G (NORMATIVE):
² Support of Multiple Card Operation

³ See [1].

-
- ¹ ANNEX H (INFORMATIVE):
 - ² Multiple Card proactive command examples
 - ³ See [1].

ANNEX I (INFORMATIVE): Bearer independent protocol proactive command using CDMA packet data parameters.

This annex applies if class "e" is supported. For the others bearers, see [1].

ICC	Terminal	BS
-----	----------	----

OPEN CHANNEL

OPEN CHANNEL (immediate)
 Bearer description(PPP Payload Compression,
 QoS BLOB),
 Buffer size, Network Access Name ,
 UICC/Terminal interface transport level (UDP,
 port *p*), data destination address) →

Origination (packet data service option) →
 ← Channel Assignment

Service Request (QoS BLOB) →

← Service Connect (QoS BLOB)

← Service Connect Completion

← LCP Negotiation
 →

← IPCP Negotiation
 (exchange user profile corresponding to
 Network Access Identifier) →

← CCP Negotiation
 (PPP Payload Compression) →

← Terminal Response (Channel identifier, link
 established, no further information, buffer size)
 ← ENVELOPE (Channel status event: Channel
 identifier, link established)

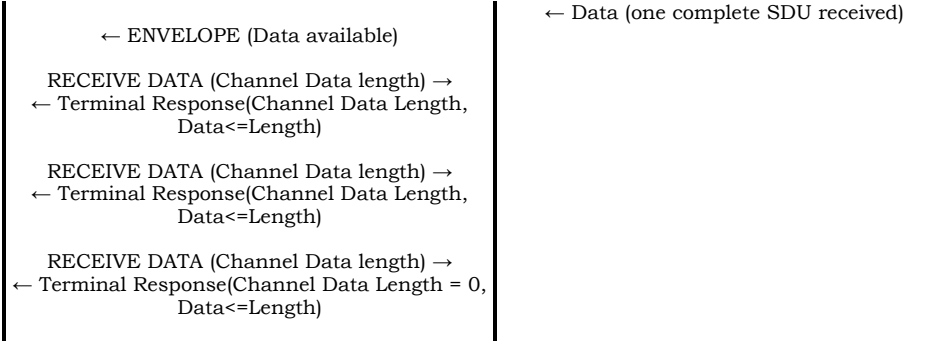
CLOSE CHANNEL

CLOSE CHANNEL(Channel identifier) →

Release →
 ← Release

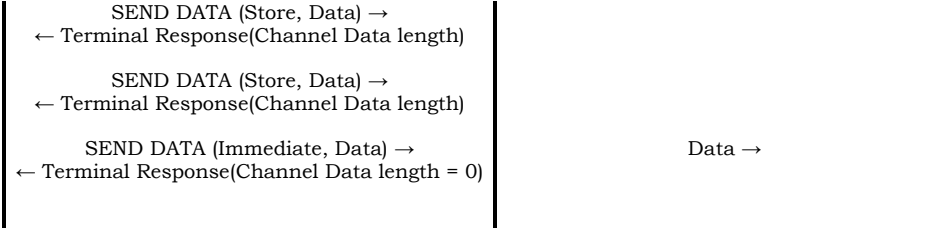
← Terminal Response(OK)

RECEIVE DATA

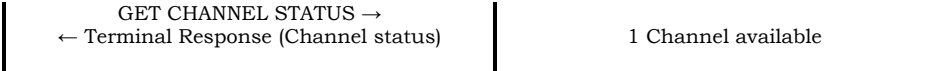


1

SEND DATA 'Stored in Tx Buffer'



GET CHANNEL STATUS



¹ ANNEX J (INFORMATIVE):
² WAP Terminology

³ See [1].

-
- 1 ANNEX K (INFORMATIVE):
 - 2 Use of CCAT Bearer independent protocol for local links
 - 3 Bluetooth case
 - 4 See [1].

-
- 1 ANNEX L (INFORMATIVE):
 - 2 Bluetooth Service Discovery protocol
 - 3 See [1].

-
- 1 ANNEX M (INFORMATIVE):
 - 2 Use of CCAT Bearer independent protocol for local links,
 - 3 server case
 - 4 See [1].

Byte(s)	Description	Length
1	Transaction identifier tag	1
2	Length (X) of bytes following	1
3 to X+2	Transaction identifier list	X

Transaction identifier list:

Contents:

A list of transaction identifiers, of variable length. Each byte in the list defines a transaction identifier. The transaction identifier shall be the Transaction Identifier in the call setup message from the network.

Coding:

Each byte in the transaction identifier list is a single byte between '01' and 'FF'. Each transaction identifier shall not appear more than once within the list.