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UICC-Terminal interface - Physical and Logical Characteristics for cdma2000 Spread Spectrum Systems

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Incorporated Contributions

Document	Title
AC10-20140318-009r2	Modifications to define multi-UICC-application handling of EF-FDN and EF-ECC in C.P0074

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Foreword

(This foreword is not part of this specification)

This document was prepared by 3GPP2 TSG-C WG1.

The present document specifies the interface between the UICC and the Terminal for cdma2000^{®1} network operation.

The present document specifies:

- the requirements for the physical characteristics of the UICC;
- the electrical interface between the UICC and the Terminal;
- the initial communication establishment and the transport protocols;
- the model which serves as a basis for the logical structure of the UICC;
- the communication commands and the procedures;
- the application-independent files and protocols.
- [The handling of application dependent files in a multi-radio access technology environment.](#)

The administrative procedures and initial card management are not part of the present document.

¹ cdma2000[®] is the trademark for the technical nomenclature for certain specifications and standards of the Organizational Partners (OPs) of 3GPP2. Geographically (and as of the date of publication), cdma2000[®] is a registered trademark of the Telecommunications Industry Association (TIA-USA) in the United States.

1 Introduction

1.1 Scope

The present document defines a generic Terminal/Integrated Circuit Card (ICC) interface for cdma2000 applications. The present document is based on [1], which defines a generic platform for any IC card application. Requirements that are common to all cdma2000 smart card based applications are also listed in this specification.

The aim of the present document is to ensure interoperability between an ICC and a terminal independently of the respective manufacturer, card issuer or operator. The present document does not define any aspects related to the administrative management phase of the ICC. Any internal technical realization of either the ICC or the terminal is only specified where these are reflected over the interface.

Application specific details for applications residing on an ICC are specified in the respective application specific documents.

References to this document from cdma2000 application specifications related to functionalities that are not described in the present document are to be considered as direct references to [1].

1.2 Document Conventions

- “Shall” and “shall not” identify requirements to be followed strictly to conform to this document and from which no deviation is permitted. “Should” and “should not” indicate that one of several possibilities is recommended as particularly suitable, without mentioning or excluding others, that a certain course of action is preferred but not necessarily required, or that (in the negative form) a certain possibility or course of action is discouraged but not prohibited. “May” and “need not” indicate a course of action permissible within the limits of the document. “Can” and “cannot” are used for statements of possibility and capability, whether material, physical or causal.
- The following table describes the conventions used for decimal numbers, non-decimal numbers and strings.

Table 1.1 – Convention for Numbers and Strings

Convention	Description
nnnnn	A decimal number, e.g. CHV or phone number
'hh'	A single octet hexadecimal number
'hhhhh...hhhh'	A multi-octet hexadecimal number or string
"SSSS"	Character string
Note: If an 'X' is present in a hexadecimal number then that digit is “don't care”.	

1.3 Definitions, Symbols, Abbreviations

All definitions, symbols, abbreviations applicable to the UICC-terminal interface in CDMA Spread Spectrum Systems are specified in [1].

1.4 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 upon this document 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.

Normative References:

1. ETSI TS 102 221 v11.1.0, *Smart Cards; UICC-Terminal interface; Physical and logical characteristics*, November 2013.
2. 3GPP TS 31.101 v11.0.0, *UICC-Terminal interface; Physical and logical characteristics*, September 2012.
3. 3GPP2 C.S0016-D v2.0, *Over-The-Air Service Provisioning of Mobile Station in Spread Spectrum Systems*, April 2012.
4. 3GPP2 C.S0079-0 v1.0, *Remote APDU Structure for CDMA Card Application Toolkit (CCAT) Applications*, October 2006.
5. 3GPP2 C.S0065-C v1.0, *cdma2000 Application on UICC for Spread Spectrum Systems*, TBD 2014.

~~5-6.~~ 3GPP TS 31.102 v12.2.0, *Characteristics of the Universal Subscriber Identity Module (USIM) application*, December 2013.

Informative References:

- ~~i1.~~ ETSI TS 102 225 v8.2.0, *Smart Cards; Secured packet structure for UICC based applications*, April 2009.
- ~~i2.~~ ETSI TS 102 226 v9.1.0, *Smart Cards; Remote APDU structure for UICC based applications*, October 2009.

2 UICC-Terminal Interface; Physical and Logical Characteristics

The UICC-Terminal interface in the context of CDMA Spread Spectrum systems shall comply with all requirements specified in [2]. "3GPP" shall be interpreted as "3GPP2" in the context of CDMA Spread Spectrum System.

3 Application Independent Files

3.1 DF_{MMSS} (Multimode System Selection)

If Multimode System Selection (MMSS) is supported by UICC, DF_{MMSS} '5F3C' shall be present under DF_{TELECOM}. If an ME supports MMSS, it shall select DF_{MMSS} and read the parameters and settings from the EFs under DF_{MMSS}. The parameters and settings which are present in the EFs under DF_{MMSS} shall take precedence over the ones present in the terminal it is inserted to.

The following EFs can use various provisioning mechanisms such as: the standard Remote File Management procedures defined for UICC as defined in [4], for updating and modifications, and the commands, e.g., OTASP/OTAPA related commands defined in [5].

3.1.1 EF_{MLPL} (MMSS Location Associated Priority List)

This EF stores the Multimode System Selection Location Associated Priority List as defined in section 3.5.13.3 of [3].

Identifier: '4F20'		Structure: transparent		Optional	
SFI: '01'					
File size: X bytes			Update activity: Low		
Access Conditions:					
READ		PIN			
UPDATE		ADM			
DEACTIVATE		ADM			
ACTIVATE		ADM			
Bytes	Description			M/O	Length
1 to X	MLPL as defined in [3]			M	X bytes

MLPL: This is the MMSS Location Associated Priority List

Coding: See 4.5.11.2 of [3]

Unused bytes shall be set to 'FF'.

This EF is stored using the convention from [3], i.e. fields are placed into octets starting with the MSB of the first field into bit 8 of the first octet, followed by the remaining fields placed in sequence into the remaining bits allocated for those fields. A multi-octet integer is stored by placing the octet with the MSB into the lowest numbered available octet allocated for that integer in the EF.

3.1.2 EF_{MSPL} (MMSS System Priority List)

This EF Stores the Multimode System Selection System Priority List as defined in section 3.5.13.4 of [3].

Identifier: '4F21'		Structure: transparent		Optional	
SFI: '02'					
File size: X bytes			Update activity: Low		
Access Conditions:					
READ		PIN			
UPDATE		ADM			
DEACTIVATE		ADM			
ACTIVATE		ADM			
Bytes	Description			M/O	Length
1 to X	MSPL as defined in [3]			M	X bytes

MSPL: This is the MMSS System Priority List

Coding: See 4.5.11.3 of [3]

Unused bytes shall be set to 'FF'

This EF is stored using the convention from [3], i.e. fields are placed into octets starting with the MSB of the first field into bit 8 of the first octet, followed by the remaining fields placed in sequence into the remaining bits allocated for those fields. A multi-octet integer is stored by placing the octet with the MSB into the lowest numbered available octet allocated for that integer in the EF.

3.1.3 EF_{MMSSMODE} (MMSS Mode Settings)

This EF stores the Multimode System Selection Mode Settings as defined in section 3.5.13.2 of [3].

Identifier: '4F22'		Structure: transparent		Optional	
SFI: '03'					
File size: 1 bytes			Update activity: Low		
Access Conditions:					
READ		PIN			
UPDATE		ADM			
DEACTIVATE		ADM			
ACTIVATE		ADM			
Bytes	Description			M/O	Length
1 to X	MMSS Mode Settings as defined in [3]			M	1 bytes

This EF is stored using the convention from [3], i.e. fields are placed into octets starting with the MSB of the first field into bit 8 of the first octet, followed by the remaining fields placed in sequence into the remaining bits allocated for those fields. A multi-octet integer is stored by placing the octet with the MSB into the lowest numbered available octet allocated for that integer in the EF.

4 Application Dependent Files

4.1 Files at CSIM ADF level and USIM ADF level

This section applies to a UICC that has at least one CSIM and at least one USIM application installed. Refer to [5] for files under CSIM ADF and [6] for files under USIM ADF.

4.1.1 EF_{F_{DN}} (Fixed Dialling Number)

The ME shall allow the presentation of the FDN feature from the CSIM and the FDN feature from the USIM as specified in [5], [6] under all modes of operation. The ME shall allow the modification of the CSIM FDN feature as specified in [5] under all modes of operation. The ME shall allow the modification of the USIM FDN feature as specified in [6] under all modes of operation.

4.1.2 EF_{ECC} (Emergency Call Codes)

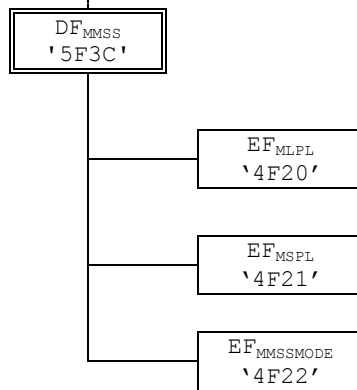
Request: If EF_{ECC} is present in both the CSIM and USIM, the ME supporting the initialization of the CSIM and the USIM shall use both EF_{ECC} files. If the user dials a number that matches one of the codes in the EF_{ECC} file of the CSIM or the USIM then the ME shall treat the call as an emergency call.

Annex A (Normative) List of SFI Values and File Structure of DF_{MMSS}

Table A-1 SFI values for EFs under DF_{MMSS}

File Identification	SFI	Description
'4F20'	'01'	MMSS Location Associated Priority List
'4F21'	'02'	MMSS System Priority List
'4F22'	'03'	MMSS Mode Settings

see TS
102.221
[1]



Annex B (Informative) Suggested Contents of Application Independent EFs at Pre-Personalization

Table B-1 is a general outline of the files defined in this specification.

1. All values are sized in bytes unless otherwise noted.
2. Default Values are specified when available and are intended to be guidelines only. In some cases, operators must specify explicit parameter values as no logical default exists. In the case where the parameter values are necessary, valid values and/or ranges are listed.
3. Default and Parameter values are for general quick reference only and not intended to specify details. Refer to the corresponding file for details.
4. Default Values and Parameter Values are specified in Hexadecimal, unless otherwise noted.

If EFs have an unassigned value, it may not be clear from the main text what this value should be. This annex suggests values in these cases.

Table B-1 Summary of Application Independent EF

File Name	File ID	File Type	Access			Size in Bytes	Mandatory or Optional	Default Values (D) and/or Parameter Values (P) in Bytes
			Read	Update	Invalidate - Rehabilitate			
Multimode System Selection Parameters								
EF _{MLPL}	4F20	TR	PIN	ADM	ADM-ADM	Variable	O	Specified by Operator
EF _{MSPL}	4F21	TR	PIN	ADM	ADM-ADM	Variable	O	Specified by Operator
EF _{MMSSMODE}	4F22	TR	PIN	ADM	ADM-ADM	Variable <u>1</u>	O	Specified by Operator