3GPP TSG-T (Terminals) Meeting #17
Biarritz, France 4 – 6 September 2002

Tdoc TP-020218

Source: T3

Title: Change Requests to TS 11.11 and TS 51.011

Document for: Approval

This document contains several change requests as follows:

T3 Doc	Spec	CR	Rv	Rel	Cat	Subject
T3-020716	11.11	A132	-	R99	F	Inconsistent record length of EF(IMG)
T3-020717	51.011	013	-	Rel-4	A	Inconsistent record length of EF(IMG)
T3-020640	51.011	011	-	Rel-4	F	Incomplete EF_ICCID description
T3-020670	51.011	012	-	Rel-4	F	Correction of references and clarification of Scope
T3-020719	51.011	014	-	Rel-4	F	Incomplete description of EF_ECCP

The following CR is proposed to be conditionally approved by T subject to the SA decision on the feature.

T3-020720 rev1	51.011	015	-	Rel-4	B	Introduction of MMS files and procedures

3GPP T3 (USIM) Meeting #24
Seattle, USA, 19 - 22 August 2002

Tdoc T3-020716
(revised from T3-020311)

CR-Form-v3

CHANGE REQUEST

⌘ **11.11** **CR** **A132** ⌘ rev **-** ⌘ Current version: **8.7.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘ (U)SIM [X] ME/UE [X] Radio Access Network [ ] Core Network [ ]

Title:	⌘	Inconsistent record length of EF(IMG)
Source:	⌘	T3
Work item code:	⌘	TEI
Date:	⌘	22/08/2002
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
- ***F*** *(essential correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(Addition of feature),*
- ***C*** *(Functional modification of feature)*
- ***D*** *(Editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	The length of the records of EF(IMG) is wrongly indicated in the specification. Each record contains : first a mandatory byte (number of instances) second n descriptors, each being 9 bytes long third, an optional byte (RFU) Therefore the record length is either 9n+1 or 9n+2 bytes
Summary of change:	⌘	Changed the indicated record length to “9n+1 or 9n+2 bytes”
Consequences if not approved:	⌘	Risk of wrong implementation in the SIM or the ME, resulting in a wrong inter-working of the SIM and the ME.

Clauses affected:	⌘	10.6.1.1		
Other specs affected:	⌘	[X] Other core specifications [ ] Test specifications [ ] O&M Specifications	⌘	51.011, 31.102
Other comments:	⌘			

10.6.1.1 EF_{IMG} (Image)

Each record of this EF identifies instances of one particular graphical image, which graphical image is identified by this EF's record number.

Image instances may differ as to their size, having different resolutions, and the way they are coded, using one of several image coding schemes.

As an example, image k may represent a company logo, of which there are i instances on SIM, of various resolutions and perhaps encoded in several image coding schemes. Then, the i instances of the company's logo are described in record k of this EF.

Identifier: '4F20'	Structure: linear fixed	Optional
Record length: 9n+1 or 9n+2 bytes	Update activity: low	

Access Conditions:

READ	CHV1
UPDATE	ADM
INVALIDATE	ADM
REHABILITATE	ADM

Bytes	Description	M/O	Length
1	Number of Actual Image Instances	M	1 byte
2 to 10	Descriptor of Image Instance 1	M	9 bytes
11 to 19	Descriptor of Image Instance 2	O	9 bytes
:			
9 (n-1) + 2 to 9n + 1	Descriptor of Image Instance n	O	9 bytes
9n + 2	RFU	O	1 byte

- Number of Actual Image Instances

  Contents: this byte gives the number of actual image instances described in the following data items (i.e. unused descriptors are not counted).

  Coding: binary

- Image Instance Descriptor

  Contents: a description of an image instance

  Coding: see below

  Byte 1: Image Instance Width

  Contents:

  this byte specifies the image instance width, expressed in raster image points.

  Coding:

  binary.

  Byte 2: Image Instance Height

  Contents:

  this byte specifies the image instance height, expressed in raster image points.

  Coding:

  binary.

  Byte 3: Image Coding Scheme

Contents:

this byte identifies the image coding scheme that has been used in encoding the image instance.

Coding:

'11' - basic image coding scheme as defined in annex G;

'21' - colour image coding scheme as defined in annex G;

other values are reserved for future use.

Bytes 4 and 5: Image Instance File Identifier

Contents:

these bytes identify an EF which is the image instance data file (see subclause 10.6.1.2), holding the actual image data for this particular instance.

Coding:

byte 4: high byte of Image Instance File Identifier;

byte 5: low byte of Image Instance File Identifier.

Bytes 6 and 7: Offset into Image Instance File

Contents:

these bytes specify an offset into the transparent Image Instance File identified in bytes 4 and 5.

Coding:

byte 6: high byte of offset into Image Instance File;

byte 7: low byte of offset into Image Instance File

Bytes 8 and 9: Length of Image Instance Data

Contents:

these bytes yield the length of the image instance data, starting at the offset identified in bytes 6 and 7.

Coding:

byte 8: high byte of Image Instance Data length;

byte 9: low byte of Image Instance Data length.

NOTE: Transparent image instance data longer than 256 bytes may be read using successive READ BINARY commands.

3GPP T3 (USIM) Meeting #24
Seattle, USA, 19 – 22 August 2002

Tdoc ⌘T3-020640

CR-Form-v7

CHANGE REQUEST

⌘ **51.011** **CR** **011** ⌘ **rev** **-** ⌘ Current version: **4.4.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ [X] ME [X] Radio Access Network [ ] Core Network [ ]

Title:	⌘	Incomplete EF_ICCID description
Source:	⌘	T3
Work item code:	⌘	TEI
Date:	⌘	19/08/2002
Category:	⌘	**F**
Release:	⌘	Rel-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The usage of Phase 1 ICCIDs is not specified precisely. By referencing TS 102 221, the length and coding of the ICCID is according to ITU-T Recommendation E.118 (specifying 19 digits, digits within a byte swapped). Neverheless, network operators having issued Phase 1 SIMs with ICCIDs consisting of 20 digits instead of 19 digits or unswapped digits instead of swapped digits are still allowed to use that coding (as it was specified in earlier versions of TS 51.011).
Summary of change:	⌘	Correction of the EF_ICCID description.
Consequences if not approved:	⌘	Risk of misinterpretation of the specification. Unintended change of functionality in different versions of the same release of TS 51.011.

Clauses affected:	⌘	10.1.1			
Other specs affected:	⌘	**Y**	**N**		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:

10.1.1 EF_{ICCID} (ICC Identification)

This EF provides a unique identification number for the SIM. The structure of this EF is as defined in TS 102 221 [55]. Network operators who have already issued Phase 1 SIM cards with an identification number length of 20 digits may retain this length. Network operators who have already issued Phase 1 SIM cards where the digits within a byte are not swapped may retain this configuration.~~Network operators issuing a SIM according to this document may use an identification number length of 20 bytes. SIM issued with identification number coded on 20 bytes may also have the digits in a byte not swapped.~~

1 Scope

The present document defines the interface between the Subscriber Identity Module (SIM) and the Mobile Equipment (ME) for use during the network operation phase of GSM as well as those aspects of the internal organization of the SIM which are related to the network operation phase. This is to ensure interoperability between a SIM and an ME independently of the respective manufacturers and operators. The concept of a split of the Mobile Station (MS) into these elements as well as the distinction between the GSM network operation phase, which is also called GSM operations, and the administrative management phase are described in the TS 02.17 [6]. ~~In this document, the SIM card might be interpreted as a SIM application implemented on a 3GPP UICC as defined by TS 31.101 [55]. Therefore, t~~he requirements for the physical characteristics of the SIM, the electrical signals and the transmission protocols are all defined in accordance with the TS 31.101 [55] except when stated otherwise in the present document ~~latter specification, while backward compatibility with 2G terminals is preserved.~~

The present document defines:

~~— the requirements for the physical characteristics of the SIM, the electrical signals and the transmission protocols;~~

- the model which shall be used as a basis for the design of the logical structure of the SIM;
- the security features;
- the interface functions;
- the commands;
- the contents of the files required for the GSM application;
- the application protocol.

~~Unless otherwise stated, references to GSM also apply to DCS 1800 and PCS 1900.~~

The present document does not specify any aspects related to the administrative management phase. Any internal technical reallocation of either the SIM or the ME are only specified where these reflect over the interface. It does not specify any of the security algorithms which may be used.

The present document defines the SIM/ME interface for GSM Phase 2. While all attempts have been made to maintain phase compatibility, any issues that specifically relate to Phase 1 should be referenced from within the relevant Phase 1 specification.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] Void.

[2] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[3] 3GPP TS 02.07: "Mobile Stations (MS) features".

[4] 3GPP TS 02.09: " Security aspects".

[5] 3GPP TS 22.011: " Service accessibility".

[6] 3GPP TS 42.017: "Subscriber Identity Modules (SIM); Functional characteristics".

[7] 3GPP TS 22.024: " Description of Charge Advice Information (CAI)".

[8] 3GPP TS 22.030: "Man-Machine Interface (MMI) of the User Equipment (UE)".

[9] 3GPP TS 22.086: "Advice of Charge (AoC) Supplementary Services - Stage 1".

[10] 3GPP TS 23.003: "Numbering, addressing and identification".

[11] 3GPP TS 43.020: "Security related network functions".

[12] 3GPP TS 23.038: "Alphabets and language-specific information".

[13] 3GPP TS 23.040: "Technical realization of the Short Message Service (SMS)".

[14] 3GPP TS 23.041: "Technical realization of Cell Broadcast Service (CBS)".

[15] 3GPP TS 04.08: "Mobile radio interface layer 3 specification".

[16] 3GPP TS 24.011: "Point-to-Point (PP) Short Message Service (SMS) support on mobile radio interface".

[17] GSM 09.91: "Digital cellular telecommunications system (Phase 2); Interworking aspects of the Subscriber Identity Module - Mobile Equipment (SIM - ME) interface between Phase 1 and Phase 2".

[18] ITU-T Recommendation E.118: "The international telecommunication charge card".

[19] ITU-T Recommendation E.164: "The international public telecommunication numbering plan".

[20] ITU-T Recommendation T.50: "International Reference Alphabet (IRA) (Formerly International Alphabet No. 5 or IA5) - Information technology - 7-bit coded character set for information interchange".

[21] ISO/IEC 7810 (1995): "Identification cards - Physical characteristics".

[22] ISO/IEC 7811-1 (1995): "Identification cards - Recording technique - Part 1: Embossing".

[23] ISO/IEC 7811-3 (1995): "Identification cards - Recording technique - Part 3: Location of embossed characters on ID-1 cards".

[24] ISO/IEC 7816-1 (1998): "Identification cards - Integrated circuit(s) cards with contacts - Part 1: Physical characteristics".

[25] ISO/IEC 7816-2 (1988): "Identification cards - Integrated circuit(s) cards with contacts - Part 2: Dimensions and locations of the contacts".

[26] ISO/IEC 7816-3 (1997): "Identification cards - Integrated circuit(s) cards with contacts - Part 3: Electronic signals and transmission protocols".

[27] 3GPP TS 11.14: "Specification of the SIM Application Toolkit for the Subscriber Identity Module - Mobile Equipment (SIM - ME) interface".

[28] GSM 11.12: "Digital cellular telecommunications system (Phase 2); Specification of the 3 Volt Subscriber Identity Module - Mobile Equipment (SIM - ME) interface".

[29] 3GPP TS 22.022: "Personalization of Mobile Equipment (ME); Mobile functionality specification".

[30] ISO 639 (1988): "Code for the representation of names of languages".

[31] ISO/IEC 10646-1 (1993): "Information technology - Universal Multiple-Octet Coded Character Set (UCS) - Part 1: Architecture and Basic Multilingual Plane".

[32] 3GPP TS 23.060: "General Packet Radio Service (GPRS); Service description; Stage 2".

[33] 3GPP TS 23.073: "Support of Localised Service Area (SoLSA); Stage 2".

[34] GSM 11.19: "Specification of the Cordless Telephony System Subscriber Identity Module for both Fixed Part and Mobile Station".

[35] ISO/IEC 7816-4 (1995): "Identification cards - Integrated circuit(s) cards with contacts - Part 4: Interindustry commands for interchange".

[36] TIA/EIA-136-005: "Introduction, Identification, and Semi-Permanent Memory, November 1998".

[37] TIA/EIA-136-123-A: "Digital Control Channel Layer 3, November 1998".

[38] TIA/EIA-136-140-A: "Analogue Control Channel, November 1998".

[39] TIA/EIA-136-510-A: "Authentication, Encryption of Signaling Information/User Data and Privacy, November 1998".

[40] ANSI TIA/EIA-41: "Cellular Radio Telecommunications Intersystem Operations".

[41] EIA/TIA-553: "Mobile Station - Land Station Compatibility Specification".

[42] 3GPP TS 22.067: "enhanced Multi Level Precedence and Pre-emption service (eMLPP) - Stage 1".

[43] TR45 AHAG "Common Cryptographic Algorithms, Revision C," October 27, 1998.

[44] ETS 300 812: "Terrestrial Trunked Radio (TETRA); Security aspects; Subscriber Identity Module to Mobile Equipment (SIM - ME) interface".

[45] 3GPP TS 03.22: "Functions related to Mobile Station (MS) in idle mode and group receive mode".

[46] 3GPP TS 05.05: "Radio transmission and reception".

[47] 3GPP TS 24.008: "Mobile Radio Interface Layer 3 specification; Core Network Protocols; Stage 3".

[48] 3GPP TS 04.18: "Mobile radio interface layer 3 specification; Radio Resource Control Protocol".

[49] 3GPP TS 04.60: "General Packet Radio Service (GPRS); Mobile Station (MS) - Base Station System (BSS) interface; Radio Link Control/ Medium Access Control (RLC/MAC) protocol".

[50] 3GPP TS 23.057: "Mobile Execution Environment (MExE); Functional description; Stage 2".

[51] 3GPP TS 23.122: "NAS Functions related to Mobile Station (MS) in idle mode".

[52] 3GPP TS 31.102: "Characteristics of the USIM Application".

[53] 3GPP TS 22.101: "Service aspects; Service principles".

[54] 3GPP TS 23.097: "Multiple Subscriber Profile (MSP) (Phase 2) - Stage 2".

[55] ~~ETSI TS 102 221~~3GPP TS 31.101: "UICC-Terminal interface; Physical and logical characteristics"

[56] ISO/IEC 8825 (1990): "Information technology; Open Systems Interconnection; Specification of Basic Encoding Rules for Abstract Syntax Notation One (ASN.1)"

[57] ETSI TS 102 221: "UICC-Terminal interface; Physical and logical characteristics"

4 Physical characteristics

Two physical types of SIM are specified. These are the "ID-1 SIM" and the "Plug-in SIM".

The physical characteristics of both types of SIM shall be in accordance with those specified for the UICC in TS ~~102 221~~31.101 [55]

5 Electronic signals and transmission protocols

The present document contains references to the 3GPP UICC/Terminal interface specification, TS 31.101~~102 221~~ [55]. For the requirements of TS 31.101~~102 221~~ [55] which are referenced by the present specification, the usage of the term "UICC" in TS 31.101 [55] shall be equivalent to the term "SIM". ~~The "SIM" shall then be viewed as a 2G network access application residing on a UICC.~~

5.1 Electrical specifications

Electrical specifications of the SIM – ME interface shall be in accordance with TS ~~102 221~~31.101 [55] with the following limitations.:

4MHz shall be the maximum clock speed specified for SIMs for 3V and below.

Power consumption during a SIM session and initial communication establishment i.e during the ATR shall not exceed the values defined for the ATR in TS 31.101~~102 221~~ [55].

5.2 Initial communication establishment procedures

Initial communication establishment procedures shall be in accordance with TS ~~102 221~~31.101 [55] with the following limitations.

Since 4MHz is the maximum clock speed specified for SIMs for 3V and below, the respective limitations on power consumption given in TS 31.101~~102 221~~ [55] apply.

ATR content: The ME shall invoke the error handling as defined in TS ~~102 221~~31.101 [55] if a SIM indicates other values than 0 or 255 in TC1. T=15 global interface parameters are optional. The coding of the historical bytes may not follow TS 31.101~~102 221~~ [55] and need not to be interpreted by the ME.

PPS proceedures: Speed enhancement is optional for the SIM. However if speed enhancement is implemented at least F=512 and D=8 shall be supported.

Reset procedures: The SIM shall behave as a "Type 1 UICC".

Clock stop mode: The clock shall only be switched off subject to the conditions specified in the file characteristics (see clause 9.2.1). It is mandatory for a SIM operating at Class B or C operating conditions as defined in TS 31.101~~102 221~~ [55] to support clock stop mode.

5.2.1 Error handling for speed enhancement

If the SIM does not answer the PPS request within the initial waiting time the ME shall reset the SIM. After two failed PPS attempts using F=512 and D=8 or values indicated in TA1, (no PPS response from the SIM) the ME shall initiate PPS procedure using default values. If this also fails (no PPS response from the SIM) the ME may proceed using default values without requesting PPS.

If the SIM does not support the values requested by the ME, the SIM shall respond to the PPS request indicating the use of default values.

5.3 Transmission protocols

Physical and Data link layer of the Transmission Protocols shall be in accordance with TS ~~102 221~~31.101 [55] with the following limitations.

The support of the Transmission Protocol T=0 is mandatory for ME and the SIM. All other protocols are optional. Use of other protocols than T=0 is not defined in the present document.

Procedure bytes '61' and '6C' shall not be used with GSM commands. Status byte '9F' is returned instead by the SIM to control exchanges between the Transport Layer of the terminal and the SIM.

5.4 Clock

If a frequency of 13/4 MHz is needed by the SIM to run the authentication procedure in the allotted time (see TS 03.20 [11]), or to process an ENVELOPE command used for SIM Data Download, bit 2 of byte 1 in the file characteristics shall be set to 1. Otherwise a minimum frequency of 13/8 MHz may be used.

6 Application and File structure

This clause describes the logical structure for a SIM if different from that specified in TS 31.101~~102 221~~ [55],, the code associated with it, and the structure of files used.

6.1 SIM Application structure

Figure 3 shows the general structural relationships which may exist between files. The files are organized in a hierarchical structure and are of one of the types as defined in TS 31.101~~02 221~~ [55]. These files may be either administrative or application specific. The operating system handles the access to the data stored in different files.

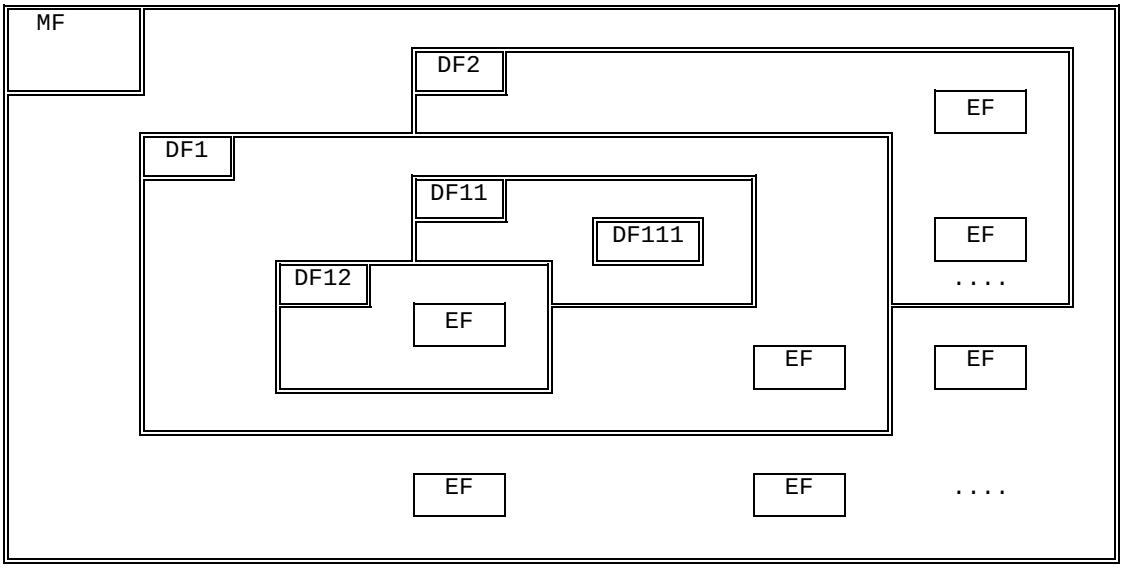


Figure 3: Organization of memory

Files are composed of a header, which is internally managed by the SIM, and optionally a body part. The information of the header is related to the structure and attributes of the file and may be obtained by using the commands GET RESPONSE or STATUS. This information is fixed during the administrative phase. The body part contains the data of the file.

6.2 Void

6.3 Void

6.4 File types

The SIM shall support the file types as defined in TS 31.101~~102 221~~ [55] with the following limitations.

6.4.1 Dedicated files

The SIM does not support the operations that can be performed on an ADF as defined in TS 31.101~~102 221~~ [55], although the SIM application DF is considered to be an ADF according to the definitions in TS 31.101~~102 221~~ [55].

6.4.2 Elementary files

The SIM supports the elementary files as defined in TS 31.101~~102 221~~ [55] with the following limitations

6.4.2.1 Cyclic EF

After selection of a cyclic file (for either operation), the record pointer shall address the record updated or increased last. If an action following selection of a record is aborted, then the record pointer shall remain set at the record at which it was set prior to the action.

6.5 Methods for selecting a file

After the Answer To Reset (ATR), the Master File (MF) is implicitly selected and becomes the Current Directory. Each file may then be selected by using the SELECT function as specified in TS 31.101~~102 221~~ [553] with the following exception:

- Only support selection by file ID referencing and the command parameters as specified in the present document.

9 Description of the commands

The command description and structure is defined in TS 31.101~~102 221~~ [55]. The coding of the CLA, INS and parameter bytes are according to TS 31.101~~102 221~~ [55] with the limitations stated in the command description in the present document.This clause states the general principles for mapping the commands and responses onto Application Protocol Data Units which are used by the transmission protocol.

9.1 Mapping principles

The mapping of protocol T=0 with respect to the TPDU level is according to TS ~~102 221~~31.101 [55] with the following exceptions:

- The use of procedure byte '6C' for Case 2 commands as defined in TS 31.101~~102 221~~ [55] shall be replaced by the usage of '9F' as described in case 2b below. According to the present document the status byte '9F' triggers a GET RESPONSE command whereas the procedure byte '6C' in TS 31.101~~102 221~~ [55] triggers re-issuing of the same command.

- The use of procedure byte '61' for Case 4 commands as defined in TS 31.101~~102 221~~ [55] shall be replaced by the usage of '9F' as described in case 4 below. According to the present document the status byte '9F' triggers one GET RESPONSE command, which is optional for the ME, whereas the procedure byte '61' in TS 31.101~~102 221~~ [55] triggers one or more GET RESPONSE commands depending upon the procedure bytes following the GET RESPONSE command.

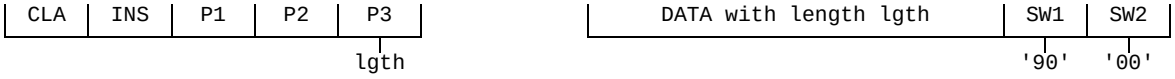
For some commands described in the present document it is necessary for T=0 to use a supplementary transport service command (GET RESPONSE) to obtain the output data. For example, the SELECT function needs the following two commands:

- the first command (SELECT) has both parameters and data serving as input for the function;
- the second command (GET RESPONSE) has a parameter indicating the length of the data to be returned.

If the length of the response data is not known beforehand, then its correct length may be obtained by applying the first command and interpreting the status words. SW1 shall be '9F' and SW2 shall give the total length of the data. Other status words may be present in case of an error. The various cases are:

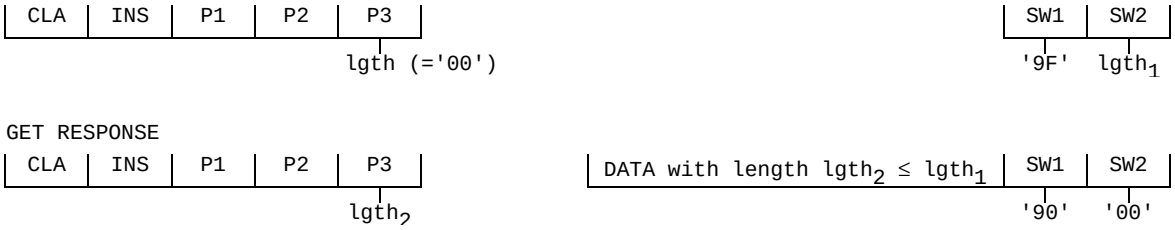
Case 1: No input / No output

Case 2a: No input / Output of known length

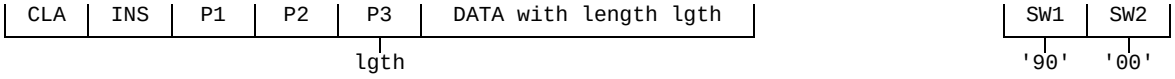


NOTE: lgth='00' causes a data transfer of 256 bytes.

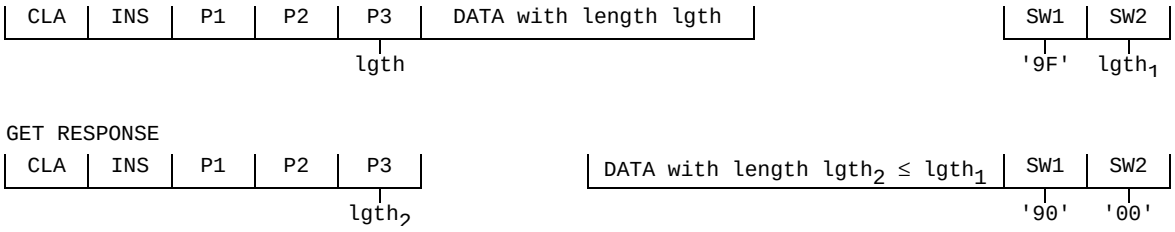
Case 2b: No Input / Output of unknown length



Case 3: Input / No output



Case 4: Input / Output of known or unknown length



For case 4, in case of an ENVELOPE for SIM data download, SW1/SW2 may also indicate that there is response data with the value '9EXX', and the ME shall then send a GET RESPONSE command to get this response data.

The following diagrams show how the five cases of transmission protocol identified in the above diagrams can all be used to send pro-active SIM commands. For further information on the diagrams below see TS 11.14 [27].

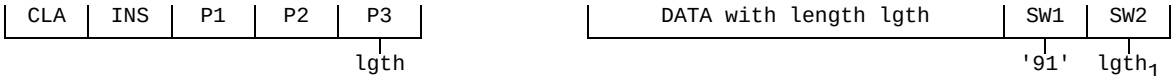
Case 1: No input / "OK" response with no output, plus additional command from SIM

[Possible "normal GSM operation" command/response pairs]

FETCH

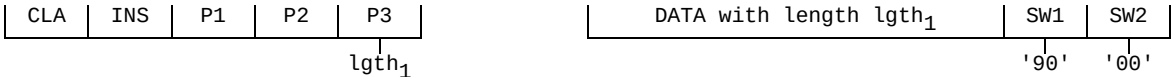
NOTE: $lgth_1$='00' causes a data transfer of 256 bytes.

Case 2a: No input / "OK" response with data of known length, plus additional command from SIM



[Possible "normal GSM operation" command/response pairs]

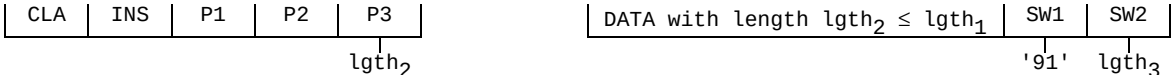
FETCH



NOTE: lgth='00' causes a data transfer of 256 bytes. The same applies to $lgth_1$.

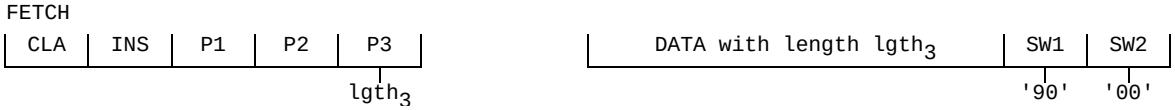
Case 2b: No Input / "OK" response with data of unknown length, plus additional command from SIM

GET RESPONSE

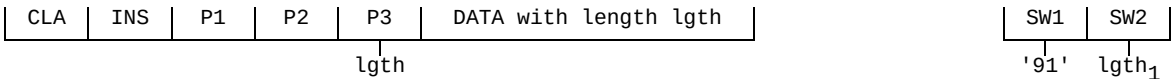


[Possible "normal GSM operation" command/response pairs]

FETCH



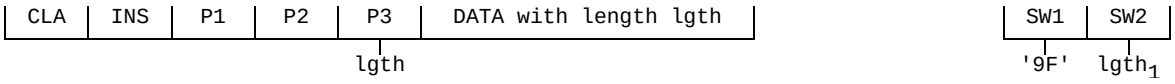
Case 3: Input / "OK" response with no output data, plus additional command from SIM



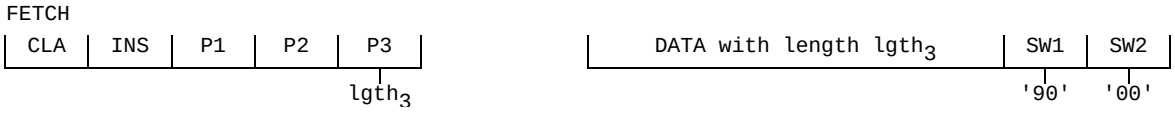
[Possible "normal GSM operation" command/response pairs]

FETCH

Case 4: Input / "OK" response with data of known or unknown length, plus additional command from SIM



[Possible "normal GSM operation" command/response pairs]



9.2 Coding of the commands

The commands are coded as specified in TS 31.101~~102 221~~ [55~~42~~] with the class byte set to 'A0'. In addition to the instruction codes specified TS 31.101~~102 221~~ [55] the following codes are reserved:

GSM operational phase:

'1X' with X even, from X=6 to X=E.

Administrative management phase:

'2A', 'D0', 'D2', 'DE', 'C4', 'C6', 'C8', 'CA', 'CC', 'B4', 'B6', 'B8', 'BA' and 'BC'.

NOTE: This reservation may not be respected by other applications residing on a UICC or further evoluation of TS 31.101~~102 221~~ [55].

9.2.1 SELECT

The SELECT command is coded as specified in TS ~~102 221~~31.101 [55] with the following limitations:

- Class = 'A0'
- P1, P2 = '00'
- P3 = '02'

The response to the SELECT command with the parameters as specified is as follows:

Response parameters/data in case of an MF or DF:

Byte(s)	Description	Length
1 - 2	RFU	2
3 - 4	Total amount of memory of the selected directory which is not allocated to any of the DFs or EFs under the selected directory	2
5 - 6	File ID	2
7	Type of file (see clause 9.3)	1
8 - 12	RFU	5
13	Length of the following data (byte 14 to the end)	1
14 - 34	GSM specific data	21

GSM specific data:

Byte(s)	Description	Length
14	File characteristics (see detail 1)	1
15	Number of DFs which are a direct child of the current directory	1
16	Number of EFs which are a direct child of the current directory	1
17	Number of CHVs, UNBLOCK CHVs and administrative codes	1
18	RFU	1
19	CHV1 status (see detail 2)	1
20	UNBLOCK CHV1 status (see detail 2)	1
21	CHV2 status (see detail 2)	1
22	UNBLOCK CHV2 status (see detail 2)	1
23	RFU	1
24 - 34	Reserved for the administrative management	0 ≤ lgth ≤ 11

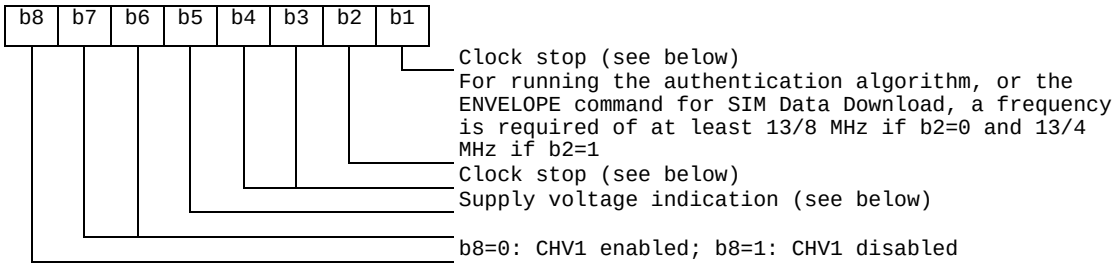
Bytes 1 - 22 are mandatory and shall be returned by the SIM. Bytes 23 and following are optional and may not be returned by the SIM.

NOTE 1: Byte 35 and following are RFU.

NOTE 2: The STATUS information of the MF, DF_{GSM} and $DF_{TELECOM}$ provide some identical application specific data, e.g. CHV status. On a multi-application card the MF should not contain any application specific data. Such data is obtained by terminals from the specific application directories. ME manufacturers should take this into account and therefore not use application specific data which may exist in the MF of a mono-application SIM.

Similarly, the VERIFY CHV command should not be executed in the MF but in the relevant application directory (e.g. DF_{GSM}).

Detail 1: File characteristics



The coding of the conditions for stopping the clock is as follows:

Bit b1	Bit b3	Bit b4	
1	0	0	clock stop allowed, no preferred level
1	1	0	clock stop allowed, high level preferred
1	0	1	clock stop allowed, low level preferred
0	0	0	clock stop not allowed
0	1	0	clock stop not allowed, unless at high level
0	0	1	clock stop not allowed, unless at low level

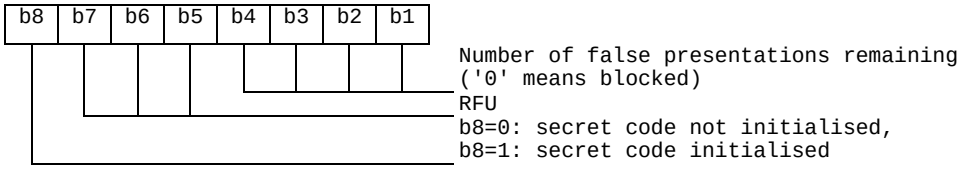
If bit b1 (column 1) is coded 1, stopping the clock is allowed at high or low level. In this case columns 2 (bit b3) and 3 (bit b4) give information about the preferred level (high or low, respectively) at which the clock may be stopped.

If bit b1 is coded 0, the clock may be stopped only if the mandatory condition in column 2 (b3=1, i.e. stop at high level) or column 3 (b4=1, i.e. stop at low level) is fulfilled. If all 3 bits are coded 0, then the clock shall not be stopped.

The coding of the conditions for the supply voltage indication is as follows:

SIM Supply Voltage	Bit 7	Bit 6	Bit 5
5V only SIM	0 (RFU) [1]	0 (RFU) [1]	0 (RFU) [1]
3V Technology SIM	0 (RFU) [1]	0 (RFU) [1]	1
1.8V Technology SIM	0 (RFU) [1]	1	1
Future Class	1	1	1
NOTE 1 The bits marked (RFU) are set to '0' and reserved for future use in the SIMs. The coding schemes relies on the fact that RFU bits are set to '0'.			

Detail 2: Status byte of a secret code



Response parameters/data in case of an EF:

Byte(s)	Description	Length
1 - 2	RFU	2
3 - 4	File size (for transparent EF: the length of the body part of the EF) (for linear fixed or cyclic EF: record length multiplied by the number of records of the EF)	2
5 - 6	File ID	2
7	Type of file (see 9.3)	1
8	see detail 3	1
9 - 11	Access conditions (see 9.3)	3
12	File status (see 9.3)	1
13	Length of the following data (byte 14 to the end)	1
14	Structure of EF (see 9.3)	1
15	Length of a record (see detail 4)	1
16 and following	RFU	-

Bytes 1-14 are mandatory and shall be returned by the SIM.

Byte 15 is mandatory in case of linear fixed or cyclic EFs and shall be returned by the SIM.

Byte 15 is optional in case of transparent EFs and may not be returned by the SIM.

Byte 16 and following (when defined) are optional and may not be returned by the SIM.

Detail 3: Byte 8

For transparent and linear fixed EFs this byte is RFU. For a cyclic EF all bits except bit 7 are RFU; b7=1 indicates that the INCREASE command is allowed on the selected cyclic file.

Detail 4: Byte 15

For cyclic and linear fixed EFs this byte denotes the length of a record. For a transparent EF, this byte shall be coded '00', if this byte is sent by the SIM.

9.2.2 STATUS

The STATUS command is coded as specified in TS 31.101~~102 221~~ [55] with the following limitations:

- Class = 'A0'
- P1, P2 = '00'

The response parameters/data are identical to the response parameters/data of the SELECT command in case of an MF or DF.

9.2.3 READ BINARY

The READ BINARY command is coded as specified in TS 31.101~~102 221~~ [55] with the following limitations:

- Class = 'A0'
- B8 in P1 shall be set to '0'

The response is according to the command parameters as defined in TS 31.101~~102 221~~ [55].

9.2.4 UPDATE BINARY

The UPDATE BINARY command is coded as specified in TS 31.101~~102 221~~ [55] with the following limitations:

- Class = 'A0'
- B8 in P1 shall be set to '0'

The response is according to the command parameters as defined in TS ~~102 221~~31.101 [55].

9.2.5 READ RECORD

The READ RECORD command is coded as specified in TS 31.101~~102 221~~ [55] with the following limitations:

Class = 'A0'

P2 = '02', '03', '04'

9.2.6 UPDATE RECORD

The UPDATE RECORD command is coded as specified in TS 31.101~~102 221~~ [55] with the following limitations:

Class = 'A0'

P2 = '02', '03', '04'

The response is according to the command parameters, as defined in TS 31.101~~102 221~~ [55]

9.2.7 SEEK

The instruction code 'A2' identifies the SEARCH RECORD command as defined in TS ~~102 221~~31.101 [55]. In the present document the instruction code 'A2' is defined for the SEEK command for class 'A0'.

This function searches through the current linear fixed EF to find a record starting with the given pattern. This function shall only be performed if the READ access condition for this EF is satisfied. Two types of SEEK are defined:

Type 1 The record pointer is set to the record containing the pattern, no output is available.

Type 2 The record pointer is set to the record containing the pattern, the output is the record number.

NOTE: A Phase 1 SIM only executes type 1 of the SEEK function.

The SIM shall be able to accept any pattern length from 1 to 16 bytes inclusive. The length of the pattern shall not exceed the record length.

Four modes are defined:

- from the beginning forwards;
- from the end backwards;
- from the next location forwards;

- from the previous location backwards.

If the record pointer has not been previously set (its status is undefined) within the selected linear fixed EF, then the search begins:

- with the first record in the case of SEEK from the next location forwards; or
- with the last record in the case of SEEK from the previous location backwards.

After a successful SEEK, the record pointer is set to the record in which the pattern was found. The record pointer shall not be changed by an unsuccessful SEEK function.

COMMAND	CLASS	INS	P1	P2	P3
SEEK	'A0'	'A2'	'00'	Type/Mode	lgth

Parameter P2 specifies type and mode:

- 'x0' = from the beginning forward;
- 'x1' = from the end backward;
- 'x2' = from the next location forward;
- 'x3' = from the previous location backward;

with x='0' specifies type 1 and x='1' specifies type 2 of the SEEK command.

Command parameters/data:

Byte(s)	Description	Length
1 - lgth	Pattern	Lgth

There are no response parameters/data for a type 1 SEEK. A type 2 SEEK returns the following response parameters/data:

Byte(s)	Description	Length
1	Record number	1

9.2.8 INCREASE

The INCREASE command is coded as specified in TS 31.101~~102 221~~ [55] with the following limitations:

- Class = 'A0'
- P1,P2 = '00'
- P3 = '03'

The response is according to the command parameters, as defined in TS ~~102 221~~31.101 [55]

9.2.9 VERIFY CHV

The VERIFY CHV is identical to the VERIFY PIN command as specified in TS 31.101~~102 221~~ [55] with the following limitations:

- Class = 'A0'
- P1 = '00'
- P3 = '08'

NOTE: The functionality of the VERIFY CHV command is limited to CHV verification and can not be used to retrieve the retry counter value as specified in TS 31.101~~102 221~~ [55].

Parameter P2 specifies the CHV:

- '01' = CHV1;
- '02' = CHV2.

The response is according to the command parameters, as defined in TS 31.101~~102 221~~ [55].

9.2.10 CHANGE CHV

The CHANGE CHV is identical to the CHANGE PIN command as specified in TS 31.101~~102 221~~ [55] with the following limitations:

- Class = 'A0'
- P1 = '00'

Parameter P2 specifies the CHV:

- '01' = CHV1;
- '02' = CHV2.

The response is according to the command parameters, as defined in TS 31.101~~102 221~~ [55].

9.2.11 DISABLE CHV

The DISABLE CHV is identical to the DISABLE PIN command as specified in TS 31.101~~102 221~~ [55] with the following limitations:

- Class = 'A0'
- P1 = '00'
- P2 = '01'

NOTE: The functionality of the DISABLE CHV command is limited to CHV disabling and can not be used to indicate the use of an alternative CHV (global key reference) as specified in TS 31.101~~102 221~~ [55].

The response is according to the command parameters, as defined in TS 31.101~~102 221~~ [55].

9.2.12 ENABLE CHV

The ENABLE CHV is identical to the ENABLE PIN command as specified in TS ~~102 221~~31.101 [55] with the following limitations:

- Class = 'A0'
- P1 = '00'
- P2 = '01'

The response is according to the command parameters, as defined in TS 31.101~~102 221~~ [55].

9.2.13 UNBLOCK CHV

The UNBLOCK CHV is identical to the UNBLOCK PIN command as specified in TS ~~102 221~~31.101 [55] with the following limitations:

- Class = 'A0'

- P1 = '00'

Parameter P2 specifies the CHV:

- 00 = CHV1;
- 02 = CHV2.

NOTE: The coding '00' for CHV1 differs from the coding of CHV1 used for other commands.

The response is according to the command parameters, as defined in TS 31.101~~102 221~~ [55].

9.2.14 INVALIDATE

The INVALIDATE command is identical to the DEACTIVATE command as specified in TS 31.101~~102 221~~ [55] with the following limitations:

- Class = 'A0'
- P1,P2 = '00'

The response is according to the command parameters, as defined in TS 31.101~~102 221~~ [55].

9.2.15 REHABILITATE

The REHABILITATE command is identical to the ACTIVATE command as specified in TS ~~102 221~~31.101 [55] with the following limitations:

- Class = 'A0'
- P1,P2 = '00'

The response is according to the command parameters, as defined in TS 31.101~~102 221~~ [55].

9.2.16 RUN GSM ALGORITHM

The RUN GSM ALGORITHM is identical to the AUTHENTICATE command as specified in TS 31.101~~102 221~~ [55] with the following limitations:

- Class = 'A0'
- P1,P2 = '00'
- P3 = '10'

The structure of the Command parameters/data is as follows only for the specified parameters:~~:~~

Byte(s)	Description	Length
1 - 16	RAND	16

The structure of the Response parameters/data is as follows only for the specified parameters:

Byte(s)	Description	Length
1 - 4	SRES	4
5 - 12	Cipher Key Kc	8

The most significant bit of SRES is coded on bit 8 of byte 1. The most significant bit of Kc is coded on bit 8 of byte 5.

9.2.17 SLEEP

This is an obsolete function used by Phase 1 MEs.

In order to achieve phase compatibility, a SIM of Phase 2 or later shall always send the status information "normal ending of the command" after the successful interpretation of the command SLEEP received from a Phase 1 ME. An ME of Phase 2 or later shall not send a SLEEP command;

COMMAND	CLASS	INS	P1	P2	P3
SLEEP	'A0'	'FA'	'00'	'00'	'00'

9.2.18 GET RESPONSE

The GET RESPONSE command is coded as specified in TS ~~102 221~~31.101 [55] with the following limitations:

Class = 'A0'

Since the MF is implicitly selected after activation of the SIM, GET RESPONSE is also allowed as the first command after activation.

9.2.19 TERMINAL PROFILE

The TERMINAL PROFILE command is coded as specified in TS ~~102 221~~31.101 [55] with the following limitations:

- Class = 'A0'

9.2.20 ENVELOPE

The ENVELOPE command is coded as specified in TS ~~102 221~~31.101 [55] with the following limitations:

Class = 'A0'

9.2.21 FETCH

The FETCH command is coded as specified in TS 31.101~~102 221~~ [55] with the following limitations:

Class = 'A0'

9.2.22 TERMINAL RESPONSE

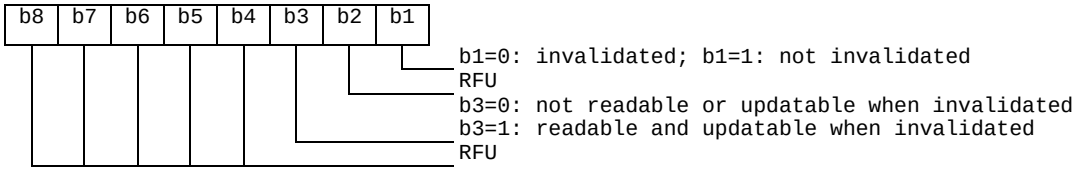
The TERMINAL RESPONSE command is coded as specified in TS 31.101~~102 221~~ [55] with the following limitations:

Class = 'A0'

9.3 Definitions and coding

The coding conventions defined in TS 31.101~~102 221~~ [55] applies with the following exceptions

File status



Bit b3 may be set to 1 in special circumstances when it is required that the EF can be read and updated even if the EF is invalidated, e.g. reading and updating the EF_{ADN} when the FDN feature is enabled, or reading and updating the EF_{BDN} when the BDN feature is disabled.

Structure of file

- '00' transparent;

- '01' linear fixed;
- '03' cyclic.

Type of File

- '00' RFU;
- '01' MF;
- '02' DF;
- '04' EF.

Coding of CHVs and UNBLOCK CHVs

A CHV is coded on 8 bytes. Only (decimal) digits (0-9) shall be used, coded in ITU-T T.50 [20] with bit 8 set to zero. The minimum number of digits is 4. If the number of digits presented by the user is less than 8 then the ME shall pad the presented CHV with 'FF' before sending it to the SIM.

The coding of the UNBLOCK CHVs is identical to the coding of the CHVs. However, the number of (decimal) digits is always 8.

Coding of Access Conditions

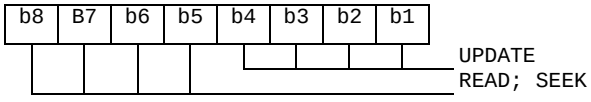
The access conditions for the commands are coded on bytes 9, 10 and 11 of the response data of the SELECT command if class byte 'A0' is usedEach condition is coded on 4 bits as shown in table 10.

Table 10: Access conditions

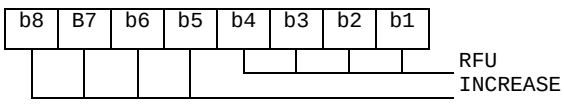
ALW	'0' *
CHV1	'1' *
CHV2	'2' *
RFU	'3'
ADM	'4'
.....	..
ADM	'E'
NEW	'F' *

Entries marked "*" in the table above, are also available for use as administrative codes in addition to the ADM access levels '4' to 'E' (refer to clause 7.3) if required by the appropriate administrative authority. If any of these access conditions are used, the code returned in the Access Condition bytes in the response data shall be the code applicable to that particular level.

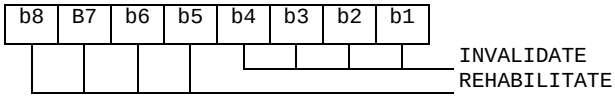
Byte 9:



Byte 10:



Byte 11:



10 Contents of the Elementary Files (EF)

This clause specifies the EFs for the GSM session defining access conditions, data items and coding. A data item is a part of an EF which represents a complete logical entity, e.g. the alpha tag in a EF_{ADN} record.

EFs or data items having an unassigned value, or, which during the GSM session, are cleared by the ME, shall have their bytes set to 'FF'. After the administrative phase all data items shall have a defined value or have their bytes set to 'FF'. If a data item is 'deleted' during a GSM session by the allocation of a value specified in another GSM TS, then this value shall be used, and the data item is not unassigned; e.g. for a deleted LAI in EF_{LOCI} the last byte takes the value 'FE' (TS 04.08 [15] refers).

EFs are mandatory (M) or optional (O). The file size of an optional EF may be zero. All implemented EFs with a file size greater than zero shall contain all mandatory data items. Optional data items may either be filled with 'F', or, if located at the end of an EF, need not exist.

When the coding is according to ITU-T T.50 [20], bit 8 of every byte shall be set to 0.

For an overview containing all files see figure 8.

10.1 Contents of the EFs at the MF level

The present document specifies only two Efs at the MF level. The presence of EF_{DIR} on a SIM is optional. The present document does not specify the mechanism to select a SIM application using EF_{DIR}.

10.1.1 EF_{ICCID} (ICC Identification)

This EF provides a unique identification number for the SIM. The structure of this EF is as defined in TS 31.101~~102 221~~ [55]. Network operators issuing a SIM according to this document may use an identification number length of 20 bytes. SIM issued with identification number coded on 20 bytes may also have the digits in a byte not swapped.

10.1.2 EF_{PL} (Preferred language)

The structure of this data field is as defined in TS 31.101~~102 221~~ [55]. The presence of this file is optional for a SIM.

. This information may be used by the ME for MMI purposes.This information may also be used for the screening of Cell Broadcast messages in a preferred language, as follows.

When the CB Message Identifier capability is both allocated and activated, the ME selects only those CB messages the language of which corresponds to an entry in this EF or in EF_{LP}, whichever of these EFs is used (see clause 11.2.1). The CB message language is defined by the Data Coding Scheme (DCS: see TS 23.038 [12]) received with the CB message. The ME shall be responsible for translating the language coding indicated in the Data Coding Scheme for the Cell Broadcast Service (as defined in TS 23.038 [12]) to the language coding as defined in ISO 639 [30] if it is necessary to check the language coding in EF_{PL}.

NOTE: This file is called EF_{ELP} (Extended Langueage preference) in previous releases of the present document, i.e.~~GSM~~TS 11.11.~~previous releases of the present document~~

11.1 General procedures

Procedures on different types of files shall be in accordance with TS 31.101~~102 221~~ [55] with the limitation that the use of short file IDs is not supported by the SIM.

3GPP T3 (USIM) Meeting #24
Seattle, USA, 19 – 22 August 2002

Tdoc ⌘T3-020717

CR-Form-v7

CHANGE REQUEST

⌘ **51.011** **CR** **013** ⌘ **rev** **-** ⌘ Current version: **4.4.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ [X] ME [X] Radio Access Network [ ] Core Network [ ]

Title:	⌘	Inconsistent record length of EF(IMG)
Source:	⌘	T3
Work item code:	⌘	TEI
Date:	⌘	22/08/2002
Category:	⌘	**A**
Release:	⌘	Rel-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The length of the records of EF(IMG) is wrongly indicated in the specification. Each record contains : first a mandatory byte (number of instances) second n descriptors, each being 9 bytes long third, an optional byte (RFU) Therefore the record length is either 9n+1 or 9n+2 bytes
Summary of change:	⌘	Changed the indicated record length to “9n+1 or 9n+2 bytes”
Consequences if not approved:	⌘	Risk of wrong implementation in the SIM or the ME, resulting in a wrong inter-working of the SIM and the ME.

Clauses affected:	⌘	10.6.1.1

Other specs affected:	Y	N			
⌘	X		Other core specifications	⌘	11.11, 31.102
		X	Test specifications		
		X	O&M Specifications		

Other comments: ⌘

10.6.1.1 EF_{IMG} (Image)

Each record of this EF identifies instances of one particular graphical image, which graphical image is identified by this EF's record number.

Image instances may differ as to their size, having different resolutions, and the way they are coded, using one of several image coding schemes.

As an example, image k may represent a company logo, of which there are i instances on SIM, of various resolutions and perhaps encoded in several image coding schemes. Then, the i instances of the company's logo are described in record k of this EF.

Identifier: '4F20'	Structure: linear fixed	Optional
Record length: 9n+1 or 9n+2 bytes	Update activity: low	

Access Conditions:

READ	CHV1
UPDATE	ADM
INVALIDATE	ADM
REHABILITATE	ADM

Bytes	Description	M/O	Length
1	Number of Actual Image Instances	M	1 byte
2 to 10	Descriptor of Image Instance 1	M	9 bytes
11 to 19	Descriptor of Image Instance 2	O	9 bytes
:			
9 (n-1) + 2 to 9n + 1	Descriptor of Image Instance n	O	9 bytes
9n + 2	RFU	O	1 byte

- Number of Actual Image Instances

  Contents: this byte gives the number of actual image instances described in the following data items (i.e. unused descriptors are not counted).

  Coding: binary

- Image Instance Descriptor

  Contents: a description of an image instance

  Coding: see below

  Byte 1: Image Instance Width

  Contents:

  this byte specifies the image instance width, expressed in raster image points.

  Coding:

  binary.

  Byte 2: Image Instance Height

  Contents:

  this byte specifies the image instance height, expressed in raster image points.

  Coding:

  binary.

  Byte 3: Image Coding Scheme

Contents:

this byte identifies the image coding scheme that has been used in encoding the image instance.

Coding:

'11' - basic image coding scheme as defined in annex G;

'21' - colour image coding scheme as defined in annex G;

other values are reserved for future use.

Bytes 4 and 5: Image Instance File Identifier

Contents:

these bytes identify an EF which is the image instance data file (see clause 10.6.1.2), holding the actual image data for this particular instance.

Coding:

byte 4: high byte of Image Instance File Identifier;

byte 5: low byte of Image Instance File Identifier.

Bytes 6 and 7: Offset into Image Instance File

Contents:

these bytes specify an offset into the transparent Image Instance File identified in bytes 4 and 5.

Coding:

byte 6: high byte of offset into Image Instance File;

byte 7: low byte of offset into Image Instance File

Bytes 8 and 9: Length of Image Instance Data

Contents:

these bytes yield the length of the image instance data, starting at the offset identified in bytes 6 and 7.

Coding:

byte 8: high byte of Image Instance Data length;

byte 9: low byte of Image Instance Data length.

NOTE: Transparent image instance data longer than 256 bytes may be read using successive READ BINARY commands.

3GPP TSG-T3 Meeting #24
Seattle, USA, 19-22 August 2002

Tdoc ⌘T3-020719

CR-Form-v7

CHANGE REQUEST

⌘ **51.011** **CR** **014** ⌘ **rev** **-** ⌘ Current version: **4.4.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ [X] ME [X] Radio Access Network [ ] Core Network [ ]

Title:	⌘	Incomplete description of EF_{ECCP}
Source:	⌘	T3
Work item code:	⌘	TEI
Date:	⌘	22/08/2002
Category:	⌘	**F**
Release:	⌘	Rel-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The description of EF_{ECCP} is not complete within the specification
Summary of change:	⌘	The description of EF_{ECCP} in chapter "Files of GSM" and "EF changes via Data Download or SIM Toolkit applications" is completed
Consequences if not approved:	⌘	• Incomplete description of EF_{ECCP} in figure "File identifiers and directory structures of GSM" • Incomplete description of EF_{ECCP} in Annex "EF changes via Data Download or SIM Toolkit applications"
Clauses affected:	⌘	10.7; Annex I

		Y	N		
Other specs Affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

10.7 Files of GSM

This clause contains a figure depicting the file structure of the SIM. DF_{GSM} shall be selected using the identifier '7F20'. If selection by this means fails, then DCS 1800 MEs shall, and optionally GSM MEs may then select DF_{GSM} with '7F21'.

NOTE 1: The selection of the GSM application using the identifier '7F21', if selection by means of the identifier '7F20' fails, is to ensure backwards compatibility with those Phase 1 SIMs which only support the DCS 1800 application using the Phase 1 directory $DF_{DCS1800}$ coded '7F21'.

NOTE 2: To ensure backwards compatibility with those Phase 1 DCS 1800 MEs which have no means to select DF_{GSM} two options have been specified. These options are given in GSM 09.91 [17].

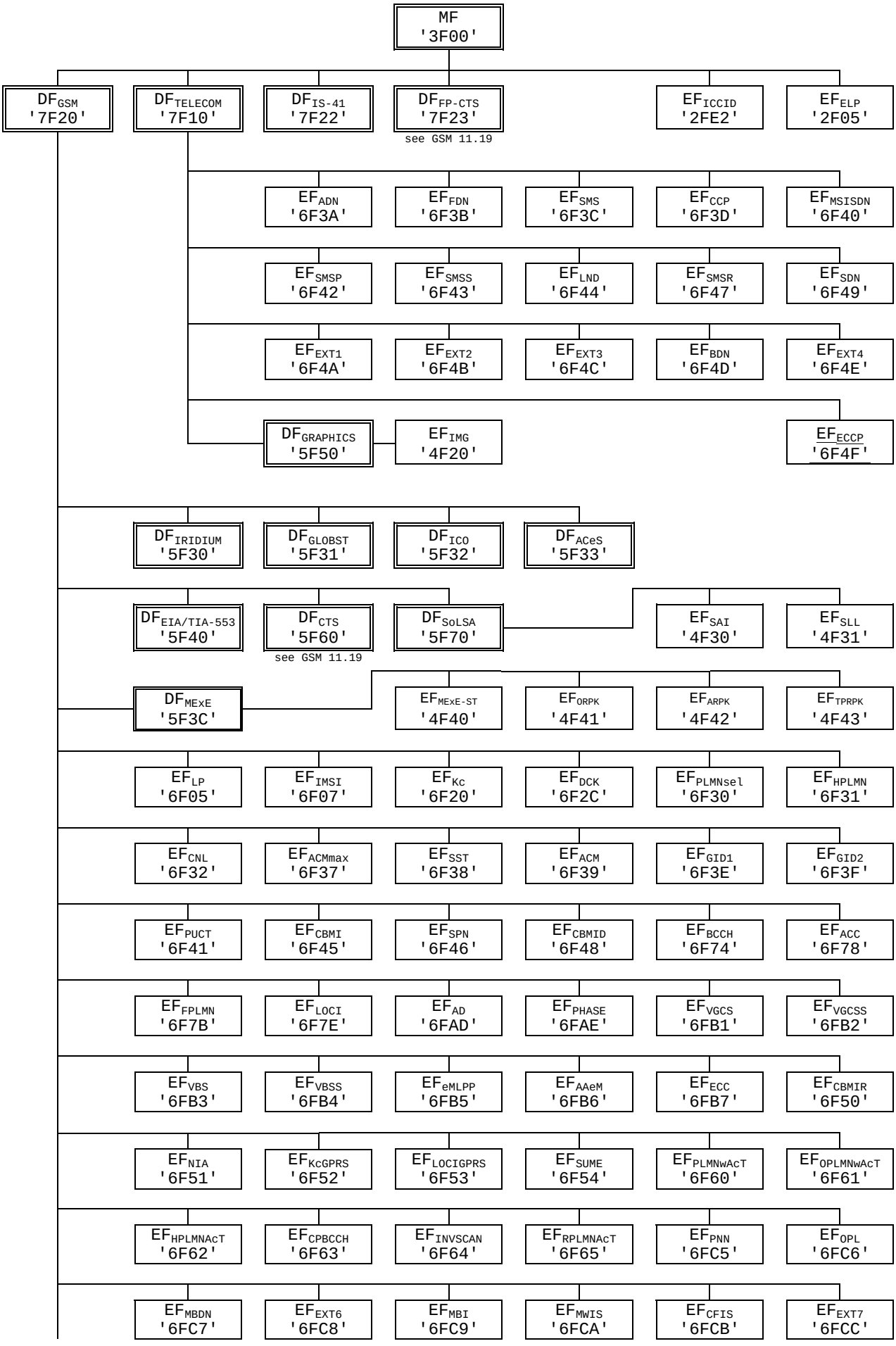

MF '3F00'
DF GSM '7F20'
DF TELECOM '7F10'
DF IS-41 '7F22'
DF FP-CTS '7F23'
see GSM 11.19
EF ICCID '2FE2'
EF ELP '2F05'
EF ADN '6F3A'
EF FDN '6F3B'
EF SMS '6F3C'
EF CCP '6F3D'
EF MSISDN '6F40'
EF SMSP '6F42'
EF SMSS '6F43'
EF LND '6F44'
EF SMSR '6F47'
EF SDN '6F49'
EF EXT1 '6F4A'
EF EXT2 '6F4B'
EF EXT3 '6F4C'
EF BDN '6F4D'
EF EXT4 '6F4E'
DF GRAPHICS '5F50'
EF IMG '4F20'
EF ECCP '6F4F'
DF IRIDIUM '5F30'
DF GLOBST '5F31'
DF ICO '5F32'
DF ACeS '5F33'
DF EIA/TIA-553 '5F40'
DF CTS '5F60'
see GSM 11.19
DF SoLSA '5F70'
EF SAI '4F30'
EF SLL '4F31'
DF MExE '5F3C'
EF MExE-ST '4F40'
EF ORPK '4F41'
EF ARPK '4F42'
EF TPRPK '4F43'
EF LP '6F05'
EF IMSI '6F07'
EF Kc '6F20'
EF DCK '6F2C'
EF PLMNsel '6F30'
EF HPLMN '6F31'
EF CNL '6F32'
EF ACMmax '6F37'
EF SST '6F38'
EF ACM '6F39'
EF GID1 '6F3E'
EF GID2 '6F3F'
EF PUCT '6F41'
EF CBMI '6F45'
EF SPN '6F46'
EF CBMID '6F48'
EF BCCH '6F74'
EF ACC '6F78'
EF FPLMN '6F7B'
EF LOCI '6F7E'
EF AD '6FAD'
EF PHASE '6FAE'
EF VGCS '6FB1'
EF VGCSS '6FB2'
EF VBS '6FB3'
EF VBSS '6FB4'
EF eMLPP '6FB5'
EF AAeM '6FB6'
EF ECC '6FB7'
EF CBMIR '6F50'
EF NIA '6F51'
EF KcGPRS '6F52'
EF LOCIGPRS '6F53'
EF SUME '6F54'
EF PLMNwAcT '6F60'
EF OPLMNwAcT '6F61'
EF HPLMNAcT '6F62'
EF CPBCCH '6F63'
EF INVSCAN '6F64'
EF RPLMNAcT '6F65'
EF PNN '6FC5'
EF OPL '6FC6'
EF MBDN '6FC7'
EF EXT6 '6FC8'
EF MBI '6FC9'
EF MWIS '6FCA'
EF CFIS '6FCB'
EF EXT7 '6FCC'

Figure 8: File identifiers and directory structures of GSM

Annex I (informative): EF changes via Data Download or SIM Toolkit applications

This annex defines if changing the content of an EF by the network (e.g. by sending an SMS), or by SIM Toolkit Application (e.g. by using the SIM API), is advisable. Updating of certain EFs, "over the air" such as EF_{ACC} could result in unpredictable behaviour of the MS; these are marked "Caution" in the table below. Certain EFs are marked "No"; under no circumstances should "over the air" changes of these EFs be considered.

File identification	Description	Change advised
'2F05'	Extended Language preference	Yes
'2FE2'	ICC identification	No
'4F20'	Image data	Yes
'4Fxx'	Image Instance data Files	Yes
'6F05'	Language preference	Yes
'6F07'	IMSI	Caution (note)
'6F20'	Ciphering key Kc	No
'6F2C'	De-personalization Control Keys	Caution
'6F30'	PLMN selector	Caution
'6F31'	HPLMN search period	Caution
'6F32'	Co-operative network	Caution
'6F37'	ACM maximum value	Yes
'6F38'	SIM service table	Caution
'6F39'	Accumulated call meter	Yes
'6F3A'	Abbreviated dialling numbers	Yes
'6F3B'	Fixed dialling numbers	Yes
'6F3C'	Short messages	Yes
'6F3D'	Capability configuration parameters	Yes
'6F3E'	Group identifier level 1	Yes
'6F3F'	Group identifier level 2	Yes
'6F40'	MSISDN storage	Yes
'6F41'	PUCT	Yes
'6F42'	SMS parameters	Yes
'6F43'	SMS status	Yes
'6F44'	Last number dialled	Yes
'6F45'	CBMI	Caution
'6F46'	Service provider name	Yes
'6F47'	Short message status reports	Yes
'6F48'	CBMID	Yes
'6F49'	Service Dialling Numbers	Yes
'6F4A'	Extension 1	Yes
'6F4B'	Extension 2	Yes
'6F4C'	Extension 3	Yes
'6F4D'	Barred dialling numbers	Yes
'6F4E'	Extension 4	Yes
‘6F4F’	Extended Capability configuration parameters	Yes
'6F50'	CBMIR	Yes
'6F51'	Network's indication of alerting	Caution
'6F52'	GPRS Ciphering key KcGPRS	No
'6F53'	GPRS Location Information	Caution
'6F58'	Comparison method information	
'6F60'	User controlled PLMN Selector with Access Technology	see 3GPP TS 22.011
'6F61'	Operator controlled PLMN Selector with Access Technology	Caution
'6F62'	HPLMN Selector with Access Technology	Caution
'6F63'	CPBCCH information	No
'6F64'	Investigation scan	Caution
'6F65'	RPLMN last used Access Technology	No
'6F74'	BCCH information	No
'6F78'	Access control class	Caution
'6F7B'	Forbidden PLMNs	Caution
'6F7E'	Location information	No (note)

Continued.....

File identification	Description	Change advised
'6FAD'	Administrative data	Caution
'6FAE'	Phase identification	Caution
'6FB1'	Voice Group Call Service	Yes
'6FB2'	Voice Group Call Service Status	Yes
'6FB3'	Voice Broadcast Service	Yes
'6FB4'	Voice Broadcast Service Status	Yes
'6FB5'	Enhanced Multi Level Pre-emption and Priority	Yes
'6FB6'	Automatic Answer for eMLPP Service	Yes
'6FB7'	Emergency Call Codes	Caution
'6FC5'	PLMN Network Name	Yes
'6FC6'	Operator PLMN List	Yes
'6FC7'	Mailbox Dialling Numbers	Yes
'6FC8'	Extension 6	Yes
'6FC9'	Mailbox Identifier	Caution
'6FCA'	Message Waiting Indication Status	Caution
'6FCB'	Call Forwarding Indication Status	Caution
'6FCC'	Extension 7	Yes
'6FCD'	Service Provider Display Information	Yes
NOTE: If EF_{IMSI} is changed, the SIM should issue REFRESH as defined in TS 11.14 [27] and update EF_{LOCI} accordingly.		

3GPP TSG-T3 Meeting #24
Seattle, USA, 19-22 August 2002

Tdoc ⌘T3-020720rev1

CR-Form-v3

CHANGE REQUEST

⌘ **51.011 CR 015** ⌘ rev **-** ⌘ Current version: **4.4.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘

	UICC apps⌘
X	ME
X	Radio Access Network
	Core Network

Title:	⌘	Introduction of MMS files and procedures
Source:	⌘	T3
Work item code:	⌘	MMS
Date:	⌘	22/08/02
Category:	⌘	**B**
Release:	⌘	REL-4

Use one of the following categories:
F *(essential correction)*
A *(corresponds to a correction in an earlier release)*
B *(Addition of feature),*
C *(Functional modification of feature)*
D *(Editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	SA requests the introduction of MMS files in the SIM.
Summary of change:	⌘	This contribution proposes to add the storage of MMS related information in several elementary files on the SIM. In detail this contribution proposes: - Changes in EFSST. - A new file EFMMSN , in which the MMS Notification can be stored. - A new file EFEXT8, in which extensions to the Notification can be stored - 2 new file EFMMSICP/ EFMMSUCP , in which the MMS Connectivity Parameters can be stored. A new file EFMMUP, in which the MMS User Preferences can be stored.
Consequences if not approved:	⌘	Does not answer SA requirements

Clauses affected:	⌘	2, 10.3.7, 10.3.UU, 10.3.VV, 10.3.WW, 10.3.XX, 10.3.YY, 10.3.ZZ, 10.7, 11.5.W, 11.5.X, 11.5.Y, 11.5.Z, Annexes D, I, J, X

Other specs Affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	
Other comments:	⌘			

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] Void.

[2] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[3] 3GPP TS 02.07: "Mobile Stations (MS) features".

[…]

[54] 3GPP TS 23.097: "Multiple Subscriber Profile (MSP) (Phase 2) - Stage 2".

[55] ETSI TS 102 221 "UICC-Terminal interface; Physical and logical characteristics"

[56] ISO/IEC 8825 (1990): "Information technology; Open Systems Interconnection; Specification of Basic Encoding Rules for Abstract Syntax Notation One (ASN.1)"

[xx] 3GPP TS 23.140: “Multimedia Messaging Service (MMS); Functional description; stage 2”.

10.3.7 EF_{SST} (SIM service table)

This EF indicates which services are allocated, and whether, if allocated, the service is activated. If a service is not allocated or not activated in the SIM, the ME shall not select this service.

Identifier: '6F38'	Structure: transparent	Mandatory
File size: X bytes, X ≥ 2	Update activity: low	

Access Conditions:

READ	CHV1
UPDATE	ADM
INVALIDATE	ADM
REHABILITATE	ADM

Bytes	Description	M/O	Length
1	Services n°1 to n°4	M	1 byte
2	Services n°5 to n°8	M	1 byte
3	Services n°9 to n°12	O	1 byte
4	Services n°13 to n°16	O	1 byte
5	Services n°17 to n°20	O	1 byte
6	Services n°21 to n°24	O	1 byte
7	Services n°25 to n°28	O	1 byte
8	Services n°29 to n°32	O	1 byte
etc.			
X	Services (4X-3) to (4X)	O	1 byte

-Services

Contents:		
	Service n°1 :	CHV1 disable function
	Service n°2 :	Abbreviated Dialling Numbers (ADN)
	Service n°3 :	Fixed Dialling Numbers (FDN)
	Service n°4 :	Short Message Storage (SMS)
	Service n°5 :	Advice of Charge (AoC)
	Service n°6 :	Capability Configuration Parameters (CCP)
	Service n°7 :	PLMN selector
	Service n°8 :	RFU
	Service n°9 :	MSISDN
	Service n°10:	Extension1
	Service n°11:	Extension2
	Service n°12:	SMS Parameters
	Service n°13:	Last Number Dialled (LND)
	Service n°14:	Cell Broadcast Message Identifier
	Service n°15:	Group Identifier Level 1
	Service n°16:	Group Identifier Level 2
	Service n°17:	Service Provider Name
	Service n°18:	Service Dialling Numbers (SDN)
	Service n°19:	Extension3
	Service n°20:	RFU
	Service n°21:	VGCS Group Identifier List (EF_{VGCS} and EF_{VGCSS})
	Service n°22:	VBS Group Identifier List (EF_{VBS} and EF_{VBSS})
	Service n°23:	enhanced Multi-Level Precedence and Pre-emption Service
	Service n°24:	Automatic Answer for eMLPP
	Service n°25:	Data download via SMS-CB
	Service n°26:	Data download via SMS-PP
	Service n°27:	Menu selection
	Service n°28:	Call control
	Service n°29:	Proactive SIM
	Service n°30:	Cell Broadcast Message Identifier Ranges
	Service n°31:	Barred Dialling Numbers (BDN)
	Service n°32:	Extension4
	Service n°33:	De-personalization Control Keys
	Service n°34:	Co-operative Network List
	Service n°35:	Short Message Status Reports
	Service n°36:	Network's indication of alerting in the MS
	Service n°37:	Mobile Originated Short Message control by SIM
	Service n°38:	GPRS
	Service n°39:	Image (IMG)
	Service n°40:	SoLSA (Support of Local Service Area)
	Service n°41:	USSD string data object supported in Call Control
	Service n°42:	RUN AT COMMAND command
	Service n°43:	User controlled PLMN Selector with Access Technology
	Service n 44:	Operator controlled PLMN Selector with Access Technology
	Service n 45:	HPLMN Selector with Access Technology
	Service n 46:	CPBCCH Information
	Service n 47:	Investigation Scan
	Service n°48:	Extended Capability Configuration Parameters
	Service n°49:	MExE
	Service n°50:	RPLMN last used Access Technology
	Service n°51:	PLMN Network Name
	Service n°52:	Operator PLMN List
	Service n°53:	Mailbox Dialling Numbers
	Service n°54:	Message Waiting Indication Status
	Service n°55:	Call Forwarding Indication Status
	Service n°56:	Service Provider Display Information
	Service n°XX	Multimedia Messaging Service (MMS)
	Service n°YY	Extension 8
	Service n°ZZ	MMS User Connectivity Parameters

10.3.UU EF_{MMSN} (MMS Notification)

If service n°XX is "allocated and activated", this file shall be present.

This EF contains information in accordance with 3GPP TS 23.140 [xx] comprising MMS notifications (and associated parameters) which have been received by the UE from the network.

Identifier: '6FXX'	Structure: Linear fixed	Optional
Record length: 4+X bytes	Update activity: low	

Access Conditions:

READ	CHV1
UPDATE	CHV1
DEACTIVATE	ADM
ACTIVATE	ADM

Bytes	Description	M/O	Length
1 to 2	MMS Status	M	2 bytes
3	MMS Implementation	M	1 byte
4 to X+3	MMS Notification	M	X bytes
X+4	Extension file record number	M	1 byte

- MMS Status

Content:

The status bytes contain the status information of the notification.

Coding:

b1 indicates whether there is valid data or if the location is free. b2 indicates whether the MMS notification has been read or not. Bits b3-b4 of the first byte indicate the MM retrieval, MM rejection, or MM forwarding status, Bits b5-b8 of the first byte and the entire second byte are reserved for future use.

First byte:

b8	b7	b6	b5	b4	b3	b2	b1	
				X	X	X	0	Free space
				X	X	X	1	Used space
				X	X	0	1	Notification not read
				X	X	1	1	Notification read
				0	0	X	1	MM not retrieved
				0	1	X	1	MM retrieved
				1	0	X	1	MM rejected
				1	1	X	1	MM forwarded
								Reserved for future use

Second byte:

b8	b7	b6	b5	b4	b3	b2	b1

- MMS Implementation

Contents:

The MMS Implementation indicates the used implementation type, e.g. WAP.

Coding:

Allocation of bits:

Bit number	Parameter indicated
1	WAP implementation of MMS
2-8	Reserved for future use

Bit value	Meaning
0	Implementation not supported.
1	Implementation supported.

- MMS Notification

Contents:

The MMS Notification contains the MMS notification.

Coding:

The MMS Notification is coded according to the MMS Implementation as indicated in Byte 3.

Any unused byte shall be set to 'FF'.

- Extension file record number

Contents:

- extension file record number. This byte identifies the number of a record in the EF_{EXT8} containing extension data for the notification information. The use of this byte is optional. If it is not used it shall be set to 'FF'.

Coding:

- binary.

10.3.VV EF_{EXT8} (Extension 8)

If service n°YY is "allocated and activated", this file shall be present.

This EF contains extension data of a MMS Notification (Multimedia Messaging Service - see 10.3.UU).

Identifier: '6FXX'	Structure: linear fixed	Optional
Record length: X+2 bytes	Update activity: low	

Access Conditions:

READ	CHV1
UPDATE	CHV1
DEACTIVATE	ADM
ACTIVATE	ADM

Bytes	Description	M/O	Length
1	Record type	M	1 byte
2 to X+1	Extension data	M	X bytes
X+2	Identifier	M	1 byte

For contents and coding see clause 10.5.10 (EF_{EXT1}).

10.3.WW EF$_{MMSICP}$ (MMS Issuer Connectivity Parameters)

If service n°XX is "allocated and activated", this file shall be present.

This EF contains values for Multimedia Messaging Connectivity Parameters as determined by the issuer, which can be used by the ME for user assistance in preparation of connecting to the network for the MMS purpose network connection. This file may contain one or more sets of Multimedia Messaging Issuer Connectivity Parameters. The first set of Multimedia Messaging Issuer Connectivity Parameters is used as the default set. Each set of Multimedia Messaging Issuer Connectivity Parameters may consist of one or more Interface to Core Network and Bearer information TLV objects, but shall contain only one MMS implementation TLV object, one MMS Relay/Server TLV object and one Gateway TLV object. The order of the Interface to Core Network and Bearer information TLV objects in the MMS Connectivity TLV object defines the priority of the Interface to Core Network and Bearer information, with the first TLV object having the highest priority.

Identifier: '6FXX'	Structure: Transparent	Optional
File Size: X_1+…+ X_n bytes	Update activity: low	

Access Conditions:

READ	CHV1
UPDATE	ADM
DEACTIVATE	ADM
ACTIVATE	ADM

Bytes	Description	M/O	Length
1 to X_1	MMS Connectivity Parameters TLV object	M	X_1bytes
X_1+1 to X_1 + X_2	MMS Connectivity Parameters TLV object	O	X_2 bytes
…	…		
X_1+…+ X_{n-1}+1 to X_1+…+ X_n	MMS Connectivity Parameters TLV object	O	X_n bytes

- MMS Connectivity Parameters tags

Description	**Tag Value**
MMS Connectivity Parameters Tag	'AB~~X~~'
MMS Implementation Tag	'80'
MMS Relay/Server Tag	'81'
Interface to Core Network and Bearer Information Tag	'82'
Gateway Tag	'83'

- MMS Connectivity Parameters contents

Description	**Value**	**M/O**	**Length (bytes)**
MMS Connectivity Parameters Tag	'AB~~X~~'	M	1
Length	Note 1	M	Note 2
MMS Implementation Tag	'80'	M	1
Length	1	M	Note 1
MMS Implementation Information	--	M	1

MMS Relay/Server Tag	'81'	M	1
Length	X	M	Note 2
MMS Relay/Server Address	--	M	X
1st Interface to Core Network and Bearer Information Tag (highest priority)	'82'	M	1
Length	Y1	M	Note 2
1st Interface to Core Network and Bearer information	--	M	Y1
2nd Interface to Core Network and Bearer Information Tag	'82'	O	1
Length	Y2	O	Note 2
2nd Interface to Core Network and Bearer information	--	O	Y2
...	...	...	...
nth Interface to Core Network and Bearer Information Tag (lowest priority)	'82'	O	1
Length	Y3	O	Note 2
Interface to Core Network and Bearer information	--	O	Y3
Gateway Tag	'83'	O	1
Length	Z	O	Note 2
Gateway Information	--	O	Z
Note 1 : This is the total size of the constructed TLV object Note 2 : The length is coded according to ISO/IEC 8825 [56]			

- MMS Implementation Tag '80'

  See section 10.3.XX for contents and coding.

- MMS Relay/server Tag '81'

  Contents:

  The MMS relay/server contains the address of the associated MMS relay/server.

  Coding:

  The MMS relay/server address is coded according to the guideline provided in 3GPP TS 23.140 [xx].

- Interface to Core Network and Bearer Information Tag '82'

  Contents:

  The Interface to Core Network and Bearer Information may contain the following information to set up the bearer: Bearer, Address, Type of address, Speed, Call type, Authentication type, Authentication id, Authentication password.

  Coding:

  The coding is according to the guideline provided in 3GPP TS 23.140 [xx].

- Gateway Tag '83'

  Contents:

  The Gateway may contain the following information; Address , Type of address, Port, Service, Authentication type , Authentication id and Authentication password.

  Coding:

  The coding is according to the guideline provided in 3GPP TS 23.140 [xx].

Unused bytes shall be set to 'FF'.

10.3.XX EF_{MMSUCP} (MMS User Connectivity Parameters)

If service n°xx and n°zz are "allocated and activated", this file shall be present.. The file shall provide the possibility to store at least 5 user connectivity parameter sets.

This EF contains values for Multimedia Messaging Connectivity Parameters as determined by the user, which can be used by the ME for MMS network connection. This file may contain one or more sets of Multimedia Messaging User Connectivity Parameters. Each set of Multimedia Messaging User Connectivity Parameters may consist of one or more Interface to Core Network and Bearer information TLV objects, but shall contain only one MMS implementation TLV object, one MMS Relay/Server TLV object and one Gateway TLV object. The order of the Interface to Core Network and Bearer information TLV objects in the MMS Connectivity TLV object defines the priority of the Interface to Core Network and Bearer information, with the first TLV object having the highest priority.

Identifier: '6FXX'	Structure: Transparent	Optional
File Size: X_1+…+ X_n bytes	Update activity: low	

Access Conditions:

READ	CHV1
UPDATE	CHV1/CHV2 (fixed during administrative management)
DEACTIVATE	ADM
ACTIVATE	ADM

Bytes	Description	M/O	Length
1 to X_1	MMS Connectivity Parameters TLV objects	O	X_1bytes
X_1+1 to X_1 + X_2	MMS Connectivity Parameters TLV object	O	X_2 bytes
…	…		
X_1+…+ X_{n-1}+1 to X_1+…+ X_n	MMS Connectivity Parameters TLV object	O	X_n bytes

For the contents and coding see 10.3.WW.

10.3.ZZ EF_{MMSUP} (MMS User Preferences)

If service n°XX is "allocated and activated", this file shall be present.

This EF contains values for Multimedia Messaging Service User Preferences, which can be used by the ME for user assistance in preparation of mobile multimedia messages (e.g. default values for parameters that are often used).

Identifier: '6FXX'	Structure: Linear Fixed	Optional
Record Length: X bytes	Update activity: low	

Access Conditions:

READ	CHV1
UPDATE	CHV1
DEACTIVATE	ADM
ACTIVATE	ADM

Bytes	Description	M/O	Length
1 to X	MMS User Preference TLV Objects	M	X bytes

- MMS User Preference tags

Description	**Tag Value**
MMS Implementation Tag	'80'
MMS User preference profile name Tag	'81'
MMS User Preference information Tag	'82'

MMS User Preference information

Description	**Value**	**M/O**	**Length (bytes)**

MMS Implementation Tag	'80'	M	1
Length	1	M	Note
MMS Implementation information	--	M	1
MMS User preference profile name Tag	'81'	M	1
Length	X	M	Note
MMS User profile name	--	M	X
MMS User Preference information Tag	'82'	M	1
Length	Y	M	Note
MMS User Preference information	--	M	Y
Note : The length is coded according to ISO/IEC 8825 [56]			

- MMS Implementation Tag '80'

For contents and coding see 10.3.XX

- MMS User preference profile name Tag '81'

Contents:

Alpha tagging of the MMS user preference profile.

Coding:

this alpha-tagging shall use either:

- the SMS default 7-bit coded alphabet as defined in TS 23.038 [12] with bit 8 set to 0. The alpha identifier shall be left justified.

or:

- one of the UCS2 coded options as defined in the annex of TS 102 221 [55].

- MMS User Preference information Tag '82'

Contents:

The following information elements may be coded; Sender Visibility, Delivery Report, Read-Reply, Priority, Time of Expiry and Earliest Delivery Time.

Coding:

Depending upon the MMS implementation as indicated in Tag '80'.

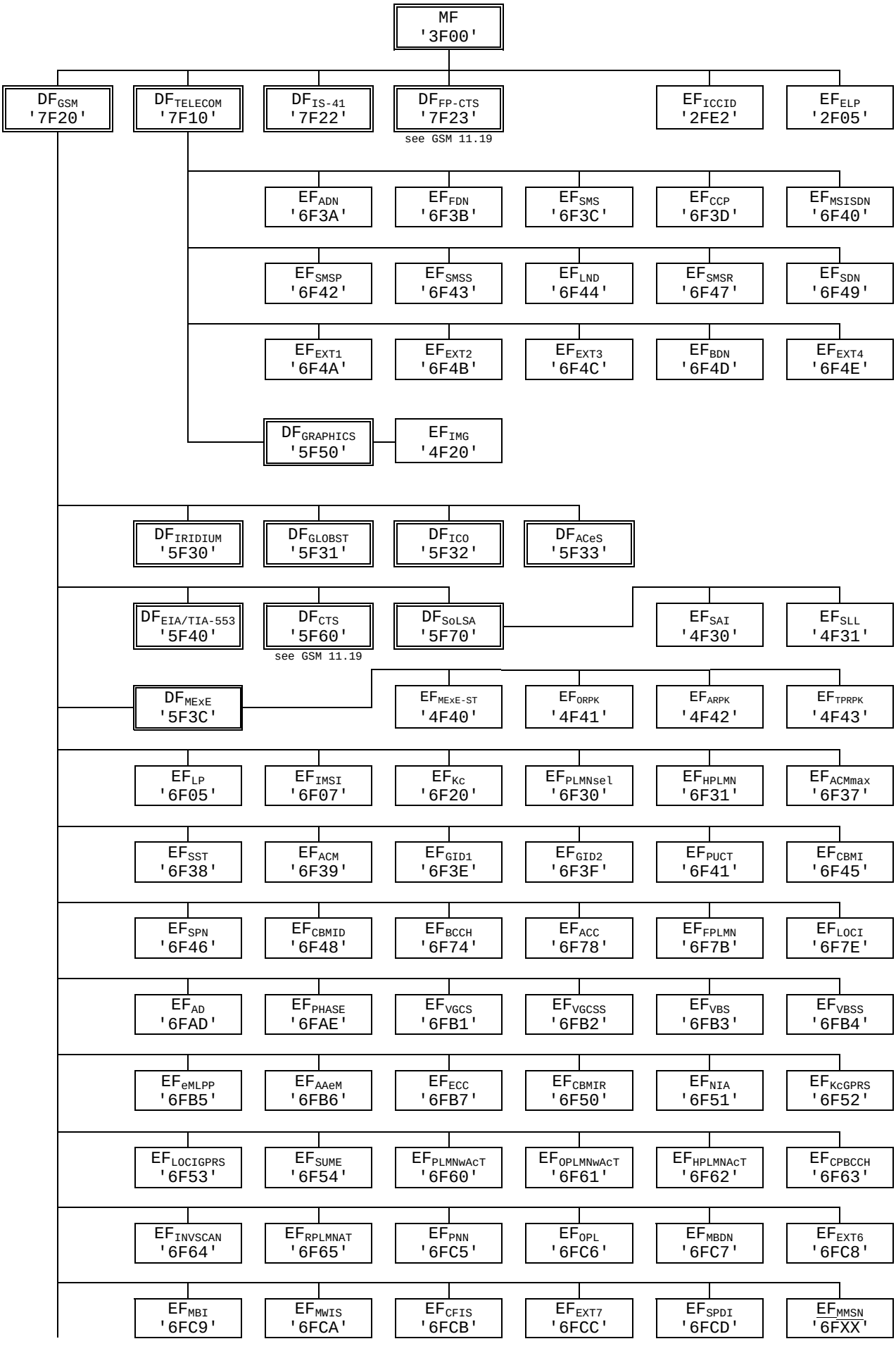
An Example for the coding of these parameters can be found in Annex X.

10.7 Files of GSM

This clause contains a figure depicting the file structure of the SIM. DF_{GSM} shall be selected using the identifier '7F20'. If selection by this means fails, then DCS 1800 MEs shall, and optionally GSM MEs may then select DF_{GSM} with '7F21'.

NOTE 1: The selection of the GSM application using the identifier '7F21', if selection by means of the identifier '7F20' fails, is to ensure backwards compatibility with those Phase 1 SIMs which only support the DCS 1800 application using the Phase 1 directory $DF_{DCS1800}$ coded '7F21'.

NOTE 2: To ensure backwards compatibility with those Phase 1 DCS 1800 MEs which have no means to select DF_{GSM} two options have been specified. These options are given in GSM 09.91 [17].


MF '3F00'
DF GSM '7F20'
DF TELECOM '7F10'
DF IS-41 '7F22'
DF FP-CTS '7F23'
see GSM 11.19
EF ICCID '2FE2'
EF ELP '2F05'
EF ADN '6F3A'
EF FDN '6F3B'
EF SMS '6F3C'
EF CCP '6F3D'
EF MSISDN '6F40'
EF SMSP '6F42'
EF SMSS '6F43'
EF LND '6F44'
EF SMSR '6F47'
EF SDN '6F49'
EF EXT1 '6F4A'
EF EXT2 '6F4B'
EF EXT3 '6F4C'
EF BDN '6F4D'
EF EXT4 '6F4E'
DF GRAPHICS '5F50'
EF IMG '4F20'
DF IRIDIUM '5F30'
DF GLOBST '5F31'
DF ICO '5F32'
DF ACeS '5F33'
DF EIA/TIA-553 '5F40'
DF CTS '5F60'
see GSM 11.19
DF SoLSA '5F70'
EF SAI '4F30'
EF SLL '4F31'
DF MExE '5F3C'
EF MExE-ST '4F40'
EF ORPK '4F41'
EF ARPK '4F42'
EF TPRPK '4F43'
EF LP '6F05'
EF IMSI '6F07'
EF Kc '6F20'
EF PLMNsel '6F30'
EF HPLMN '6F31'
EF ACMmax '6F37'
EF SST '6F38'
EF ACM '6F39'
EF GID1 '6F3E'
EF GID2 '6F3F'
EF PUCT '6F41'
EF CBMI '6F45'
EF SPN '6F46'
EF CBMID '6F48'
EF BCCH '6F74'
EF ACC '6F78'
EF FPLMN '6F7B'
EF LOCI '6F7E'
EF AD '6FAD'
EF PHASE '6FAE'
EF VGCS '6FB1'
EF VGCSS '6FB2'
EF VBS '6FB3'
EF VBSS '6FB4'
EF eMLPP '6FB5'
EF AAeM '6FB6'
EF ECC '6FB7'
EF CBMIR '6F50'
EF NIA '6F51'
EF KcGPRS '6F52'
EF LOCIGPRS '6F53'
EF SUME '6F54'
EF PLMNwAcT '6F60'
EF OPLMNwAcT '6F61'
EF HPLMNAcT '6F62'
EF CPBCCH '6F63'
EF INVSCAN '6F64'
EF RPLMNAT '6F65'
EF PNN '6FC5'
EF OPL '6FC6'
EF MBDN '6FC7'
EF EXT6 '6FC8'
EF MBI '6FC9'
EF MWIS '6FCA'
EF CFIS '6FCB'
EF EXT7 '6FCC'
EF SPDI '6FCD'
EF MMSN '6FXX'

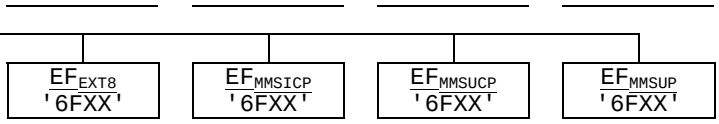


Figure 8: File identifiers and directory structures of GSM

11.5.W MMS Notifications

- Requirement: Service n°XX "allocated and activated".

- Request: The ME sends the identification of the information to be read, then the ME performs the reading procedure with $EF_{MMSN.}$ If Service n°YY is allocated and activated the ME shall analyse the data of EF_{MMSN} to ascertain, whether additional data is associated in EF_{EXT8}. If necessary, then the ME performs the reading procedure on EF_{EXT8} to assemble the complete MMS notification.
- Update: The ME analyses and assembles the MMS notification to be stored as follows:
    - if the MMS notification contains not more bytes than the maximum possible number for EF_{MMSN} then the ME looks for the next available area to store the MMS notification. If such an area is available, it performs the updating procedure with EF_{MMSN}.
    - if the MMS notification contains more bytes than the maximum possible number for EF_{MMSN} then the ME seeks for a sufficient number of free records in EF_{EXT8} to store the complete MMS notification.
        - If there is not a sufficient number of EF_{EXT8} records marked as "free" to store the complete MMS notification, the procedure is aborted.
        - otherwise, the ME performs the updating procedure and stores as many bytes as possible in EF_{MMSN}. The Extension file record number of EF_{MMSN} is coded with the associated record number in the EF_{EXT8}. The remaining bytes are stored in the selected EF_{EXT8} record where the type of the record is then set to "additional data". The second byte of the EF_{EXT8} record is set with the number of bytes of the remaining additional data. It is possible, if the number of additional digits exceeds the capacity of the additional record, to chain another record inside the EF_{EXT8} by the identifier in the last byte of the record. In this case byte 2 of each record for additional data within the same chain indicates the number of bytes within the same record.

          The ME is only allowed to store extension data in unused records of EF_{EXT8}

    If there is no available empty space in the SIM to store the MMS notification, it is up to ME implementation how the notification is handled.

- Erasure: The ME will select in the USIM the MMS notification to be erased. Depending on the MMI, the MMS notification may be read before the area is marked as "free". The memory of the SIM may still contain the old MMS notification until a new message is stored. If Service n°YY is allocated and activated all associated records in EF_{EXT8} are then marked by the ME as "free" by setting them to 'FF'.

11.5.X MMS Issuer Connectivity Parameters

- Requirement: Service n°XX "allocated and activated".

- Request: the ME performs the reading procedure with EF_{MMSICP}.

- Update: The ME performs the updating procedure with $EF_{MMSICP.}$

11.5.Y MMS User Connectivity Parameters

- Requirement: Services n°XX and n°ZZ "allocated and activated".
- Request: the ME performs the reading procedure with EF_{MMSUCP}.
- Update: The ME performs the updating procedure with EF_{MMSUCP}.

11.5.Z MMS User Preferences

- Requirement: Service n°XX "allocated and activated".
- Request: the ME performs the reading procedure with EF_{MMSUP}.
- Update: The ME performs the updating procedure with EF_{MMSUP}.

Annex D (informative): Suggested contents of the EFs at pre-personalization

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.

File Identification	Description	Value
'2FE2'	ICC identification	operator dependant (see 10.1.1)
'2F05'	Extended Language preference	'FF…FF'
'6F05'	Language preference	'FF'
'6F07'	IMSI	operator dependant (see 10.3.2)
'6F20'	Ciphering key Kc	'FF...FF07'
'6F30'	PLMN selector	'FF...FF'
'6F31'	HPLMN search period	'FF'
'6F37'	ACM maximum value	'000000' (see note 1)
'6F38'	SIM service table	operator dependant (see 10.3.7)
'6F39'	Accumulated call meter	'000000'
'6F3E'	Group identifier level 1	operator dependant
'6F3F'	Group identifier level 2	operator dependant
'6F41'	PUCT	'FFFFFF0000'
'6F45'	CBMI	'FF...FF'
'6F46'	Service provider name	'FF...FF'
'6F48'	CBMID	'FF...FF'
'6F49'	Service Dialling Numbers	'FF...FF'
'6F74'	BCCH information	'FF...FF'
'6F78'	Access control class	operator dependant (see 10.3.15)
'6F7B'	Forbidden PLMNs	'FF...FF'
'6F7E	Location information	'FFFFFFFF xxxxxx 0000 FF 01' (see note 2)
'6FAD'	Administrative data	operator dependant (see 10.3.18)
'6FAE'	Phase identification	see 10.3.16
'6F3A'	Abbreviated dialling numbers	'FF...FF'
'6F3B'	Fixed dialling numbers	'FF...FF'
'6F3C'	Short messages	'00FF...FF'
'6F3D'	Capability configuration parameters	'FF...FF'
'6F40'	MSISDN storage	'FF...FF'
'6F42'	SMS parameters	'FF...FF'
'6F43'	SMS status	'FF...FF'
'6F44'	Last number dialled	'FF...FF'
'6F47'	Short message status reports	'00FF…FF'
'6F4A'	Extension 1	'FF...FF'
'6F4B'	Extension 2	'FF...FF'
'6F4C'	Extension 3	'FF...FF'
'6F4D'	Barred dialling numbers	'FF...FF'
'6F4E'	Extension 4	'FF...FF'
'6F4F'	Extended capability configuration parameters	'FF...FF'
'6F51'	Network's indication of alerting	'FF...FF'
'6F52'	GPRS Ciphering key KcGPRS	'FF...FF07'
'6F53'	GPRS Location Information	'FFFFFFFF FFFFFF xxxxxx 0000 FF 01' (see note 2)
'6F54'	SetUpMenu Elements	operator dependant (see 10.3.34)
'6F58'	Comparison method information	'FF…FF'
'6F60'	User controlled PLMN Selector with Access Technology	'FFFFFF0000..FFFFFF0000'
'6F61'	Operator controlled PLMN Selector with Access Technology	'FFFFFF0000..FFFFFF0000'
'6F62'	HPLMN Selector with Access Technology	'FFFFFF0000..FFFFFF0000'
'6F63'	CPBCCH information	'FF..FF'
'6F64'	Investigation Scan	'00'
'6F65'	RPLMN last used Access Technology	'0000'

Continued

File Identification	Description	Value
'4F20'	Image data	'00FF...FF'
'4F30'	SoLSA Access Indicator)	'00FF...FF'
'4F31'	SoLSA LSA List	'FF...FF'
'6FC5'	PLMN Network Name	Operator dependant
'6FC6'	Operator PLMN List	Operator dependant
'6FC7'	Mailbox Dialling Numbers	Operator dependant
'6FC8'	Extension 6	'00 FF...FF'
'6FC9'	Mailbox Identifier	Operator dependant
'6FCA'	Message Waiting Indication Status	'00 00 00 00 00'
'6FCB'	Call Forwarding Indication Status	'xx 00 FF...FF'
'6FCC'	Extension 7	'00 FF...FF'
'6FCD'	Service Provider display Information	'FF...FF'
‘6FXX’	MMS Notification	’00 00 00 FF…FF’
‘6FXX’	Extension 8	'FF...FF'
‘6FXX’	MMS Issuer Connectivity Parameters	‘FF…FF’
‘6FXX’	MMS User Connectivity Parameters	‘FF…FF’
‘6FXX’	MMS User Preferences	‘FF…FF’

NOTE 1: The value '000000' means that ACMmax is not valid, i.e. there is no restriction on the ACM. When assigning a value to ACMmax, care should be taken not to use values too close to the maximum possible value 'FFFFFF', because the INCREASE command does not update EF_{ACM} if the units to be added would exceed 'FFFFFF'. This could affect the call termination procedure of the Advice of Charge function.

NOTE 2: xxxxxx stands for any valid MCC and MNC, coded according to TS 04.08 [15].

Annex I (informative): EF changes via Data Download or SIM Toolkit applications

This annex defines if changing the content of an EF by the network (e.g. by sending an SMS), or by SIM Toolkit Application (e.g. by using the SIM API), is advisable. Updating of certain EFs, "over the air" such as EF_{ACC} could result in unpredictable behaviour of the MS; these are marked "Caution" in the table below. Certain EFs are marked "No"; under no circumstances should "over the air" changes of these EFs be considered.

File identification	Description	Change advised
'2F05'	Extended Language preference	Yes
'2FE2'	ICC identification	No
'4F20'	Image data	Yes
'4Fxx'	Image Instance data Files	Yes
'6F05'	Language preference	Yes
'6F07'	IMSI	Caution (note)
'6F20'	Ciphering key Kc	No
'6F2C'	De-personalization Control Keys	Caution
'6F30'	PLMN selector	Caution
'6F31'	HPLMN search period	Caution
'6F32'	Co-operative network	Caution
'6F37'	ACM maximum value	Yes
'6F38'	SIM service table	Caution
'6F39'	Accumulated call meter	Yes
'6F3A'	Abbreviated dialling numbers	Yes
'6F3B'	Fixed dialling numbers	Yes
'6F3C'	Short messages	Yes
'6F3D'	Capability configuration parameters	Yes
'6F3E'	Group identifier level 1	Yes
'6F3F'	Group identifier level 2	Yes
'6F40'	MSISDN storage	Yes
'6F41'	PUCT	Yes
'6F42'	SMS parameters	Yes
'6F43'	SMS status	Yes
'6F44'	Last number dialled	Yes
'6F45'	CBMI	Caution
'6F46'	Service provider name	Yes
'6F47'	Short message status reports	Yes
'6F48'	CBMID	Yes
'6F49'	Service Dialling Numbers	Yes
'6F4A'	Extension 1	Yes
'6F4B'	Extension 2	Yes
'6F4C'	Extension 3	Yes
'6F4D'	Barred dialling numbers	Yes
'6F4E'	Extension 4	Yes
'6F50'	CBMIR	Yes
'6F51'	Network's indication of alerting	Caution
'6F52'	GPRS Ciphering key KcGPRS	No
'6F53'	GPRS Location Information	Caution
'6F58'	Comparison method information	
'6F60'	User controlled PLMN Selector with Access Technology	see 3GPP TS 22.011
'6F61'	Operator controlled PLMN Selector with Access Technology	Caution
'6F62'	HPLMN Selector with Access Technology	Caution
'6F63'	CPBCCH information	No
'6F64'	Investigation scan	Caution
'6F65'	RPLMN last used Access Technology	No
'6F74'	BCCH information	No
'6F78'	Access control class	Caution
'6F7B'	Forbidden PLMNs	Caution
'6F7E'	Location information	No (note)

Continued.....

File identification	Description	Change advised
'6FAD'	Administrative data	Caution
'6FAE'	Phase identification	Caution
'6FB1'	Voice Group Call Service	Yes
'6FB2'	Voice Group Call Service Status	Yes
'6FB3'	Voice Broadcast Service	Yes
'6FB4'	Voice Broadcast Service Status	Yes
'6FB5'	Enhanced Multi Level Pre-emption and Priority	Yes
'6FB6'	Automatic Answer for eMLPP Service	Yes
'6FB7'	Emergency Call Codes	Caution
'6FC5'	PLMN Network Name	Yes
'6FC6'	Operator PLMN List	Yes
'6FC7'	Mailbox Dialling Numbers	Yes
'6FC8'	Extension 6	Yes
'6FC9'	Mailbox Identifier	Caution
'6FCA'	Message Waiting Indication Status	Caution
'6FCB'	Call Forwarding Indication Status	Caution
'6FCC'	Extension 7	Yes
'6FCD'	Service Provider Display Information	Yes
‘6FXX’	MMS Notification	Yes
‘6FXX’	Extension 8	Yes
‘6FXX’	MMS Issuer Connectivity Parameters	Yes
‘6FXX’	MMS User Connectivity Parameters	Yes
‘6FXX’	MMS User Preferences	Yes
NOTE: If EF_{IMSI} is changed, the SIM should issue REFRESH as defined in TS 11.14 [27] and update EF_{LOCI} accordingly.		

Annex J (informative): Tags defined in the present document

Tag	Name of Data Element	Usage
'A3'	Service provider display information The following tags are encapsulated within 'A3': '80' Service provider PLMN list	Service Provider Display Information (EF_{SPDI})
‘AB~~X~~’	MMS Connectivity Parameters: The following are encapsulated under ‘AB~~X~~’: ‘80’ MMS Implementation Tag ‘81’ MMS Relay/Server Tag ‘82’ Interface to core network and bearer Tag ‘83’ Gateway Tag	MMS Connectivity Parameters (EF_{MMSICP} and EF_{MMSUCP})

NOTE: the value 'FF' is an invalid tag value. For ASN.1 tag assignment rules see ISO/IEC 8825 [56]

Annex X (informative): Example of MMS coding

This annex gives an example for the coding of MMS User Preferences, while the MMS User Information Preference parameters are coded according to the WAP implementation of MMS.

0x80 MMS Implementation Tag

0x01 Length

0x01 MMS Implementation information (WAP)

0x81 MMS User preference profile name Tag

0x1C Length

"Christmas Card"

0x82 MMS User Information Preference tag

0x19 Length

0x14 0x80 (visibility: hide)

0x06 0x80 (delivery report: yes)

0x10 0x80 (Read-reply: yes)

0x0F 0x81 (Priority: Normal)

0x07 0x07 0x80 0x05 0x11 0x22 0x33 0x44 0x55 (Delivery time tag: Value-Length: Absolute-token tag; Date Value-Length Date -Value)

0x08 0x06 0x81 0x04 0x55 0x22 0x33 0x44 (Expiry: Tag:: Value-Length : Relative-token Tag ; Delta -Second Value-Length, Delta -Second-Value)