ETSI EP "New SMG9" Meeting #1 Visby, Sweden, 22 - 24 May, 2000

Tdoc 9-00-0261

From: New SMG9 (Contact Walter Mohrs, tel +49 228 936 1251)

To: SMG, S1, S3

CC: N1, T2

Title: Response to LS on non ciphered calls for GPRS

"New SMG9" has received the documents from SMG10 on "Rejection of non ciphered calls for GPRS" (Tdocs S3-000205 and S3-000206) and has discussed this matter in plenary.

"New SMG9" agrees with the proposed solution on having a user controlled flag determining the terminal reaction on non-ciphered GPRS calls. Also the mechanism of having two flags – one in the ME and (potentially) one in the SIM, which, if existing, overrides the ME flag – is SMG9's preferred solution, as it covers the aspect of backward compatibility with existing SIMs and gives, in addition, the network operator the possibility of predefining a preferred behaviour.

A proposal for a technical solution concerning the implementation of this feature on the SIM has been discussed and approved by "New SMG9" and is attached (Tdoc 9-00-0250). If S1 and S3 agree with this solution, the CR could be presented to SMG #32 in Düsseldorf in June together with the required changes to TS GSM 02.07 and other documents to be identified by S1 and S3.

ATTACHED CR 11.11-A117rev1

ETSI EP "New SMG9" meeting #1 Visby, Sweden, 22-24 May 2000

Document 9-00-0260

e.g. for 3GPP use the format TP-99xxx or for SMG, use the format P-99-xxx

			CHA	NGE I	REQI	UES ⁻	Pleas page			ile at the bottom of th to fill in this form con	
			GSM	11.11	CR	A1 1	17r1	Currer	nt Versi	on: V8.2.0	
GSM (AA.BB) or	3G (AA.BBB) s	pecification numb	er↑		1	CR numbe	r as allocated	d by MCC s	support team	
For submissio	l me	eting # her		for infor		X			strate n-strate	gic use of	nly)
,	⊢orm.	: CR cover s	heet, version 2 for 3							rg/Information/CR-Form	
Proposed chair (at least one should be				SIM X	ME	X	UTRAI	N / Radio		Core Network	
Source:		SMG9							Date:	24/05/2000	
Subject:		Introdu	ction of GPI	RS Cipher	Mode F	lag					
Work item:		T.E.I.									
Category: (only one category shall be marked with an X)	F A B C D	Addition Function	etion sponds to a control on of feature onal modificati	ation of fea		rlier rele	ease	X Rel	lease:	Phase 2 Release 96 Release 97 Release 98 Release 99 Release 00	X
Reason for change:		GPRS'	this CR spe	ecifies the	necessa	ary char	nges for	the SIM.		phered calls for	
Clauses affect	ed:	10	0.3.7, 10.3.4	0, 10.7, 11	, 11.2.1	, 11.5.1	6, Anne	x D, Anne	ex I		
Other specs affected:	C M B	Other GS IS test ISS test	G core speci SM core spe specification t specificatio ecifications	cifications s	-	\rightarrow List \rightarrow List \rightarrow List	of CRs: of CRs: of CRs: of CRs: of CRs:				
Other comments:											
help.doc											

<----- double-click here for help and instructions on how to create a CR.

EF_{sst} (SIM service table) 10.3.7

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	odate activity: low		
	Access Conditions:				
READ		CHV'	-		
UPDA	-	ADM			
INVAL		ADM			
REHA	BILITATE	ADM			
Bytes		Descriptio	n	M/O	Length
1	Services n°1 to	n°4		М	1 byte
2	Services n°5 to	n°8		М	1 byte
3	Services n°9 to	n°12		0	1 byte
4	Services nº13 to	n°16		0	1 byte
5	Services nº17 to	n°20		0	1 byte
6	Services n°21 to	n°24		0	1 byte
7	Services n°25 to	n°28		0	1 byte
8	Services n°29 to	n°32		0	1 byte
etc.					
Х	Services (4X-3)	to (4X)		0	1 byte

-Services

Contents:

Service n°1: CHV1 disable function Service n°2:

Abbreviated Dialling Numbers (ADN) Fixed Dialling Numbers (FDN) Service n°3: Short Message Storage (SMS) Service n°4: Advice of Charge (AoC) Service n°5:

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:

VGCS Group Identifier List (EF_{VGCS} and EF_{VGCSS})
VBS Group Identifier List (EF_{VBS} and EF_{VBSS})
enhanced Multi-Level Precedence and Pre-emption Service Service n°21: Service n°22: Service n°23:

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 Mobile Originated Short Message control by SIM Service n°37:

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: PLMN Selector List with Access Technology Service n 44: OPLMN Selector List with Access Technology

Service n 45	HPLMN Access Technology
Service n 46:	CPBCCH Information
Service n 47:	Investigation Scan
Service n°48:	Extended Capability Configuration Parameters

Service n°49: Extended Capability Configuration Service n°49: GPRS Cipher Mode Flag

For a phase 2 SIM, the EF shall contain at least two bytes which correspond to the Phase 1 services. Further bytes may be included, but if the EF includes an optional byte, then it is mandatory for the EF to also contain all bytes before that byte. Other services are possible in the future and will be coded on further bytes in the EF. The coding falls under the responsibility of ETSI.

NOTE 1: Service N°8 was used in Phase 1 for Called Party Subaddress. To prevent any risk of incompatibility Service N°8 should not be reallocated.

NOTE 2: As the BDN service relies on the Call Control feature, service n°31 (BDN) should only be allocated and activated if service n°28 (Call control) is allocated and activated.

Coding:

```
2 bits are used to code each service:
first bit = 1: service allocated
first bit = 0: service not allocated
where the first bit is b1, b3, b5 or b7;
second bit = 1: service activated
second bit = 0: service not activated
where the second bit is b2, b4, b6 or b8.
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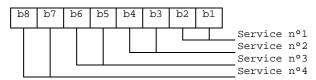
Service allocated means that the SIM has the capability to support the service. Service activated means that the service is available for the card holder (only valid if the service is allocated).

The following codings are possible:

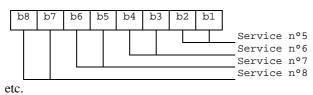
- first bit = 0: service not allocated, second bit has no meaning;
- first bit = 1 and second bit = 0: service allocated but not activated;
- first bit = 1 and second bit = 1: service allocated and activated.

The bits for services not yet defined shall be set to RFU. For coding of RFU see subclause 9.3.

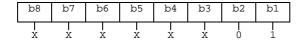
First byte:



Second byte:



The following example of coding for the first byte means that service n°1 "CHV1-Disabling" is allocated but not activated:



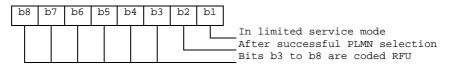
10.3.39 EF_{InvScan} (Investigation PLMN Scan)

This EF contains two flags used to control the investigation scan for higher prioritized PLMNs not offering voice services.

Identifier: '6F64'		Structure: transparent			Optional
File size: 1 byte			Update	activity	: low
Access Condit READ UPDAT INVALI REHAE	ΓE	CHV1 ADM ADM ADM	l		
Bytes Description		n	M/O	Length	
1	Investigation sca	an flags		М	1 bytes

- Investigation scan flags

Coding:



A '1' in a bit position indicates that the investigation scan shall be performed for the condition corresponding to that bit position and a '0' that it shall not be performed.

If this elementary file is not present, no investigation scan shall be performed.

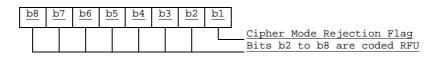
The RFU bits shall be coded with '0'.

10.3.40 EF_{GPRScipherFlag} (GPRS Cipher Mode Flag)

This EF contains a flags controlling the ME behaviour on acceptance or rejection of non-ciphered GPRS transmissions. The content of the EF may be altered by the user.

Identifier: '6Fxx'		Structure: transparent			<u>Optional</u>
<u> </u>	ile size: 1 byte		Update activity: low		<u>r: low</u>
Access Condit READ UPDAT INVALI REHAE	TE	CHV ² CHV ² ADM ADM			
<u>Bytes</u>		Descriptio	<u>n</u>	M/O	<u>Length</u>
<u>1</u>	GPRS Cipher M	ode Flag		<u>M</u>	1 bytes

Coding:



Byte: b1 = '1', automatic rejection mode on b1 = '0', automatic rejection mode off

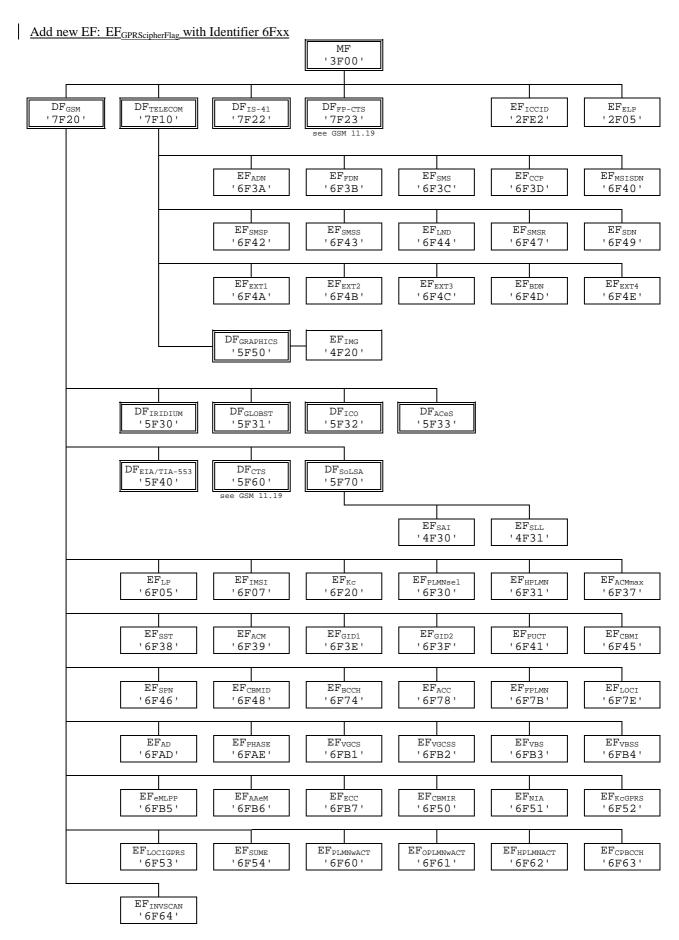


Figure 8: File identifiers and directory structures of GSM

GSM security related procedures:

-	GSM algorithms computation	NET
-	IMSI request	NET
-	Access control information request	NET
-	HPLMN search period request	NET
-	Investigation PLMN scan request	NET
-	Location Information	NET
-	Cipher key	NET
-	BCCH information	NET
-	CPBCCH information	NET
-	Forbidden PLMN information	NET
-	LSA information	NET

Subscription related procedures:

-	Dialling Numbers (ADN, FDN, MSISDN, LND, SDN, BDN)	MMI/ME
-	Short messages (SMS)	MMI
-	Advice of Charge (AoC)	MMI
-	Capability Configuration Parameters (CCP)	MMI
-	PLMN Selector	MMI
-	HPLMN Access Technology	MMI
-	PLMN Selector with Access Technology	MMI
-	OPLMN Selector with Access Technology	MMI
-	Cell Broadcast Message Identifier (CBMI)	MMI
-	Group Identifier Level 1 (GID1)	MMI/ME
-	Group Identifier Level 2 (GID2)	MMI/ME
-	Service Provider Name (SPN)	ME
-	Voice Group Call Service (VGCS)	MMI/ME
-	Voice Broadcast Service (VBS)	MMI/ME
-	Enhanced Multi Level Pre-emption and Priority (eMLPP)	MMI/ME
-	Depersonalisation Control Keys	ME
-	Short message status reports (SMSR)	MMI
-	Network's indication of alerting	ME
_	GPRS Cipher Mode Flag	MMI/ME

SIM Application Toolkit related procedures:

-	Data Download via SMS-CB (CBMID)	NET
-	Data Download via SMS-PP	NET
-	Menu selection	MMI
-	Call Control	MMI/ME/NET
-	Proactive SIM	MMI/ME/NET
-	Mobile Originated Short Message control by SIM	MMI/ME/NET
-	Image Request	MMI/ME

The procedures listed in subclause 11.2 are basically required for execution of the procedures in subclauses 11.3, 11.4 and 11.5. The procedures listed in subclauses 11.3 and 11.4 are mandatory (see GSM 02.17 [6]). The procedures listed in 11.5 are only executable if the associated services, which are optional, are provided in the SIM. However, if the procedures are implemented, it shall be in accordance with subclause 11.5.

If a procedure is related to a specific service indicated in the SIM Service Table, it shall only be executed if the corresponding bits denote this service as "allocated and activated" (see subclause 10.3.7). In all other cases this procedure shall not start.

11.2.1 SIM initialization

After SIM activation (see subclause 4.3.2), the ME selects the Dedicated File DF_{GSM} and optionally attempts to select EF_{ECC} . If EF_{ECC} is available, the ME requests the emergency call codes.

The ME requests the Extended Language Preference. The ME only requests the Language Preference (EF_{LP}) if at least one of the following conditions holds:

- EF_{ELP} is not available;
- EF_{ELP} does not contain an entry corresponding to a language specified in ISO 639[30];
- the ME does not support any of the languages in EF_{ELP}.

If both EFs are not available or none of the languages in the EFs is supported then the ME selects a default language. It then runs the CHV1 verification procedure.

If the CHV1 verification procedure is performed successfully, the ME then runs the SIM Phase request procedure.

For a SIM requiring PROFILE DOWNLOAD, then the ME shall perform the PROFILE DOWNLOAD procedure in accordance with GSM 11.14 [27]. When BDN is enabled on a SIM, the PROFILE DOWNLOAD procedure is used to indicate to the SIM whether the ME supports the "Call Control by SIM" facility. If so, then the SIM is able to allow the REHABILITATE command to rehabilitate EF_{IMSI} and EF_{LOCI} .

If the ME detects a SIM of Phase 1, it shall omit the following procedures relating to FDN and continue with the Administrative Information request. The ME may omit procedures not defined in Phase 1 such as HPLMN Search Period request.

For a SIM of Phase 2 or greater, GSM operation shall only start if one of the two following conditions is fulfilled:

- if EF_{IMSI} and EF_{LOCI} are not invalidated, the GSM operation shall start immediately;
- if EF_{IMSI} and EF_{LOCI} are invalidated, the ME rehabilitates these two EFs.

MEs without FDN capability but with Call control by SIM facility shall not rehabilitate EF_{IMSI} and/or EF_{LOCI} if FDN is enabled in the SIM and therefore have no access to these EFs. GSM operation will therefore be prohibited;

MEs without FDN capability and without Call control by SIM facility shall not rehabilitate EF_{IMSI} and/or EF_{LOCI} and therefore have no access to these EFs. GSM operation will therefore be prohibited.

It is these mechanisms which are used for control of services n°3 and n°31 by the use of SIMs for these services which always invalidate these two EFs at least before the next command following selection of either EF.

NOTE: When FDN and BDN are both enabled, and if the ME supports FDN but does not support the Call control by SIM facility, the rehabilitation of EF_{IMSI} and EF_{LOCI} will not be successful because of a restriction mechanism of the REHABILITATE command linked to the BDN feature.

When EF_{IMSI} and EF_{LOCI} are successfully rehabilitated, if the FDN capability procedure indicates that:

- i) FDN is allocated and activated in the SIM; and FDN is set "enabled", i.e. ADN "invalidated" or not activated; and the ME supports FDN;
- or ii) FDN is allocated and activated in the SIM; and FDN is set "disabled", i.e. ADN "not invalidated";
- or iii) FDN is not allocated or not activated;

then GSM operation shall start.

In all other cases GSM operation shall not start.

Afterwards, the ME runs the following procedures:

- Administrative Information request;
- SIM Service Table request;
- IMSI request;
- Access Control request;
- HPLMN Search Period request;
- Investigation PLMN scan request;

- PLMN selector request;
- HPLMN Access Technology request;
- PLMN Selector with Access Technology request;
- OPLMN Selector with Access Technology request;
- Location Information request;
- Cipher Key request;
- GPRS Cipher Mode Flag Request
- BCCH information request;
- CPBCCH information request;
- Forbidden PLMN request;
- LSA information request;
- CBMID request;
- Depersonalisation Control Keys request;
- Network's indication of alerting request.

If the SIM service table indicates that the proactive SIM service is active, then from this point onwards, the ME, if it supports the proactive SIM service, shall send STATUS commands at least every 30s during idle mode as well as during calls, in order to enable the proactive SIM to respond with a command. The SIM may send proactive commands (see GSM 11.14 [27]), including a command to change the interval between STATUS commands from the ME, when in idle mode. In-call requirements for STATUS for SIM Presence Detection are unchanged by this command.

After the SIM initialization has been completed successfully, the MS is ready for a GSM session.

11.5.15 Network's indication of alerting

Requirement: Service n°36 "allocated and activated".

Request: The ME performs the reading procedure with EF_{NIA}.

11.5.16 GPRS Cipher Mode Flag

Requirement: Service n°49 "allocated and activated".

Request: The ME performs the reading procedure with EF_{GPRScipherFlag}.

Update: The ME performs the updating procedure with EF_{GPRScipherFlag}.

11.6 SIM Application Toolkit related procedures

SIM Application Toolkit is an optional feature. The higher level procedures, and contents and coding of the commands, are given in GSM 11.14 [27]. Procedures relating to the transmission of commands and responses across the SIM/ME interface are given in this section. A SIM or ME supporting SIM Application Toolkit shall conform to the requirements given in this section.

11.6.1 Initialization procedure

A SIM supporting SIM Application Toolkit shall indicate this through relevant data in EF_{Phase} and EF_{SST} , as defined in the relevant sections above.

An ME supporting SIM Application Toolkit shall perform initialization as defined in the SIM Initialization section above.

11.6.2 Proactive polling

An ME supporting proactive SIM (part of SIM Application Toolkit) shall support the polling procedure as defined above.

11.6.3 Support of commands

A SIM or ME supporting SIM Application Toolkit shall support the commands TERMINAL PROFILE, ENVELOPE, FETCH and TERMINAL RESPONSE.

These commands shall never be used if either the SIM or ME does not support SIM Application Toolkit. Therefore standard SIMs and MEs do not need to support these commands.

11.6.4 Support of response codes

A SIM or ME supporting SIM Application Toolkit shall support the response status words (SW1 SW2) '91 XX', and '93 00' and '9E XX'. The SIM shall send '9E XX' only to an ME indicating in TERMINAL PROFILE that it supports the handling of these status words.

These responses shall never be used if either the SIM or ME does not support SIM Application Toolkit. Therefore standard SIMs and MEs do not need to support them.

11.6.5 Command-response pairs

Using the terminology where the ME issues a command and the SIM a response, ending in status words SW1 SW2, a command-response pair is considered as a single transaction. Each transaction is initiated by the ME and terminated by the SIM. One transaction must be completed before the next one can be initiated. This protocol applies to SIM Application Toolkit in the same way as it does to normal operation.

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	'FFFF'
'6F05'	Language preference	'FF'
'6F07'	IMSI	operator dependant (see 10.3.2)
'6F20'	Ciphering key Kc	'FFFF07'
'6F30'	PLMN selector	'FFFF'
'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	'FFFFF0000'
'6F45'	CBMI	'FFFF'
'6F46'	Service provider name	'FFFF'
'6F48'	CBMID	'FFFF'
'6F49'	Service Dialling Numbers	'FFFF'
'6F74'	BCCH information	'FFFF'
'6F78'	Access control class	operator dependant (see 10.1.12)
'6F7B'	Forbidden PLMNs	'FFFF'
'6F7E	Location information	'FFFFFFF xxFxxx 0000 FF 01'
		(see note 2)
'6FAD'	Administrative data	operator dependant (see 10.3.15)
'6FAE'	Phase identification	see 10.3.16
'6F3A'	Abbreviated dialling numbers	'FFFF'
'6F3B'	Fixed dialling numbers	'FFFF'
'6F3C'	Short messages	'00FFFF'
'6F3D'	Capability configuration parameters	'FFFF'
'6F40'	MSISDN storage	'FFFF'
'6F42'	SMS parameters	'FFFF'
'6F43'	SMS status	'FFFF'
'6F44'	Last number dialled	'FFFF'
'6F47'	Short message status reports	'00FFFF'
'6F4A'	Extension 1	'FFFF'
'6F4B'	Extension 2	'FFFF'
'6F4C'	Extension 3	'FFFF'
'6F4D'	Barred dialling numbers	'FFFF'
'6F4E'	Extension 4	'FFFF'
'6F4F'	Extended capability configuration parameters	'FFFF'
'6F51'	Network's indication of alerting	'FFFF'
'6F52'	GPRS Ciphering key KcGPRS	'FFFF07'
'6F53'	GPRS Location Information	'FFFFFFF FFFFFF xxFxxx 0000 FF 01'
'6F54'	SetUpMenu Elements	operator dependant (see 10.3.34)
'6F58'	Comparison method information	'FFFF'
'6F60'	PLMN Selector with Access Technology	'0000'
'6F61'	OPLMN Selector with Access Technology	'0000'
'6F62'	HPLMN Access Technology	'FF…FF'
'6F63'	CPBCCH information	'00'
'6F64'	Investigation PLMN Scan	'00'
<u>'6Fxx'</u>	GPRS Cipher Mode Flag	<u>'01'</u>
'4F20'	Image data	'00FFFF'
'4F30'	SoLSA Access Indicator)	'00FFFF'
'4F31'	SoLSA LSA List	'FFFF'

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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.

ile identification	Description	Change advise
'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 1
'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	Gaadon
'6F60'	PLMN Selector with Access Technology	Caution
'6F61'	OPLMN Selector with Access Technology	Caution
'6F62'	HPLMN Access Technology	Caution
'6F63'	CPBCCH information	Caution
'6F64'	Investigation PLMN scan	Caution
'6Fxx'	GPRS Cipher Mode Flag	Caution
'6F74'	BCCH information	No
'6F78'	Access control class	Caution
'6F7B'	Forbidden PLMNs	Caution
'6F7E'	Location information	No (Note 1)
	Administrative data	Caution
'6FAD' '6FAE'	Phase identification	Caution

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