**Source:** T3

**Title:** Change Requests on GPRS Operator Preferences

**Document for:** Approval

The CRs to TS 31.102 and TS 51.011 were approved at TSG-T #12 in June, but the subsequent TSG-SA #12 meeting requested that they be postponed until the service requirements were clarified. TSG-SA1 did this as their subsequent meeting in July and so the same CRs are presented again for approval.

The two CRs to TS 21.111 and TS 42.017 related to the requirements for the feature and have been endorsed by SA1.

| T3 Doc | Spec | CR | Rel | Cat | Subject |
|---|---|---|---|---|---|
| T3-010534 | 42.017 | 001 | Rel-4 | C | GPRS operator preferences |
| T3-010532 | 21.111 | 006 | Rel-4 | C | GPRS Operator Preferences |
| T3-010373 | 51.011 | 002 | Rel-4 | C | Addition of GPRS operator preferences |
| T3-010385 | 31.102 | 082 | Rel-4 | C | Addition of Operators Preferences file for GPRS service usage |

*CR-Form-v4*

# CHANGE REQUEST

| ⌘ | **TS 42.017** CR **CR001** | ⌘ ev | **-** | ⌘ | Current version: | **4.0.0** | ⌘ |

*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 ☐    Radio Access Network ☐    Core Network ☐

| | | |
|---|---|---|
| ***Title:*** | ⌘ | GPRS Operator Preferences |
| ***Source:*** | ⌘ | T3 |
| ***Work item code:*** | ⌘ | TEI | | ***Date:*** ⌘ | 4<sup>th</sup> September 2001 |

***Category:*** ⌘ **C**                                       ***Release:*** ⌘   REL 4

Use <u>one</u> 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 <u>one</u> 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:*** | ⌘ | If networks change over time, i.e. upgrade from IPv4 to IPv6, or mobiles roam between IPv4 networks and IPv6 networks then these parameters will not be optimally set.  A more dynamic method is required to overcome this problem. |
| ***Summary of change:*** | ⌘ | -    Following line added :   "GPRS Operator Preferences" |
| ***Consequences if not approved:*** | ⌘ | Inconsistant and poor behaviour of GPRS/UMTS terminals when accessing the network. |

| | | |
|---|---|---|
| ***Clauses affected:*** | ⌘ | 6.1 |

| ***Other specs affected:*** | ⌘ | ☐ Other core specifications | ⌘ | |
| | | ☐ Test specifications | | |
| | | ☐ 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/3G_Specs/CRs.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/](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.

## 6.1        Mandatory storage

The SIM shall provide storage capability for the following:

- Administrative information: indicates mode of operation of the SIM, e.g. normal, type approval.
- IC card identification: a number uniquely identifying the SIM and the card issuer.
- SIM service table: indicates which optional services are provided by the SIM.
- International Mobile Subscriber Identity (IMSI).
- Location information: comprising Temporary Mobile Subscriber Identity (TMSI), Location Area Information (LAI), Current value of Periodic Location Updating Timer (T3212) and the Location update status.
- Cipher key (Kc) and cipher key sequence number.
- —BCCH information: list of carrier frequencies to be used for cell selection.
- GPRS Operator Preferences
- Access control class(es): (see GSM 02.11 [6]).
- Forbidden PLMNs: (see GSM 02.11 [6]).
- HPLMN search period: used to control the time interval between HPLMN searches (see GSM 02.11 [6]).
- Language preference; subscriber preferred language(s) of MMI.
- Phase identification.

Location Information, Cipher Key and Cipher Key Sequence Number shall be updated on the SIM after each call termination and when the MS is correctly deactivated in accordance with the manufacturer's instructions.

In addition the SIM shall manage and provide storage for the following information in accordance with the security requirements of clause 5:

- CHV;
- CHV enabled/disabled indicator;
- CHV error counter;
- Unblock CHV;
- Unblock CHV error counter;
- Subscriber authentication key (Ki).

*CR-Form-v4*

# CHANGE REQUEST

| ⌘ | **TS 21.111 CR 006** | ⌘ | ev | **-** | ⌘ | Current version: | **4.0.0** | ⌘ |

*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 ☐  Radio Access Network ☐  Core Network ☐

| | | |
|---|---|---|
| ***Title:*** ⌘ | GPRS Operator Peferences | |
| ***Source:*** ⌘ | T3 | |
| ***Work item code:*** ⌘ | TEI | ***Date:*** ⌘  4<sup>th</sup> September 2001 |

***Category:*** ⌘ **C**   ***Release:*** ⌘ REL-4

| *Use <u>one</u> of the following categories:* | *Use <u>one</u> of the following releases:* |
|---|---|
| *F  (correction)* | *2  (GSM Phase 2)* |
| *A  (corresponds to a correction in an earlier release)* | *R96  (Release 1996)* |
| *B  (addition of feature),* | *R97  (Release 1997)* |
| *C  (functional modification of feature)* | *R98  (Release 1998)* |
| *D  (editorial modification)* | *R99  (Release 1999)* |
| Detailed explanations of the above categories can | *REL-4  (Release 4)* |
| be found in 3GPP TR 21.900. | *REL-5  (Release 5)* |

| | |
|---|---|
| ***Reason for change:*** ⌘ | If networks change over time, i.e. upgrade from IPv4 to IPv6, or mobiles roam between IPv4 networks and IPv6 networks then these parameters will not be optimally set.  A more dynamic method is required to overcome this problem. |
| ***Summary of change:*** ⌘ | -   The following line is added : " GPRS Operator Preferences" |
| ***Consequences if not approved:*** ⌘ | Inconsistant and poor behaviour of GPRS/UMTS terminals when accessing the network. |

| | | |
|---|---|---|
| ***Clauses affected:*** ⌘ | 10.1 | |
| ***Other specs affected:*** ⌘ | ☐ Other core specifications   ⌘ | |
| | ☐ Test specifications | |
| | ☐ O&M Specifications | |
| ***Other comments:*** ⌘ | | |

**How to create CRs using this form:**
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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.

## 10.1 USIM information storage requirements

The USIM shall contain information elements for 3G network operations. The USIM may contain information elements related to the subscriber, 3G services and home environment or service provider related information.

The UICC shall provide storage capability for the following:

- UICC related information:

    - IC card identification: a number uniquely identifying the UICC and the card issuer;
    - Preferred language(s);
    - Directory of applications.

    - USIM related information:

    - Administrative information: indicates mode of operation of the USIM, e.g. normal, type approval;
    - USIM service table: indicates which optional services are provided by the USIM;
    - IMSI;
    - Language indication;
    - Location information;
    - Cipher key (Kc) and cipher key sequence number;
    - Access control class(es);
    - Forbidden PLMNs;
    - Phase identification;
    - Ciphering Key for GPRS;
    - GPRS location information;
    - GPRS Operator Preferences
    - Cell Broadcast related information;
    - Emergency call codes;
    - Phone numbers (ADN, FDN, SDN);
    - Short messages and related parameters;
    - Capability and Configuration parameters;
    - HPLMN search period [FFS];
    - BCCH information: list of carrier frequencies to be used for cell selection [FFS].

    - Information accessible to the USIM and other applications:

    - ADN.

In addition, the USIM shall manage and provide storage for the following information in accordance with the security requirements of clause 5:

- PIN;
- PIN enabled/disabled indicator;
- PIN error counter;
- Unblock PIN;
- Unblock PIN error counter;
- Data integrity keys;
- Subscriber authentication keys.

*CR-Form-v3*

# CHANGE REQUEST

⌘ **51.011** CR **002** ⌘ rev **-** ⌘ Current version: **4.0.0** ⌘

*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:*** ⌘ | Introduction of USIM Features in to the SIM |
| ***Source:*** ⌘ | T3 |
| ***Work item code:*** ⌘ | TEI |
| ***Date:*** ⌘ | 10th May 2001 |
| ***Category:*** ⌘ | **B** |
| ***Release:*** ⌘ | **REL-4    (Release 4)** |

Use <u>one</u> 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 <u>one</u> 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:*** ⌘ | As agreed during the Palm Springs T Plenary meeting in March 2001, some USIM features are to be incorporated into the SIM. This CR includes those features. |
| ***Summary of change:*** ⌘ | The support for the following USIM features from 31.102 have been included within this Change Request to 51.011:<br><br>• EF-OPL<br><br>• EF-PNN<br><br>• EF-MBDN and EF-EXT6<br><br>• EF-MBI<br><br>• EF-MWIS<br><br>• EF-CFIS and EF-EXT7<br><br>Additionally, a section for Extension 5 has been added but is indicated as not used. |
| ***Consequences if not approved:*** ⌘ | Inability to get necessary standardised features for 2G operators |
| ***Clauses affected:*** ⌘ | 2, 3.2, 10.3.7, 10.3.aa(new), 10.3.bb(new), 10.3.cc(new), 10.3.dd(new), 10.3.ee(new), 10.3.ff(new), 10.3.gg(new), 10.3.hh(new), 10.3.ii(new), 10.5.4.2, 10.7, 11.5.1, 11.5.aa(new), 11.5.bb(new), 11.5.cc(new), 11.5.dd(new), Annex D, Annex I |

| Other specs<br>Affected: | ⌘ | ☐ Other core specifications | ⌘ | |
| | | ☐ Test specifications | | |
| | | ☐ O&M Specifications | | |
| Other comments: | ⌘ | 3G 31.102 makes use of EF-EXTN5 but GSM 11.11 does not. To keep consistency between the 31.102 features that are being introduced into GSM 11.11, the use of EF-EXTN6 and EF-EXTN7 has been maintained, this results in EF-EXTN5 being marked as "not used". | | |

## How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at:
http://www.3gpp.org/3G_Specs/CRs.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.

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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.

# 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.

[1]          not used

[2]          3GPP TS 01.04: "Abbreviations and acronyms".

[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 02.17: "Subscriber Identity Modules (SIM) Functional characteristics".

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

[8]          3GPP TS 02.30: "Man-Machine Interface (MMI) of the Mobile Station (MS)".

[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 03.20: "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) Point-to-Point (PP)".

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

[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]        CCITT Recommendation E.118: "The international telecommunication charge card".

[19]        CCITT Recommendation E.164: "Numbering plan for the ISDN era".

[20]        CCITT Recommendation T.50: "International Alphabet No. 5". (ISO 646: 1983, "Information processing - ISO 7-bits coded characters 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]	3GPP TS 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); Service description; Stage 2".

[34]	3GPP TS 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 Pre-emption and Priority (eMLPP) Services - Stage 1".

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

[44]	ETS 300.812: "Terrestrial Trunk Radio; Specification of the Subscriber Identity Module - 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".

[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 Station Application Execution Environment (MExE);Functional description; Stage 2".

[51]	3GPP TS 23.122: "Technical Specification Group Core Network; 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: "Technical Specification Group Services and System Aspects – Service Aspects".

[54]        3GPP TS 23.097: "Multiple Subscriber Profile (MSP)"

## 3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply, in addition to those listed in TS 01.04 [2]:

| | |
|---|---|
| A3 | Algorithm 3, authentication algorithm; used for authenticating the subscriber |
| A38 | A single algorithm performing the functions of A3 and A8 |
| A5 | Algorithm 5, cipher algorithm; used for enciphering/deciphering data |
| A8 | Algorithm 8, cipher key generator; used to generate $K_c$ |
| ACM | Accumulated Call Meter |
| ADM | Access condition to an EF which is under the control of the authority which creates this file |
| ADN | Abbreviated Dialling Number |
| AHAG | Ad-Hoc Authentication Group |
| A-Key | Authentication Key |
| ALW | ALWays |
| AMPS | Analogue Mobile Phone System |
| ANSI | American National Standards Institute |
| AoC | Advice of Charge |
| APDU | Application Protocol Data Unit |
| ATR | Answer To Reset |
| BCCH | Broadcast Control CHannel |
| BCD | Binary Coded Decimal |
| BDN | Barred Dialling Number |
| BTS | Base Transmitter Station |
| CB | Cell Broadcast |
| CBMI | Cell Broadcast Message Identifier |
| CCITT | The International Telegraph and Telephone Consultative Committee (now ITU Telecommunications Standardization sector) |
| CCP | Capability/Configuration Parameter |
| CHV | Card Holder Verification information; access condition used by the SIM for the verification of the identity of the user |
| CLA | CLAss |
| CNL | Co-operative Network List |
| CPBCCH | COMPACT Packet BCCH |
| CTS | Cordless Telephony System |
| DCK | De-personalization Control Keys |
| DCS | Digital Cellular System |
| DF | Dedicated File (abbreviation formerly used for Data Field) |
| DTMF | Dual Tone Multiple Frequency |
| ECC | Emergency Call Code |
| EF | Elementary File |
| EIA | Electronics Industries Alliance (North America) |
| eMLPP | enhanced Multi-Level Precedence and Pre-emption Service |
| ETSI | European Telecommunications Standards Institute |
| etu | elementary time unit |
| FDN | Fixed Dialling Number |
| GSM | Global System for Mobile communications |
| HPLMN | Home PLMN |
| IC | Integrated Circuit |
| ICC | Integrated Circuit(s) Card |
| ID | IDentifier |
| IEC | International Electrotechnical Commission |
| IEI | Information Element Identifier |
| IMSI | International Mobile Subscriber Identity |
| ISO | International Organization for Standardization |
| Kc | Cryptographic key; used by the cipher A5 |
| Ki | Subscriber authentication key; the cryptographic key used by the authentication algorithm, A3, and cipher key generator, A8 |
| LAI | Location Area Information; information indicating a cell or a set of cells |
| lgth | The (specific) length of a data unit |
| LND | Last Number Dialled |

| | |
|---|---|
| LSA | Localised Service Area |
| LSA ID | Localised Service Area Identity |
| LSB | Least Significant Bit |
| MCC | Mobile Country Code |
| ME | Mobile Equipment |
| MF | Master File |
| MMI | Man Machine Interface |
| MNC | Mobile Network Code |
| MS | Mobile Station |
| MSB | Most Significant Bit |
| MSISDN | Mobile Station international ISDN number |
| NAM | Numeric Assignment Module |
| NET | NETwork |
| NEV | NEVer |
| NPI | Numbering Plan Identifier |
| OFM | Operational Feature Monitor |
| OPLMN | Operator Controlled PLMN (Selector List) |
| OTA | Over The Air |
| PDC | Personal Digital Communications |
| PIN/PIN2 | Personal Identification Number / Personal Identification Number 2 (obsolete terms for CHV1 and CHV2, respectively) |
| PLMN | Public Land Mobile Network |
| PPS | Protocol and Parameter Select (response to the ATR) |
| PUK/PUK2 | PIN Unblocking Key / PIN2 Unblocking Key (obsolete terms for UNBLOCK CHV1 and UNBLOCK CHV2, respectively) |
| RAND | A RANDom challenge issued by the network |
| RFU | Reserved for Future Use |
| SDN | Service Dialling Number |
| SID | System IDentity |
| SIM | Subscriber Identity Module |
| SMS | Short Message Service |
| SoLSA | Support of Localised Service Area |
| SRES | Signed RESponse calculated by a SIM |
| SSC | Supplementary Service Control string |
| SW1/SW2 | Status Word 1 / Status Word 2 |
| TETRA | TErrestrial Trunk RAdio |
| TIA | Telecommunications Industries Association (North America) |
| TMSI | Temporary Mobile Subscriber Identity |
| TON | Type Of Number |
| TP | Transfer layer Protocol |
| TPDU | Transfer Protocol Data Unit |
| TS | Technical Specification |
| UNBLOCK CHV1/2 | value to unblock CHV1/CHV2 |
| VBS | Voice Broadcast Service |
| VGCS | Voice Group Call Service |
| VPLMN | Visited PLMN |

## 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:<br>　　READ　　　　　　　　CHV1<br>　　UPDATE　　　　　　ADM<br>　　INVALIDATE　　　　ADM<br>　　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°aa PLMN Network Name
Service n°bb Operator PLMN List
Service n°cc: Mailbox Dialling Numbers
Service n°dd: Message Waiting Indication Status
Service n°ee: Call Forwarding Indication Status

## 10.3.aa EF<sub>PNN</sub> (PLMN Network Name)

This EF contains the full and short form versions of the network name for the registered PLMN. The ME shall use these versions in place of its own versions of the network name for the PLMN (stored in the ME's memory list), and also in place of the versions of the network name received when registered to the PLMN, as defined by 3G TS 24.008 [47].

The first record in this EF is used for the default network name when registered to the HPLMN. Subsequent records are to be used for other network names.

| Identifier: '6Fxx' | Structure: linear fixed | Optional |
|---|---|---|
| Record length: X bytes | | Update activity: low |

Access Conditions:
    READ                            ALWAYS
    UPDATE                         ADM
    ACTIVATE                    ADM
    DEACTIVATE                ADM

| Bytes | Description | M/O | Length |
|---|---|---|---|
| 1 to X | Network name TLV objects | M | X bytes |

- Network Name TLV objects.
  The content and coding (Full name for network and Short name for network) is defined below, where the fields within the objects are defined in 3G TS 24.008 [47]:

**Coding of the Network Name TLV objects**

| Length | Description | Status |
|---|---|---|
| 1 byte | Full name for network IEI (This shall be the same as that used in the MM information message). | M |
| 1 byte | Length of Full name for network Name contents | M |
| Y bytes | Full name for network contents (Octets 3 to n of network name information element) | M |
| 1 byte | Short name for network IEI (This shall be the same as that used in the MM information message). | O |
| 1 byte | Length of Short name for network | C1 |
| Z bytes | Short name for network contents (Octets 3 to n of network name information element) | C1 |
| C1: this field shall be present if the short name for network IEI is present | | |

Unused bytes shall be set to 'FF'.

## 10.3.bb EF<sub>OPL</sub> (Operator PLMN List)

This EF contains a prioritised list of Location Area Information (LAI) identities that are used to associate a specific operator name contained in EF<sub>PNN</sub> with the LAI. The ME shall use this EF in association with the EF<sub>PNN</sub> in place of any network name stored within the ME's internal list and any network name received when registered to the PLMN, as defined by 3G TS 24.008 [47].

If the EF<sub>PNN</sub> is not present then this file shall not be present.

| Identifier: '6Fxx' | | Structure: linear fixed | | Optional |
|---|---|---|---|---|
| Record length: X bytes, X >= 6 | | | Update activity: low | |
| Access Conditions: | | | | |
| READ | ALWAYS | | | |
| UPDATE | ADM | | | |
| DEACTIVATE | ADM | | | |
| ACTIVATE | ADM | | | |
| Bytes | Description | | M/O | Length |
| 1 to 5 | Location Area Identity | | M | 5 bytes |
| 6 | PLMN Network Name Record Identifier | | M | 1 byte |

- Location Area Identity

   Contents:

      Location Area Information, this comprises of the MCC, MNC and LAC

   Coding: according to 3G TS 24.008 [47]

      A BCD value of 'D' in any of the MCC and/or MNC digits shall be used to indicate a "wild" value for that corresponding MCC/MNC digit

      A value of '0000' in the LAC shall be used to indicate a "wild" value for the LAC

- PLMN Network Name Record Identifier

   Contents:

      Identifier of operator name to be displayed

   Coding:

      A value of '00' indicates that the name is to be taken from other sources, see 3G TS 22.101 [53]

      A value in the range '01' to 'FE' indicates the record number in $EF_{PNN}$ that shall be displayed as the registered PLMN name

   NOTE:    The intent of this file is to provide exceptions to the other sources of a network name. Care should be taken not to introduce too many PLMN entries. An excessive number of entries could result in a longer initialisation period.

# 10.3.cc   EF$_{MBDN}$ (Mailbox Dialling Numbers)

This EF contains dialling numbers to access mailboxes associated with Voicemail, Fax, Electronic Mail and other messages. It may also contain associated alpha-tags for each supported mailbox.  Each dialling number shall be associated with a message waiting indication group type using $EF_{MBI}$ (see 3G TS 23.038 [12] for message waiting indication group types).

This EF is mandatory if $EF_{SST}$ indicates that the Mailbox Dialling Numbers service is available.

| Identifier: '6Fxx' | | Structure: linear fixed | | Optional |
|---|---|---|---|---|
| Record length: X+14 bytes | | Update activity: low | | |
| Access Conditions: <br>     READ                      PIN<br>     UPDATE                   PIN/ADM<br>                                    (fixed during administrative management)<br>     DEACTIVATE             ADM<br>     ACTIVATE                 ADM | | | | |
| Bytes | Description | | M/O | Length |
| 1 to X | Alpha Identifier | | O | X bytes |
| X+1 | Length of BCD number/SSC contents | | M | 1 byte |
| X+2 | TON and NPI | | M | 1 byte |
| X+3 to X+12 | Dialling Number/SSC contents | | M | 10 bytes |
| X+13 | Extended Capability Configuration Parameters | | M | 1 byte |
| X+14 | Extension 6 Record Identifier | | M | 1 byte |

For contents and coding of all data items see the respective data items of the EF$_{ADN}$ (subclause 10.5.1), with the exception that extension records are stored in the EF$_{EXT6}$ and with the exception that Capability/Configuration parameters are stored in the EF$_{ECCP}$.

> NOTE:    The value of X (the number of bytes in the alpha-identifier) may be different to the length denoted X in EF$_{ADN}$.

## 10.3.dd   EF$_{MBI}$ (Mailbox Identifier)

This EF contains information to associate mailbox dialling numbers in EF$_{MBDN}$ with a message waiting indication group type and subscriber profile (as defined in 3G TS 23.097 [54]). A message waiting indication group type may either be Voicemail, Fax, Electronic Mail or Other (as defined in 3G TS 23.038 [12] for Data Coding Scheme).

This EF contains as many records as there are subscriber profiles (shall be record to subscriber profile). Each record contains references to mailbox dialling numbers in EF$_{MBDN}$ (one reference for each message waiting indication group type).

This EF is mandatory if EF$_{SST}$ indicates that the Mailbox Dialling Numbers service is available.

| Identifier: '6Fxx' | | Structure: linear fixed | | Optional |
|---|---|---|---|---|
| Record length: X bytes, X>=4 | | Update activity: low | | |
| Access Conditions: <br>     READ                      PIN<br>     UPDATE                   PIN/ADM<br>                                    (fixed during administrative management)<br>     DEACTIVATE             ADM<br>     ACTIVATE                 ADM | | | | |
| Bytes | Description | | M/O | Length |
| 1 | Mailbox Dialling Number Identifier – Voicemail | | M | 1 byte |
| 2 | Mailbox Dialling Number Identifier – Fax | | M | 1 byte |
| 3 | Mailbox Dialling Number Identifier – Electronic Mail | | M | 1 byte |
| 4 | Mailbox Dialling Number Identifier – Other | | M | 1byte |

- Mailbox Dialling Number Identifier (message waiting group type = Voicemail, Fax, Electronic Mail or Other).
    Contents:
        Identifies the mailbox dialling number to be associated with message waiting type.

Coding:

'00' – no mailbox dialling number associated with message waiting indication group type

'xx' – record number in EF$_{MBDN}$ associated with message waiting indication group type

## 10.3.ee EF$_{MWIS}$ (Message Waiting Indication Status)

This EF contains the status of indicators that define whether or not a Voicemail, Fax, Electronic Mail or Other message is waiting (as defined in 3G TS 23.038 [12] for message waiting indication group types). The ME uses the status after re-activation to determine whether or not to display the respective message-waiting indication on its display.

This EF contains as many records as there are subscriber profiles (shall be record to subscriber profile) as defined in 3G TS 23.097 [54] for MSP.

| Identifier: '6Fxx' | | Structure: Linear fixed | | Optional | |
|---|---|---|---|---|---|
| Record length: X bytes, X >= 5 | | | Update activity: high | | |
| Access Conditions:<br>     READ                          PIN<br>     UPDATE                      PIN<br>     DEACTIVATE              ADM<br>     ACTIVATE                  ADM | | | | | |
| Bytes | Description | | M/O | Length | |
| 1 | Message Waiting Indicator Status | | M | 1 byte | |
| 2 | Number of Voicemail Messages Waiting | | M | 1 byte | |
| 3 | Number of Fax Messages Waiting | | M | 1 byte | |
| 4 | Number of Electronic Mail Messages Waiting | | M | 1 byte | |
| 5 | Number of Other Messages Waiting | | M | 1 byte | |

Message Waiting Indication Status
    Contents:
        Indicates the status of the message-waiting indication.

    Coding:
        The indicator status for each indicator type is 1 bit long and set as follows:
        bit = 1: Set Indication Active
        bit = 0: Set Indication Inactive

```
b8   b7   B6   b5   b4   b3   b2   b1
                               └──── Message Waiting Indication Status – Voicemail
                          └───────── Message Waiting Indication Status – Fax
                     └──────────────  Message Waiting Indication Status – Electronic Mail
                └───────────────────  Message Waiting Indication Status – Other
      └────────────────────────────  RFU
```
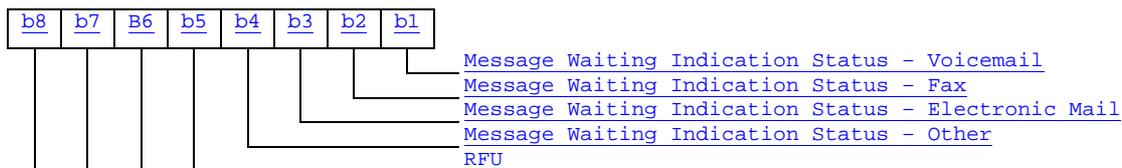
Number of Voicemail Messages Waiting
    Contents:
        Contains the number of voicemail messages waiting (see 3G TS 23.040 [13]).
    Coding:
        Binary.

Number of Fax Messages Waiting
    Contents:
        Contains the number of fax messages waiting (see 3G TS 23.040 [13]).
    Coding:
        Binary.

Number of Electronic Mail Messages Waiting
    Contents:
        Contains the number of electronic mail messages waiting (see 3G TS 23.040 [13])
    Coding:
        Binary.

Number of Other Messages Waiting
    Contents:
        Contains the number of other messages waiting (see 3G TS 23.040 [13]).
    Coding:
        Binary.

## 10.3.ff    EF_CFIS (Call Forwarding Indication Status)

This EF contains the status of indicators that are used to record whether call forward is active. The ME uses the status after re-activation to determine whether or not to display the respective Call Forwarding indicator on its display.

This EF contains as many records as there are subscriber profiles (shall be record to subscriber profile) as defined in 3G TS 23.097 [54] for MSP.

| Identifier: '6Fxx' | | Structure: Linear Fixed | | Optional | |
|---|---|---|---|---|---|
| Record length:  16 bytes | | | Update activity: low | | |
| Access Conditions:<br>    READ                          PIN<br>    UPDATE                       PIN<br>    DEACTIVATE              ADM<br>    ACTIVATE                   ADM | | | | | |
| Bytes | Description | | M/O | Length | |
| 1 | MSP number | | M | 1 byte | |
| 2 | CFU indicator status | | M | 1 byte | |
| 3 | Length of BCD number | | M | 1 byte | |
| 4 | TON and NPI | | M | 1 byte | |
| 5 to 14 | Dialling Number | | M | 10 bytes | |
| 15 | Extended Capability Configuration Parameters | | M | 1 byte | |
| 16 | Extension 7 Record Identifier | | M | 1 byte | |

NOTE:    For contents and coding of data items not detailed below, see the respective data items of EF_ADN (subclause 10.5.1), with the exception that Capability/Configuration parameters are stored in the EF_ECCP and Extension 7 Record Identifier is used.

MSP number:

    Contents:
        The MSP number contains the Profile Identity of the subscriber profile. The Profile Identity shall be between 1and 4 as defined in 3G TS 23.097 [54] for MSP.

    Coding:
        Binary.

CFU indicator status:

    Contents:

        Indicates the status of the call forward unconditional indicator. Service code = 21 (CFU) or 002 (for CFU part of all CF), as defined in 3G TS 02.30 [8]

    Coding:

        The indicator status for each indicator type is 1 bit long and is set as follows:
        bit = 1: Set indication active
        bit = 0: Set indication inactive

| b8 | b7 | b6 | b5 | b4 | b3 | b2 | b1 |
|----|----|----|----|----|----|----|----|

CFU indicator status - Voice
MMI Service code = 11 (Telephony), as defined in 3G TS
02.30 [8]).
CFU indicator status - Fax
MMI Service code = 13 (Fax), as defined in 3G TS 02.30
[8]).
CFU indicator status - Data
MMI Service code = 12 (Data), as defined in 3G TS
02.30 [8]).
RFU (e.g. for other MMI service codes)
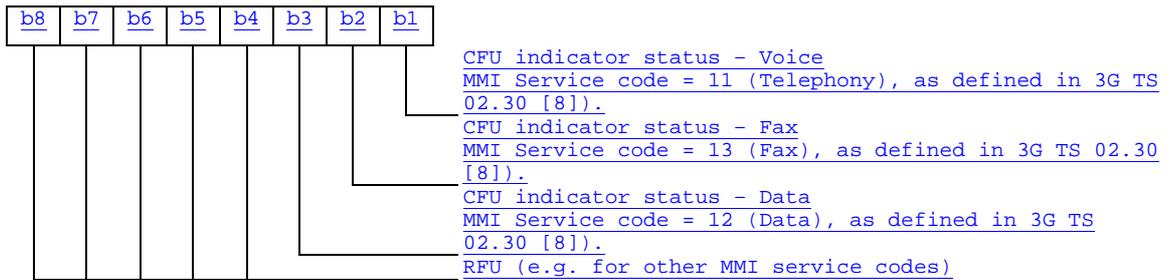
# 10.3.gg   EF$_{EXT5}$ (Extension5)

This EF is not used

# 10.3.hh   EF$_{EXT6}$ (Extension6)

This EF contains extension data of an MBDN (see MBDN in 10.3.cc).

| Identifier: '6Fxx' | | Structure: linear fixed | | Optional |
|---|---|---|---|---|
| Record length: 13 bytes | | | Update activity: low | |
| Access Conditions: <br>    READ                     PIN <br>    UPDATE              PIN/ADM <br>                                (fixed during administrative management) <br>    DEACTIVATE      ADM <br>    ACTIVATE         ADM | | | | |

| Bytes | Description | M/O | Length |
|---|---|---|---|
| 1 | Record type | M | 1 byte |
| 2 to 12 | Extension data | M | 11 bytes |
| 13 | Identifier | M | 1 byte |

For contents and coding, see subclause 10.5.10 (EF$_{EXT1}$).

# 10.3.ii    EF$_{EXT7}$ (Extension7)

This EF contains extension data of a CFIS (Call Forwarding Indication Status - see 10.3.ff).

| Identifier: '6Fxx' | | Structure: linear fixed | | Optional |
|---|---|---|---|---|
| Record length: 13 bytes | | | Update activity: low | |
| Access Conditions: <br>    READ                     PIN <br>    UPDATE              PIN <br>    DEACTIVATE      ADM <br>    ACTIVATE         ADM | | | | |

| Bytes | Description | M/O | Length |
|---|---|---|---|
| 1 | Record type | M | 1 byte |
| 2 to 12 | Extension data | M | 11 bytes |
| 13 | Identifier | M | 1 byte |

For contents and coding see subclause 10.5.10 (EF$_{EXT1}$).

## 10.5.4.2 EF<sub>ECCP</sub> (Extended Capability Configuration Parameters)

This EF contains parameters of required network and bearer capabilities and ME configurations associated with a call established using an abbreviated dialling number, a fixed dialling number, an MSISDN, a last number dialled, a service dialling number, or a barred dialling number, a mailbox dialling number or a call forwarding indication status number.

The number of records of the EF<sub>ECCP</sub> shall be equal to the number of records of the EF<sub>CCP</sub>. Each record of the EF<sub>CCP</sub> shall have a corresponding record in the EF<sub>ECCP</sub> with the same record number.

If an ME has to update a record, then the ME shall update each record of both files, EF<sub>CCP</sub> with 10 bytes and EF<sub>ECCP</sub> with X bytes (X≥15).

If an ME has to read a record, then the ME shall check the consistency between the record of the EF<sub>ECCP</sub> and the corresponding record of the EF<sub>CCP</sub> and update the record of the EF<sub>ECCP</sub> with the value of the corresponding record of the EF<sub>CPP</sub>.

| Identifier: '6F4F' | | Structure: linear fixed | | Optional |
|---|---|---|---|---|
| Record length: X (X≥15) | | Update activity: low | | |
| Access Conditions:<br>    READ                 CHV1<br>    UPDATE         CHV1<br>    INVALIDATE    ADM<br>    REHABILITATE  ADM | | | | |
| Bytes | Description | | M/O | Length |
| 1 to X | Bearer capability information element | | M | X bytes |

- Bearer capability information element

  Contents and Coding:

  > see TS 24.008 [47]. The Information Element Identity (IEI) shall be excluded, i.e. the first byte of the EF<sub>ECCP</sub> record shall be Length of the bearer capability contents.

  Unused bytes are filled with 'FF'.

## 10.7    Files of GSM

This subclause 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<sub>GSM</sub> '7F20' | DF<sub>TELECOM</sub> '7F10' | DF<sub>IS-41</sub> '7F22' | DF<sub>FP-CTS</sub> '7F23' see GSM 11.19 | | EF<sub>ICCID</sub> '2FE2' | EF<sub>ELP</sub> '2F05' |

| | | EF<sub>ADN</sub> '6F3A' | EF<sub>FDN</sub> '6F3B' | EF<sub>SMS</sub> '6F3C' | EF<sub>CCP</sub> '6F3D' | EF<sub>MSISDN</sub> '6F40' |

| | | EF<sub>SMSP</sub> '6F42' | EF<sub>SMSS</sub> '6F43' | EF<sub>LND</sub> '6F44' | EF<sub>SMSR</sub> '6F47' | EF<sub>SDN</sub> '6F49' |

| | | EF<sub>EXT1</sub> '6F4A' | EF<sub>EXT2</sub> '6F4B' | EF<sub>EXT3</sub> '6F4C' | EF<sub>BDN</sub> '6F4D' | EF<sub>EXT4</sub> '6F4E' |

| | | DF<sub>GRAPHICS</sub> '5F50' | EF<sub>IMG</sub> '4F20' |

| DF<sub>IRIDIUM</sub> '5F30' | DF<sub>GLOBST</sub> '5F31' | DF<sub>ICO</sub> '5F32' | DF<sub>ACeS</sub> '5F33' |

| DF<sub>EIA/TIA-553</sub> '5F40' | DF<sub>CTS</sub> '5F60' see GSM 11.19 | DF<sub>SoLSA</sub> '5F70' | | EF<sub>SAI</sub> '4F30' | EF<sub>SLL</sub> '4F31' |

| DF<sub>MExE</sub> '5F3C' | | EF<sub>MExE-ST</sub> '4F40' | EF<sub>ORPK</sub> '4F41' | EF<sub>ARPK</sub> '4F42' | EF<sub>TPRPK</sub> '4F43' |

| EF<sub>LP</sub> '6F05' | EF<sub>IMSI</sub> '6F07' | EF<sub>Kc</sub> '6F20' | EF<sub>PLMNsel</sub> '6F30' | EF<sub>HPLMN</sub> '6F31' | EF<sub>ACMmax</sub> '6F37' |

| EF<sub>SST</sub> '6F38' | EF<sub>ACM</sub> '6F39' | EF<sub>GID1</sub> '6F3E' | EF<sub>GID2</sub> '6F3F' | EF<sub>PUCT</sub> '6F41' | EF<sub>CBMI</sub> '6F45' |

| EF<sub>SPN</sub> '6F46' | EF<sub>CBMID</sub> '6F48' | EF<sub>BCCH</sub> '6F74' | EF<sub>ACC</sub> '6F78' | EF<sub>FPLMN</sub> '6F7B' | EF<sub>LOCI</sub> '6F7E' |

| EF<sub>AD</sub> '6FAD' | EF<sub>PHASE</sub> '6FAE' | EF<sub>VGCS</sub> '6FB1' | EF<sub>VGCSS</sub> '6FB2' | EF<sub>VBS</sub> '6FB3' | EF<sub>VBSS</sub> '6FB4' |

| EF<sub>eMLPP</sub> '6FB5' | EF<sub>AAeM</sub> '6FB6' | EF<sub>ECC</sub> '6FB7' | EF<sub>CBMIR</sub> '6F50' | EF<sub>NIA</sub> '6F51' | EF<sub>KcGPRS</sub> '6F52' |

| EF<sub>LOCIGPRS</sub> '6F53' | EF<sub>SUME</sub> '6F54' | EF<sub>PLMNwAcT</sub> '6F60' | EF<sub>OPLMNwAcT</sub> '6F61' | EF<sub>HPLMNAcT</sub> '6F62' | EF<sub>CPBCCH</sub> '6F63' |

| EF<sub>INVSCAN</sub> '6F64' | EF<sub>RPLMNAT</sub> '6F65' | EF<sub>PNN</sub> '6FXX' | EF<sub>OPL</sub> '6FXX' | EF<sub>MBDN</sub> '6Fxx' | EF<sub>MBI</sub> '6Fxx' |

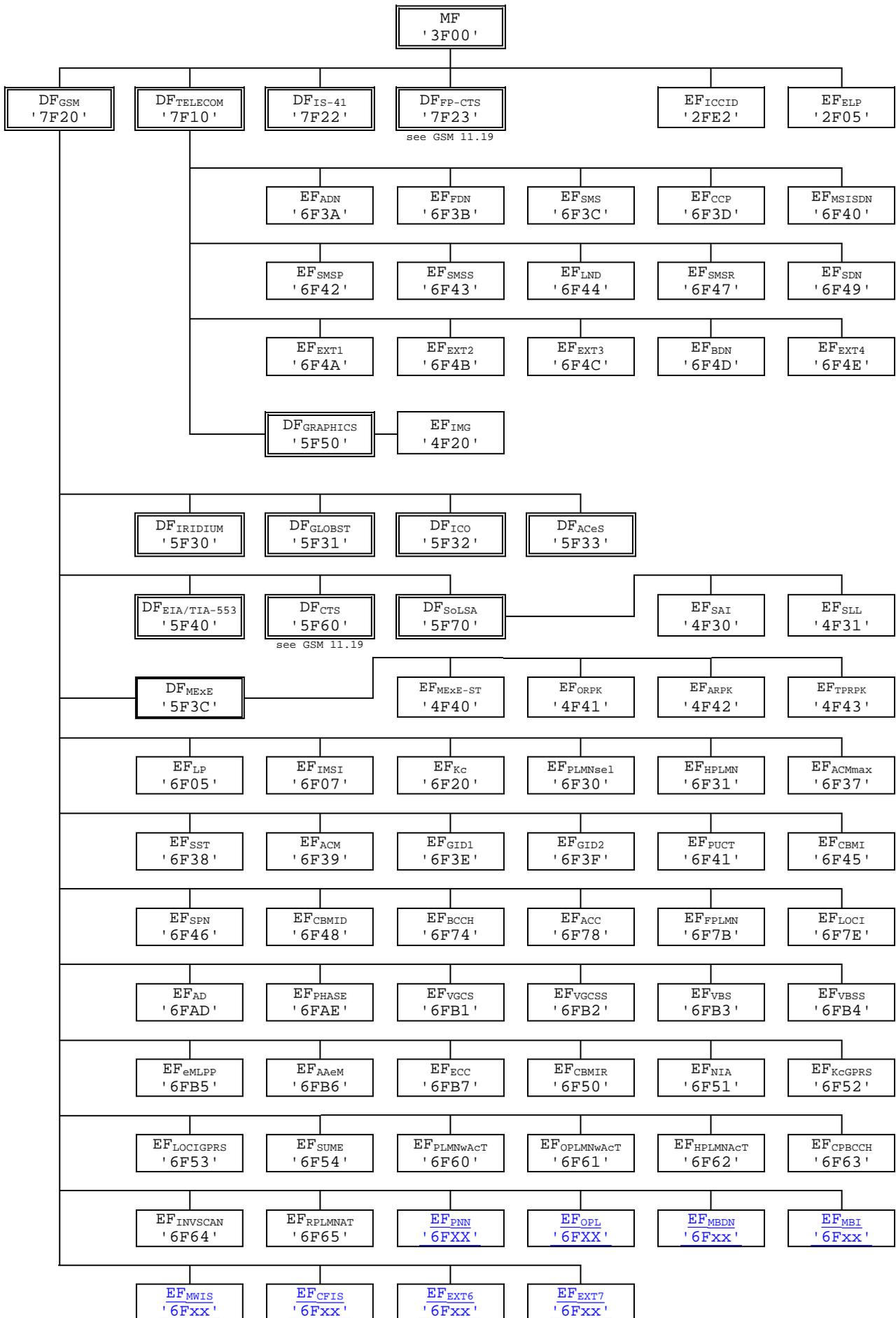| EF<sub>MWIS</sub> '6Fxx' | EF<sub>CFIS</sub> '6Fxx' | EF<sub>EXT6</sub> '6Fxx' | EF<sub>EXT7</sub> '6Fxx' |

**Figure 8: File identifiers and directory structures of GSM**

## 11.5.1 Dialling numbers

The following procedures may not only be applied to EF$_{ADN}$ and its associated extension files EF$_{CCP}$ and EF$_{EXT1}$ as described in the procedures below, but also to EF$_{\text{EFDN}}$, EF$_{MSISDN}$, EF$_{LND}$, EF$_{BDN}$, and EF$_{SDN}$ and EF$_{MBDN}$ and their associated extension files. If these files are not allocated and activated, as denoted in the SIM service table, the current procedure shall be aborted and the appropriate EFs shall remain unchanged.

As an example, the following procedures are described as applied to ADN.

Requirement: Service n°2 "allocated and activated"

(Service n°3 for FDN,

Service n°9 for MSISDN,

Service n°13 for LND,

Service n°18 for SDN),

Service n°31 for BDN.

Service n°cc for MBDN)

Update: The ME analyses and assembles the information to be stored as follows (the byte identifiers used below correspond to those in the description of the EFs in subclauses 10.5.1, 10.5.4 and 10.5.10):

i) The ME identifies the Alpha-tagging, Capability/Configuration Identifier and Extension1 Record Identifier.

ii) The dialling number/SSC string shall be analysed and allocated to the bytes of the EF as follows:

- if a "+" is found, the TON identifier is set to "International";

- if 20 or less "digits" remain, they shall form the dialling number/SSC string;

- if more than 20 "digits" remain, the procedure shall be as follows:

Requirement:

Service n°10 "allocated and activated";

(Service n°10 applies also for MSISDN and LND;

Service n°11 for FDN;

Service n°19 for SDN;

Service n°32 for BDN;

Service n°cc for MBDN).

The ME seeks for a free record in EF$_{EXT1}$. If an Extension1 record is not marked as "free", the ME runs the Purge procedure. If an Extension1 record is still unavailable, the procedure is aborted.

The first 20 "digits" are stored in the dialling number/SSC string. The value of the length of BCD number/SSC contents is set to the maximum value, which is 11. The Extension1 record identifier is coded with the associated record number in the EF$_{EXT1}$. The remaining digits are stored in the selected Extension1 record where the type of the record is set to "additional data". The first byte of the Extension1 record is set with the number of bytes of the remaining additional data. The number of bytes containing digit information is the sum of the length of BCD number/SSC contents of EF$_{ADN}$ and byte 2 of all associated chained Extension1 records containing additional data (see subclauses 10.5.1 and 10.5.10).

iii) If a called party subaddress is associated to the ADN/SSC the procedure shall proceed as follows:

Requirement:

Service n°10 "allocated and activated"
(Service n°10 applies also for MSISDN and LND;
Service n°11 for FDN;
Service n°19 for SDN;
Service n°32 for BDN;
Service n°cc for MBDN.)

If the length of the called party subaddress is less than or equal to 11 bytes (see TS 04.08 [15] for coding):

- the ME seeks for a free record in $EF_{EXT1}$. If an Extension1 record is not marked as "free", the ME runs the Purge procedure. If an Extension1 record is still unavailable, the procedure is aborted;

- the ME stores the called party subaddress in the Extension1 record, and sets the Extension1 record type to "called party subaddress".

If the length of the called party subaddress is greater than 11 bytes (see TS 04.08 [15] for coding):

- the ME seeks for two free records in $EF_{EXT1}$. If no such two records are found, the ME runs the Purge procedure. If two Extension1 records are still unavailable, the procedure is aborted;

- the ME stores the called party subaddress in the two Extension1 records. The identifier field in the Extension1 record containing the first part of the subaddress data is coded with the associated $EF_{EXT1}$ record number containing the second part of the subaddress data. Both Extension1 record types are set to "called party subaddress".

Once i), ii), and iii) have been considered the ME performs the updating procedure with $EF_{ADN}$. If the SIM has no available empty space to store the received ADN/SSC, or if the procedure has been aborted, the ME advises the user.

NOTE 1: For reasons of memory efficiency the ME is allowed to analyse all Extension1 records to recognize if the additional or subaddress data to be stored is already existing in $EF_{EXT1}$. In this case the ME may use the existing chain or the last part of the existing chain from more than one ADN (LND, MSISDN). The ME is only allowed to store extension data in unused records. If existing records are used for multiple access, the ME shall not change any data in those records to prevent corruption of existing chains.

Erasure: The ME sends the identification of the information to be erased. The content of the identified record in $EF_{ADN}$ is marked as "free".

Request: The ME sends the identification of the information to be read. The ME shall analyse the data of $EF_{ADN}$ (subclause 10.5.1) to ascertain, whether additional data is associated in $EF_{EXT1}$ or $EF_{CCP}$. If necessary, then the ME performs the reading procedure on these EFs to assemble the complete ADN/SSC.

Purge: The ME shall access each EF which references $EF_{EXT1}$ ($EF_{EXT2}$, $EF_{EXT6}$) for storage and shall identify records in these files using extension data (additional data or called party subaddress). Note that existing chains have to be followed to the end. All referred Extension1 (Extension2, Extension6) records are noted by the ME. All Extension1 (Extension2, Extension6) records not noted are then marked by the ME as "free" by setting the whole record to 'FF'.

NOTE 2: Dependent upon the implementation of the ME, and in particular the possibility of erasure of ADN/SSC records by Phase 1 MEs, which have no knowledge of the $EF_{EXT1}$, it is possible for Extension1 records to be marked as "used space" (not equal to 'FF'), although in fact they are no longer associated with an ADN/SSC record.

The following three procedures are only applicable to service n°3 (FDN).

FDN capability request. The ME has to check the state of service n°3, i.e. if FDN is "enabled" or "disabled". In case of enabled FDN, the ME has to switch to a restrictive terminal mode (see TS 02.07). To ascertain the state of FDN, the ME checks in $EF_{SST}$ whether or not ADN is activated. If ADN is not activated, service n°3 is enabled. If ADN is activated, the ME checks the response data of $EF_{ADN}$. If $EF_{ADN}$ is invalidated, service n°3 is enabled. In all other cases service n°3 is disabled.

FDN disabling. The FDN disabling procedure requires that CHV2 verification procedure has been performed successfully and that ADN is activated. If not, FDN disabling procedure will not be executed successfully. To disable FDN capability, the ME rehabilitates $EF_{ADN}$. The invalidate/rehabilitate flag of $EF_{ADN}$, which is implicitly set by the REHABILITATE command, is at the same time the indicator for the state of the service n°3. If ADN is not activated, disabling of FDN is not possible and thus service n°3 is always enabled (see FDN capability request).

NOTE 3: If FDN is disabled (by rehabilitating $EF_{ADN}$) using an administrative terminal then the FDN disabling procedure of this administrative terminal need also to rehabilitate $EF_{IMSI}$ and $EF_{LOCI}$ to ensure normal operation of the SIM in a phase 1 ME or a phase 2 ME which does not support FDN.

FDN enabling. The FDN enabling procedure requires that CHV2 verification procedure has been performed successfully. If not, FDN enabling procedure will not be executed successfully. To enable FDN capability, the ME invalidates $EF_{ADN}$. The invalidate/rehabilitate flag of $EF_{ADN}$, which is implicitly cleared by the INVALIDATE command, is at the same time the indicator for the state of the service n°3 (see FDN capability request). If ADN is not activated, service n°3 is always enabled.

Invalidated ADNs may optionally still be readable and updatable depending on the file status (see subclause 9.3)

The following three procedures are only applicable to service n°31 (BDN).

BDN capability request. The ME has to check the state of service n°31, i.e. if BDN is "enabled" or "disabled". BDN service is "enabled" only if service n°31 is allocated and activated, and $EF_{BDN}$ is not invalidated. In all other cases, the BDN service is "disabled".

BDN disabling. The BDN disabling procedure requires that CHV2 verification procedure has been performed successfully. If not, BDN disabling procedure will not be executed successfully. To disable BDN capability, the ME invalidates $EF_{BDN}$. The invalidate/rehabilitate flag of $EF_{BDN}$, which is implicitly cleared by the INVALIDATE command, is at the same time the indicator for the state of the service n°31 (see BDN capability request).

BDN enabling. The BDN enabling procedure requires that CHV2 verification procedure has been performed successfully. If not, BDN enabling procedure will not be executed successfully. To enable BDN capability, the ME rehabilitates $EF_{BDN}$. The invalidate/rehabilitate flag of $EF_{BDN}$, which is implicitly set by the REHABILITATE command, is at the same time the indicator for the state of the service n°31 (see BDN capability request).

Invalidated BDNs (when BDN capability is disabled) may optionally still be readable and updatable depending on the file status (see subclause 9.3).

## 11.5.aa PLMN Network Name

Requirement: Service n°aa "available".

Request: The ME performs the reading procedure with EF$_{PNN}$.

## 11.5.bb Operator PLMN List

Requirement: Service n°bb "available".

Request: The ME performs the reading procedure with EF$_{OPL}$

## 11.5.cc Message Waiting Indication

- Requirement: Service n°dd "available".

- Request: The ME performs the reading procedure with EF$_{MWIS}$.

- Update: The ME performs the updating procedure with EF$_{MWIS}$.

## 11.5.dd Call Forwarding Indication Status

- Requirement: Service n°ee "available".

- Request: The ME performs the reading procedure with EF$_{CFIS}$.

- Update: The ME performs the updating procedure with EF$_{CFIS}$.

# 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 10.1.12) |
| '6F7B' | Forbidden PLMNs | 'FF...FF' |
| '6F7E | Location information | 'FFFFFFFF xxxxxx 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 | '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' |
| '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' |
| '4F20' | Image data | '00FF...FF' |
| '4F30' | SoLSA Access Indicator) | '00FF...FF' |
| '4F31' | SoLSA LSA List | 'FF...FF' |
| '6Fxx' | PLMN Network Name | Operator dependant |
| '6Fxx' | Operator PLMN List | Operator dependant |
| '6Fxx' | Mailbox Dialling Numbers | Operator dependant |
| '6Fxx' | Extension 6 | '00 FF...FF' |
| '6Fxx' | Mailbox Identifier | Operator dependant |
| '6Fxx' | Message Waiting Indication Status | '00 00 00 00 00' |
| '6Fxx' | Call Forwarding Indication Status | 'xx 00 FF...FF' |
| '6Fxx' | Extension 7 | '00 FF...FF' |

*3GPP*

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) |
| '6FAD' | Administrative data | Caution |
| '6FAE' | Phase identification | Caution |

**Continued.....**

| File identification | Description | Change advised |
|---|---|---|
| '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 |
| '6Fxx' | PLMN Network Name | Yes |
| '6Fxx' | Operator PLMN List | Yes |
| '6Fxx' | Mailbox Dialling Numbers | Yes |
| '6Fxx' | Extension 6 | Yes |
| '6Fxx' | Mailbox Identifier | Caution |
| '6Fxx' | Message Waiting Indication Status | Caution |
| '6Fxx' | Call Forwarding Indication Status | Caution |
| '6Fxx' | Extension 7 | Yes |
| NOTE: If $EF_{IMSI}$ is changed, the SIM should issue REFRESH as defined in TS 11.14 [27] and update $EF_{LOCI}$ accordingly. | | |

*CR-Form-v3*

# CHANGE REQUEST

⌘ **TS 31.102** CR **082** ⌘ rev **-** ⌘ Current version: **4.0.0** ⌘

*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:*** ⌘ | Addition of Operators Preferences file for GPRS service usage | |
| ***Source:*** ⌘ | T3 | |
| ***Work item code:*** ⌘ | TEI | ***Date:*** ⌘ 10/05/01 |
| ***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:*** ⌘ | The addition of a GPRS configuration file that defines the default settings for GPRS service when an application does not fully specify the GPRS settings. |
| ***Summary of change:*** ⌘ | At present there are no defined settings of key parameters for GPRS connections. Therefore this field being optional has one change in the USIM service table for the addition of the optional feature. Secondly the addition of the GPRS Operator Preferences TLV encoded transparent file, describing the parameters. Finally the addition of the procedure |
| ***Consequences if not approved:*** ⌘ | Indeterminate behaviour of GPRS services dependant on the Terminal manufacturer. |

| | |
|---|---|
| ***Clauses affected:*** ⌘ | 4.2.8, 4.4, 4.7, 5.3.2x, Annex A, Annex D, Annex E |

| | | |
|---|---|---|
| ***Other specs Affected:*** ⌘ | ☐ Other core specifications ⌘ | |
| | ☐ Test specifications | |
| | ☐ O&M Specifications | |

| | |
|---|---|
| ***Other comments:*** ⌘ | |

## 4.2.8    EF<sub>UST</sub> (USIM Service Table)

This EF indicates which services are available. If a service is not indicated as available in the USIM, the ME shall not select this service.

| Identifier: '6F38' | | Structure: transparent | | Mandatory |
|---|---|---|---|---|
| SFI: '04' | | | | |
| File size: X bytes, X >= 1 | | Update activity: low | | |
| Access Conditions:<br>    READ                PIN<br>    UPDATE             ADM<br>    DEACTIVATE     ADM<br>    ACTIVATE          ADM | | | | |
| Bytes | Description | | M/O | Length |
| 1 | Services n°1 to n°8 | | M | 1 byte |
| 2 | Services n°9 to n°16 | | O | 1 byte |
| 3 | Services n°17 to n°24 | | O | 1 byte |
| 4 | Services n°25 to n°32 | | O | 1 byte |
| etc. | | | | |
| X | Services n°(8X-7) to n°(8X) | | O | 1 byte |

-Services
Contents:    Service n°1 :        Local Phone Book
Service n°2 :        Fixed Dialling Numbers (FDN)
Service n°3 :        Extension 2
Service n°4 :        Service Dialling Numbers (SDN)
Service n°5 :        Extension3
Service n°6 :        Barred Dialling Numbers (BDN)
Service n°7 :        Extension4
Service n°8 :        Outgoing Call Information (OCI and OCT)
Service n°9 :        Incoming Call Information (ICI and ICT)
Service n°10:        Short Message Storage (SMS)
Service n°11:        Short Message Status Reports (SMSR)
Service n°12:        Short Message Service Parameters (SMSP)
Service n°13:        Advice of Charge (AoC)
Service n°14:        Capability Configuration Parameters (CCP)
Service n°15:        Cell Broadcast Message Identifier
Service n°16:        Cell Broadcast Message Identifier Ranges
Service n°17:        Group Identifier Level 1
Service n°18:        Group Identifier Level 2
Service n°19:        Service Provider Name
Service n°20:        User controlled PLMN selector with Access Technology
Service n°21:        MSISDN
Service n°22:        Image (IMG)
Service n°23:        Not used (reserved for SoLSA)
Service n°24:        Enhanced Multi-Level Precedence and Pre-emption Service
Service n°25:        Automatic Answer for Emlpp
Service n°26:        RFU
Service n°27:        GSM Access
Service n°28:        Data download via SMS-PP
Service n°29:        Data download via SMS-CB
Service n°30:        Call Control by USIM
Service n°31:        MO-SMS Control by USIM
Service n°32:        RUN AT COMMAND command
Service n°33:        Packet Switched Domain
Service n°34:        Enabled Services Table
Service n°35:        APN Control List (ACL)
Service n°36:        Depersonalisation Control Keys
Service n°37:        Co-operative Network List
Service n°38:        GSM security context
Service n°39:        CPBCCH Information
Service n°40:        Investigation Scan
Service n°41:        MExE
Service n°42:        Operator controlled PLMN selector with Access Technology
Service n°43        HPLMN selector with Access Technology
Service n° XX        GPRS Operator Preferences

The EF shall contain at least one byte. 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 the 3GPP.

Coding:
1 bit is used to code each service:
bit = 1: service available;
bit = 0: service not available.

- Service available means that the USIM has the capability to support the service and that the service is available for the user of the USIM unless the service is identified as "disabled" in $EF_{EST}$.
Service not available means that the service shall not be used by the USIM user, even if the USIM has the capability to support the service.

First byte:

| b8 | b7 | b6 | B5 | b4 | B3 | b2 | b1 |
|----|----|----|----|----|----|----|----|

Service n°1
Service n°2
Service n°3
Service n°4
Service n°5
Service n°6
Service n°7
Service n°8

Second byte:

| b8 | b7 | b6 | B5 | b4 | B3 | b2 | b1 |
|----|----|----|----|----|----|----|----|

Service n°9
Service n°10
Service n°11
Service n°12
Service n°13
Service n°14
Service n°15
Service n°16
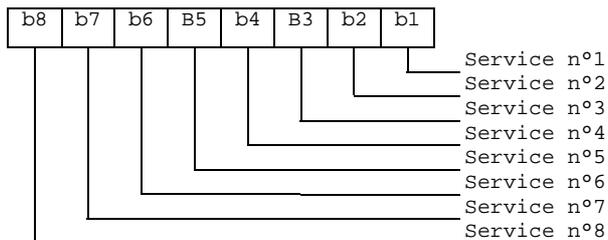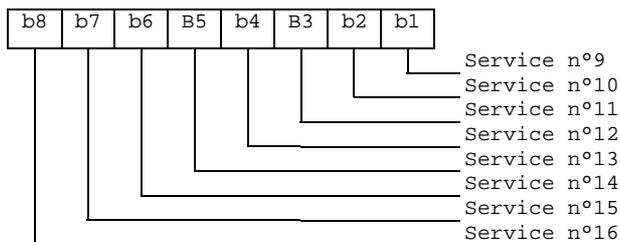
etc.

## 4.4.x EF<sub>GPRSOperPrefs</sub> (GPRS Operator Preferences)

This EF contains the Operators preferences for the use of the GPRS service.

| Identifier: '6Fxx' | | Structure: transparent | | Optional |
|---|---|---|---|---|
| SFI :'xx' | | | | |
| File size: X bytes | | Update activity: low | | |
| Access Conditions:<br>    READ            PIN<br>    UPDATE          ADM<br>    DEACTIVATE      ADM<br>    ACTIVATE        ADM | | | | |
| Bytes | Description | | M/O | Length |
| 1 – X | TLV object(s) containing GPRS operator preferences  information | | M | |

- EF<sub>OperPrefs</sub> Cell Information tags

| Tag Value | Tag Description |
|---|---|
| 'Ax' | GPRS operator preferences Tag |
| '80' | GPRS Class A Attachment preferences in Home PLMN tag |
| '81' | GPRS Class A Detachment preferences in Home PLMN tag |
| '82' | GPRS Class A Attachment preferences in Roaming PLMN tag |
| '83' | GPRS Class A Detachment preferences in Roaming  PLMN tag |

After the constructed 'Ax' Tag object the TLVs thereafter define preferences for the terminal settings for a particular Class of terminal. These preferences cannot be repeated i.e. the tag value cannot be repeated.

- GPRS Attachment Preferences for Class A in home PLMN TLV

    Contents
        This TLV defines the Operators  Class A terminal GPRS Attachment Preferences when in the Home PLMN.

    Coding

| Description | M/O | Length |
|---|---|---|
| GPRS Class A Attachment Preferences in Home PLMN Tag | M | 1 |
| Length | M | 1 |
| Class A Attachment Terminal Preferences | M | 1 |

- Class A Attachment Terminal Preferences

Contents

The operators GPRS Attachment Preferences in home PLMN for GPRS Class A terminal operation

Coding

| B8 | B7 | b6 | b5 | b4 | b3 | b2 | b1 |
|----|----|----|----|----|----|----|----|

```
                                        Attach at Power-on
                                        Attach on 1st PDP Context
                                        Attach on 1st MO SMS
                                        RFU
                                        RFU
                                        RFU
                                        RFU
                                        RFU
```

- bit = 1: rule selected;
- bit = 0: rule not selected.

If bits b1 to b8 are not selected then this specifically means that the ME attachment rules take preference.

- GPRS Class A terminal Detachment Preferences in home PLMN TLV

Contents

This TLV details the Operator Preferences for GPRS detachment when in the Home PLMN

Coding

| Description | M/O | Length |
|-------------|-----|--------|
| GPRS Detachment Class A Preferences in home PLMN Tag | M | 1 |
| Length | M | 1 |
| Terminal Detachment Preferences | M | 1 |
| Detachment Timer Value | M | 2 |

-Terminal Detachment Preferences

Contents

The operators GPRS Detachment Preferences in home PLMN for GPRS Class A terminal operation

Coding

| B8 | B7 | b6 | b5 | b4 | b3 | b2 | B1 |
|----|----|----|----|----|----|----|----|

```
                                        Detach at Power off only
                                        Timed Detach following last PDP deactivation
                                        Timed Detach following last data flow activity
                                        RFU
                                        RFU
                                        RFU
                                        RFU
                                        RFU
```

- bit = 1: activation rule selected;
- bit = 0: activation rule not selected.

If bit b1 is selected then bits b2 to b8 are ignored.

If bit b2 is selected bit b3 is ignored.

If bit b3 is selected bit b2 is ignored.

If bits b1 to b8 are not selected then this specifically means that the ME detachment rules take preference.

- Detachment Timer Value

Contents
The timer value for the Operator Preferences for timed GPRS detachment for Class A operation in home PLMN for use when bit b2 or b3 is set.

Coding
Value in minutes coded on two bytes:  0 to 65535 ('FFFF')

Value of  '0000' means timer expires immediately.

Value of  'FFFF' means timer never expires.

-  GPRS Class A Terminal Attachment Preferences in Roaming PLMN TLV

Contents
This TLV details the Operator Preferences for GPRS Attachment when in the Roaming PLMN

Coding

| Description | M/O | Length |
|---|---|---|
| GPRS Class A Attachment Preferences in Roaming PLMN Tag | M | 1 |
| Length | M | 1 |
| Class A Attachment Terminal Preferences | M | 1 |

- Class A Attachment Terminal Preferences

Contents
The operators GPRS Attachment Preferences in Roaming PLMN for GPRS Class A terminal operation

Coding

| B8 | B7 | b6 | b5 | b4 | b3 | b2 | B1 |
|---|---|---|---|---|---|---|---|

Attach at Power-on
Attach on 1$^{st}$ PDP Context
Attach on 1$^{st}$ MO SMS
RFU
RFU
RFU
RFU
RFU

-  bit = 1: rule selected;
-  bit = 0: rule not selected.

If bits b1 to b8 are not selected then this specifically means that the ME attachment rules take preference.

- GPRS Class A Terminal Detachment Preferences in Roaming PLMN TLV

Contents
This TLV details the Operator Preferences for GPRS detachment when in the Roaming PLMN

Coding

| Description | M/O | Length |
|---|---|---|
| GPRS Detachment Class A Preferences in Roaming PLMN Tag | M | 1 |
| Length | M | 1 |
| Terminal Detachment Preferences | M | 1 |
| Detachment Timer Value | M | 2 |

- Terminal Detachment Preferences

Contents

The operators GPRS Detachment Preferences in home PLMN for GPRS Class A terminal operation

Coding



| B8 | B7 | b6 | B5 | B4 | b3 | b2 | B1 |

Detach at Power off only
Timed Detach following last PDP deactivation
Timed Detach following last data flow activity
RFU
RFU
RFU
RFU
RFU

- bit = 1: activation rule selected;
- bit = 0: activation rule not selected.

If bit b1 is selected then bits b2 to b8 are ignored.

If bit b2 is selected bit b3 is ignored.

If bit b3 is selected bit b2 is ignored.

If bits b1 to b8 are not selected then this specifically means that the ME detachment rules take preference.

- Detachment Timer Value

Contents

The timer value for the Operator preferences for timed GPRS detachment for Class A terminal operation in Roaming PLMN for use when either bit b2 or b3 is set.

Coding

Value in minutes coded on two bytes: 0 to 65535 ('FFFF')

Value of '0000' means timer expires immediately.

Value of 'FFFF' means timer never expires.

# 4.7 Files of USIM

This subclause contains two figures depicting the file structure of the UICC and the ADF$_{USIM}$. ADF$_{USIM}$ shall be selected using the AID and information in EF$_{DIR}$.



**Figure 4.1: File identifiers and directory structures of UICC**

ADF$_{USIM}$

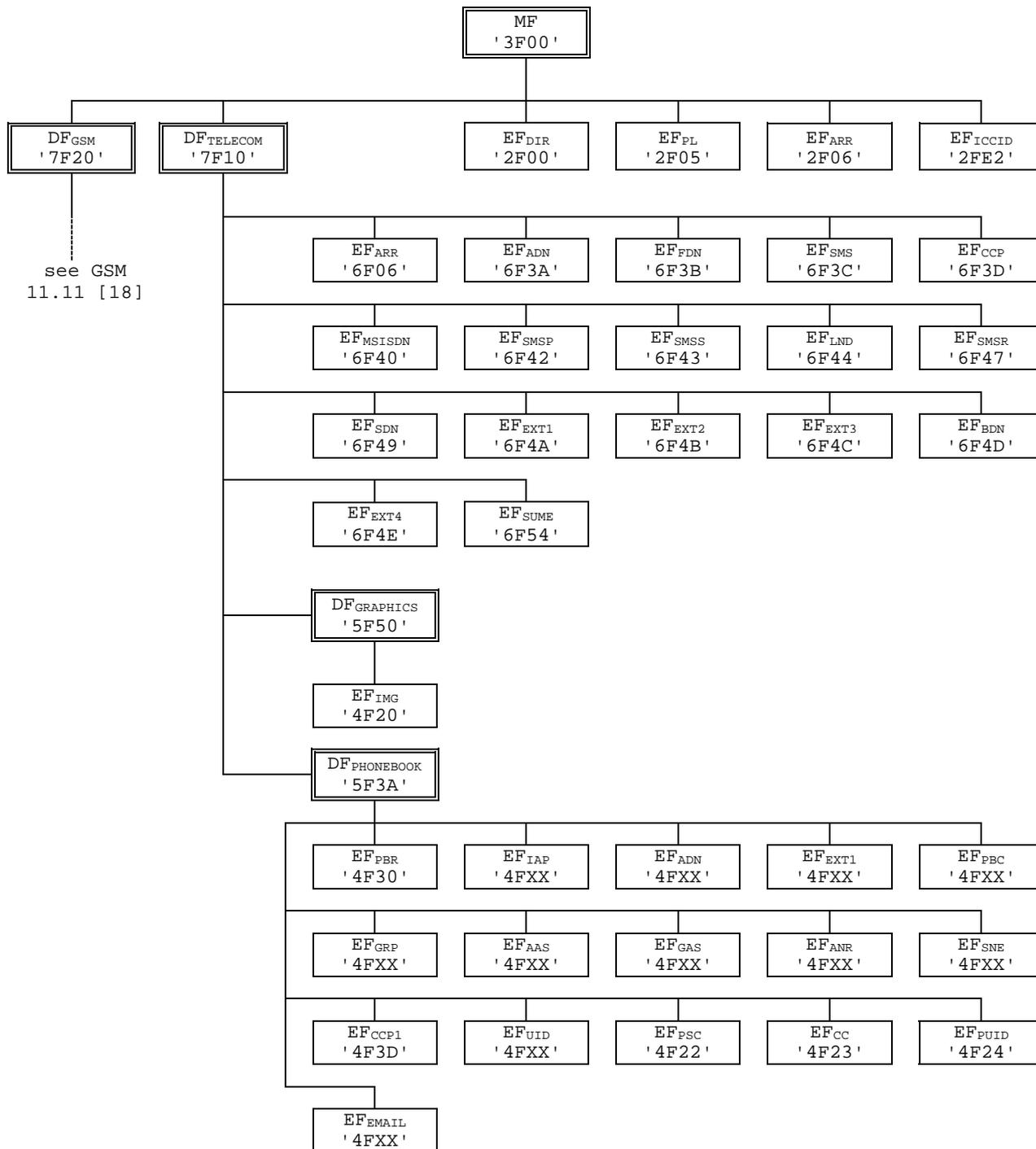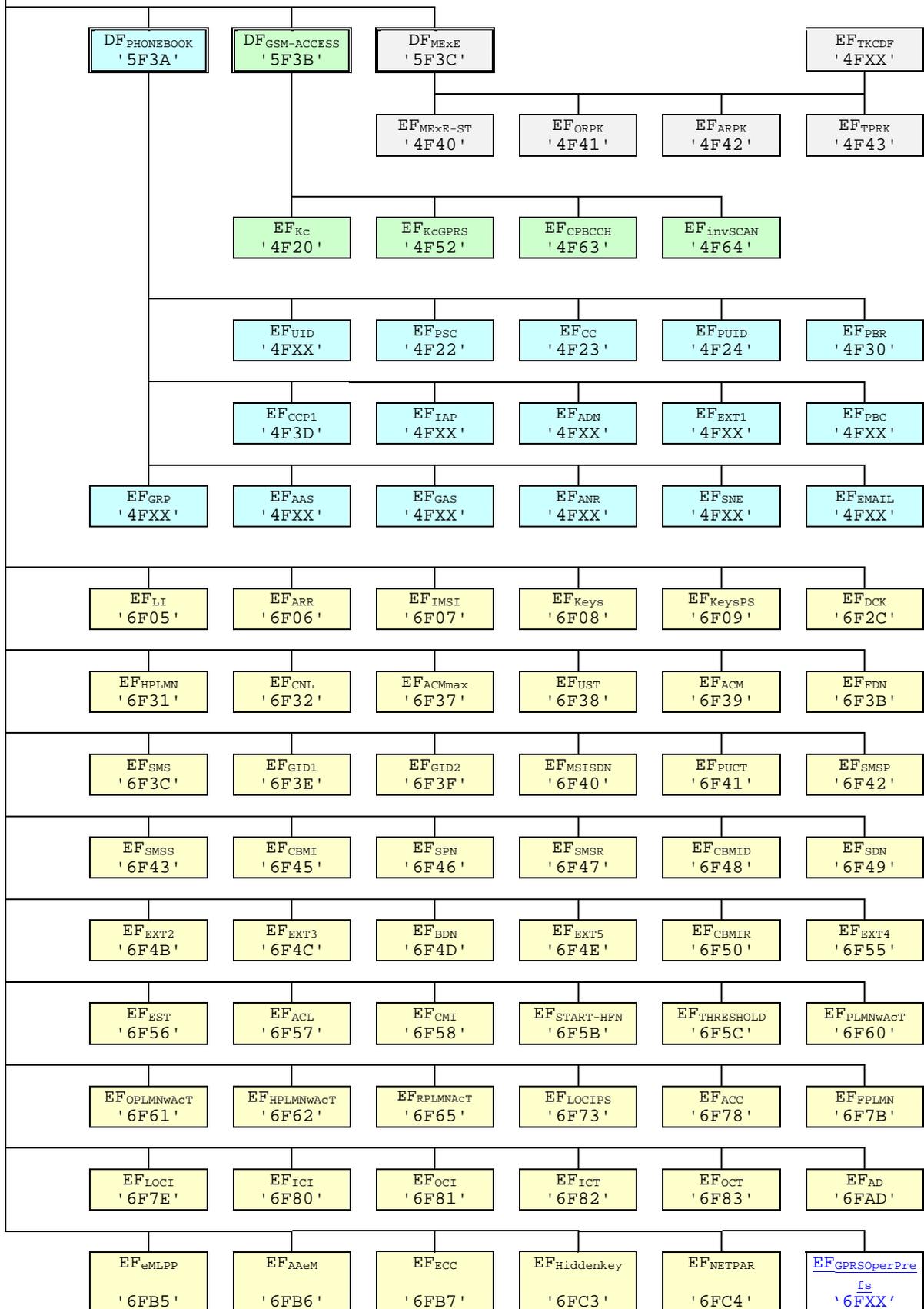| | | | |
|---|---|---|---|
| DF$_{PHONEBOOK}$ '5F3A' | DF$_{GSM-ACCESS}$ '5F3B' | DF$_{MExE}$ '5F3C' | EF$_{TKCDF}$ '4FXX' |

| | | | |
|---|---|---|---|
| EF$_{MExE-ST}$ '4F40' | EF$_{ORPK}$ '4F41' | EF$_{ARPK}$ '4F42' | EF$_{TPRK}$ '4F43' |

| | | | |
|---|---|---|---|
| EF$_{Kc}$ '4F20' | EF$_{KcGPRS}$ '4F52' | EF$_{CPBCCH}$ '4F63' | EF$_{invSCAN}$ '4F64' |

| | | | | |
|---|---|---|---|---|
| EF$_{UID}$ '4FXX' | EF$_{PSC}$ '4F22' | EF$_{CC}$ '4F23' | EF$_{PUID}$ '4F24' | EF$_{PBR}$ '4F30' |

| | | | | |
|---|---|---|---|---|
| EF$_{CCP1}$ '4F3D' | EF$_{IAP}$ '4FXX' | EF$_{ADN}$ '4FXX' | EF$_{EXT1}$ '4FXX' | EF$_{PBC}$ '4FXX' |

| | | | | |
|---|---|---|---|---|
| EF$_{GRP}$ '4FXX' | EF$_{AAS}$ '4FXX' | EF$_{GAS}$ '4FXX' | EF$_{ANR}$ '4FXX' | EF$_{SNE}$ '4FXX' | EF$_{EMAIL}$ '4FXX' |

| | | | | | |
|---|---|---|---|---|---|
| EF$_{LI}$ '6F05' | EF$_{ARR}$ '6F06' | EF$_{IMSI}$ '6F07' | EF$_{Keys}$ '6F08' | EF$_{KeysPS}$ '6F09' | EF$_{DCK}$ '6F2C' |
| EF$_{HPLMN}$ '6F31' | EF$_{CNL}$ '6F32' | EF$_{ACMmax}$ '6F37' | EF$_{UST}$ '6F38' | EF$_{ACM}$ '6F39' | EF$_{FDN}$ '6F3B' |
| EF$_{SMS}$ '6F3C' | EF$_{GID1}$ '6F3E' | EF$_{GID2}$ '6F3F' | EF$_{MSISDN}$ '6F40' | EF$_{PUCT}$ '6F41' | EF$_{SMSP}$ '6F42' |
| EF$_{SMSS}$ '6F43' | EF$_{CBMI}$ '6F45' | EF$_{SPN}$ '6F46' | EF$_{SMSR}$ '6F47' | EF$_{CBMID}$ '6F48' | EF$_{SDN}$ '6F49' |
| EF$_{EXT2}$ '6F4B' | EF$_{EXT3}$ '6F4C' | EF$_{BDN}$ '6F4D' | EF$_{EXT5}$ '6F4E' | EF$_{CBMIR}$ '6F50' | EF$_{EXT4}$ '6F55' |
| EF$_{EST}$ '6F56' | EF$_{ACL}$ '6F57' | EF$_{CMI}$ '6F58' | EF$_{START-HFN}$ '6F5B' | EF$_{THRESHOLD}$ '6F5C' | EF$_{PLMNwAcT}$ '6F60' |
| EF$_{OPLMNwAcT}$ '6F61' | EF$_{HPLMNwAcT}$ '6F62' | EF$_{RPLMNAcT}$ '6F65' | EF$_{LOCIPS}$ '6F73' | EF$_{ACC}$ '6F78' | EF$_{FPLMN}$ '6F7B' |
| EF$_{LOCI}$ '6F7E' | EF$_{ICI}$ '6F80' | EF$_{OCI}$ '6F81' | EF$_{ICT}$ '6F82' | EF$_{OCT}$ '6F83' | EF$_{AD}$ '6FAD' |
| EF$_{eMLPP}$ '6FB5' | EF$_{AAeM}$ '6FB6' | EF$_{ECC}$ '6FB7' | EF$_{Hiddenkey}$ '6FC3' | EF$_{NETPAR}$ '6FC4' | EF$_{GPRSOperPrefs}$ '6FXX' |

## 5.3.2x

Requirement: Service n$^o$ XX Present

Request:        The ME performs the reading procedure with EF$_{GPRSOperPref}$.

# Annex A (informative): EF changes via Data Download or USAT applications

This annex defines if changing the content of an EF by the network (e.g. by sending an SMS), or by a USAT Application, is advisable. Updating of certain EFs "over the air" such as EF$_{ACC}$ could result in unpredictable behaviour of the UE; 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 |
|---|---|---|
| '2F00' | Application directory | |
| '2F05' | Preferred languages | Yes |
| '2F06' | Access rule reference | |
| '2FE2' | ICC identification | No |
| '4F20' | Image data | Yes |
| '4FXX' | Image Instance data Files | Yes |
| '4FXX' | Unique identifier | Yes |
| '4F22' | Phone book synchronisation counter | Yes |
| '4F23' | Change counter | Yes |
| '4F24' | Previous unique identifier | Yes |
| '4F30' | Phone book reference file | Yes |
| '4FXX' | Capability configuration parameters 1 | Yes |
| '4F75' | CPBCCH Information | No |
| '4F76 | Investigation Scan | Caution |
| '4FXX' | Additional number alpha string | Yes |
| '4FXX' | Additional number | Yes |
| '4FXX' | Second name entry | Yes |
| '4FXX' | Grouping information alpha string | Yes |
| '4FXX' | Phone book control | Yes |
| '4FXX' | E-mail addresses | Yes |
| '4FXX' | Index administration phone book | Yes |
| '4FXX' | Extension 1 | Yes |
| '4FXX' | Abbreviated dialling numbers | Yes |
| '4FXX' | Grouping file | Yes |
| '6F05' | Language indication | Yes |
| '6F07' | IMSI | Caution (Note 1) |
| '6F08' | Ciphering and integrity keys | No |
| '6F09' | Ciphering and integrity keys for packet switched domain | No |
| '6F20' | Ciphering key Kc | No |
| '6F2C' | De-personalization Control Keys | Caution |
| '6F31' | HPLMN search period | Caution |
| '6F32' | Co-operative network list | Caution |
| '6F37' | ACM maximum value | Yes |
| '6F38' | USIM service table | Caution |
| '6F39' | Accumulated call meter | 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 |
| | Continued…. | |

| File identification | Description | Change advised |
|---|---|---|
| '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 |
| '6F4B' | Extension 2 | Yes |
| '6F4C' | Extension 3 | Yes |
| '6F4D' | Barred dialling numbers | Yes |
| '6F4E' | Extension 5 | Yes |
| '6F4F' | Capability configuration parameters 2 | Yes |
| '6F50' | CBMIR | Yes |
| '6F52' | GPRS Ciphering key KcGPRS | No |
| '6F54' | SetUp Menu Elements | Yes |
| '6F56' | Enabled services table | |
| '6F57' | Access point name control list | |
| '6F58' | Comparison method information | |
| '6F5B' | Initialisation value for Hyperframe number | Caution |
| '6F5C' | Maximum value of START | Yes |
| '6F60' | User controlled PLMN selector with Access Technology | No |
| '6F61' | Operator controlled PLMN selector with Access Technology | Caution |
| '6F62' | HPLMN selector with Access Technology | Caution |
| '6F63' | RPLMN last used Access Technology | Caution |
| '6F73' | Packet switched location information | Caution |
| '6F78' | Access control class | Caution |
| '6F7B' | Forbidden PLMNs | Caution |
| '6F7E' | Location information | No (Note 1) |
| '6F80' | Incoming call information | Yes |
| '6F81' | Outgoing call information | Yes |
| '6F82' | Incoming call timer | Yes |
| '6F83' | Outgoing call timer | Yes |
| '6FAD' | Administrative data | Caution |
| '6FB5' | Enhanced Multi Level Pre-emption and Priority | Yes |
| '6FB6' | Automatic Answer for eMLPP Service | Yes |
| '6FB7' | Emergency Call Codes | Caution |
| '6FC2' | Group identity | No |
| '6FC3' | Key for hidden phone book entries | |
| '6FC4' | Network Parameters | No |
| '6Fxx' | GPRS Operator Preferences | Caution |
| | | |
| NOTE1: | If EF$_{IMSI}$ is changed, the UICC should issue REFRESH as defined in TS 31.111 and update EF$_{LOCI}$ accordingly. | |

# Annex D (informative):
# Tags defined in 31.102

| Tag | Name of Data Element | Usage |
|---|---|---|
| 'A0' | GSM cell  information<br>The following are encapsulated under 'A0':<br>   '80'    GSM Camping Frequency data object<br>   '81'    GSM Neighbour Frequency Information data object | Network Parameters (EF$_{NETPAR}$) |
| 'A1' | FDD cell information<br>The following are encapsulated under 'A1':<br>   '80'    FDD Intra Frequency data object<br>   '81'    FDD Inter Frequency Information data object | Network Parameters (EF$_{NETPAR}$) |
| 'A2' | TDD cell information<br>The following are encapsulated under 'A2':<br>   '80'    TDD Intra Frequency data object<br>   '81'    TDD Inter Frequency Information data object | Network Parameters (EF$_{NETPAR}$) |
| 'D8' | Indicator for type 1 EFs (amount of records equal to master EF) | Phone Book Reference File (EF$_{PBR}$) |
| 'D9' | Indicator for type 2 EFs (EFs linked via the index administration file) | Phone Book Reference File (EF$_{PBR}$) |
| 'DA' | Indicator for type 3 EFs (EFs addressed inside a TLV object)<br>The following are encapsulated under 'XZ':<br>   'C0'    EF$_{ADN}$ data object<br>   'C1'    EF$_{IAP}$ data object<br>   'C2'    EF$_{ECT1}$ data object<br>   'C3'    EF$_{SNE}$ data object<br>   'C4'    EF$_{ANR}$ data object<br>   'C5'    EF$_{PBC}$ data object<br>   'C6'    EF$_{GRP}$ data object<br>   'C7'    EF$_{AAS}$ data object<br>   'C8'    EF$_{GAS}$ data object<br>   'C9'    EF$_{UID}$ data object<br>   'CA'    EF$_{EMAIL}$ data object<br>   'CB'    EF$_{CCP1}$ data object | Phone Book Reference File (EF$_{PBR}$) |
| 'DB' | Successful 3G authentication | Response to AUTHENTICATE |
| 'DC' | Synchronisation failure | Response to AUTHENTICATE |
| 'DD' | Access Point Name | APN Control List (EF$_{ACL}$) |
| 'AX' | GPRS Operator Preferences:<br>The following are encapsulated under 'AX':<br>   '80'   GPRS Class A Attachment Preferences in Home PLMN data object<br>   '81'   GPRS Class A Detachment Preferences in Home PLMN data object<br>   '82' GPRS Class A Attachment Preferences in Roaming PLMN data object<br>   '83' GPRS Class A Detachment Preferences in Roaming PLMN data object | |

# Annex E (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 |
|---|---|---|
| '2F00' | Application directory | Card issuer/operator dependant |
| '2F05' | Preferred languages | 'FF…FF' |
| '2F06' | Access rule reference | Card issuer/operator dependant |
| '2FE2' | ICC identification | operator dependant |
| '4F20' | Image data | '00FF...FF' |
| '4FXX' | Image instance data files | 'FF…FF' |
| '4FXX' | Unique identifier | '0000' |
| '4F22' | Phone book synchronisation counter | '00000000' |
| '4F23' | Change counter | '0000' |
| '4F24' | Previous unique identifier | '0000' |
| '4F30' | Phone book reference file | Operator dependant |
| '4FXX' | Capability configuration parameters 1 | 'FF…FF' |
| '4F63' | CPBCCH Information | 'FF..FF' |
| '4F64' | Investigation PLMN scan | '00' |
| '4FXX' | E-mail addresses | 'FF…FF' |
| '4FXX' | Additional number alpha string | 'FF…FF' |
| '4FXX' | Second name entry | 'FF…FF' |
| '4FXX' | Abbreviated dialling numbers | 'FF...FF' |
| '4FXX' | Grouping file | '00…00' |
| '4FXX' | Grouping information alpha string | 'FF…FF' |
| '4FXX' | Phone book control | '0000' |
| '4FXX' | Index administration phone book | 'FF…FF' |
| '4FXX' | Additional number | 'FF…FF' |
| '4FXX' | Extension 1 | '00FF...FF' |
| '6F05' | Language indication | 'FF…FF' |
| '6F07' | IMSI | Operator dependant |
| '6F08' | Ciphering and integrity keys | '07FF…FF' |
| '6F09' | Ciphering and integrity keys for packet switched domain | '07FF…FF' |
| '6F20' | Ciphering key Kc | 'FF...FF07' |
| '6F2C' | De-personalization control keys | 'FF…FF' |
| '6F31' | HPLMN search period | 'FF' |
| '6F32' | Co-operative network list | 'FF…FF' |
| '6F37' | ACM maximum value | '000000' (see note 1) |
| '6F38' | USIM service table | Operator dependant |
| '6F39' | Accumulated call meter | '000000' |
| '6F3B' | Fixed dialling numbers | 'FF...FF' |
| '6F3C' | Short messages | '00FF...FF' |
| '6F3E' | Group identifier level 1 | Operator dependant |
| '6F3F' | Group identifier level 2 | Operator dependant |
| '6F40' | MSISDN storage | 'FF...FF' |
| '6F41' | PUCT | 'FFFFFF0000' |
| '6F42' | SMS parameters | 'FF...FF' |
| '6F43' | SMS status | 'FF...FF' |
| '6F45' | CBMI | 'FF...FF' |
| '6F46' | Service provider name | Operator dependant |
| '6F47' | Short message status reports | '00FF…FF' |
| '6F48' | CBMID | 'FF...FF' |
| '6F49' | Service Dialling Numbers | 'FF...FF' |
| '6F4B' | Extension 2 | '00FF...FF' |
| '6F4C' | Extension 3 | '00FF...FF' |

**Continued....**

| File Identification | Description | Value |
|---|---|---|
| '6F4D' | Barred Dialling Numbers | 'FF...FF' |
| '6F4E' | Extension 5 | '00FF...FF' |
| '6F4F' | Capability configuration parameters 2 | 'FF...FF' |
| '6F50' | CBMIR | 'FF...FF' |
| '6F52' | GPRS Ciphering key KcGPRS | 'FF...FF07' |
| '6F54' | SetUp Menu Elements | Operator dependant |
| '6F55' | Extension 4 | 'FF...FF' |
| '6F56' | Enabled services table | Operator dependant |
| '6F57' | Access point name control list | '00FF…FF' |
| '6F58' | Comparison method information | 'FF…FF' |
| '6F5B' | Initialisation value for Hyperframe number | '00…00' |
| '6F5C' | Maximum value of START | Operator dependant |
| '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' |
| '6F65' | RPLMN last used Access Technology | '0000' |
| '6F73' | Packet switched location information | 'FFFFFFFF FFFFFF xxxxxx 0000 FF 01' (see note 2) |
| '6F78' | Access control class | Operator dependant |
| '6F7B' | Forbidden PLMNs | 'FF...FF' |
| '6F7E' | Location information | 'FFFFFFFF xxxxxx 0000 FF 01' (see note 2) |
| '6F80' | Incoming call information | 'FF…FF 000000 00 01FFFF' |
| '6F81' | Outgoing call information | 'FF…FF 000000 01FFFF' |
| '6F82' | Incoming call timer | '000000' |
| '6F83' | Outgoing call timer | '000000' |
| '6FAD' | Administrative data | Operator dependant |
| '6FB5' | EMLPP | Operator dependant |
| '6FB6' | AaeM | '00' |
| '6FB7' | Emergency call codes | Operator dependant |
| '6FC2' | Group identity | 'FFFFFFFF' |
| '6FC3' | Key for hidden phone book entries | 'FF…FF' |
| '6FC4' | Network Parameters | 'FF…FF' |
| 'xxxx' | GPRS Operator Preferences | Operator dependant |

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 3G TS 24.008 [9].