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Technical Specification

**Universal Mobile Telecommunications System (UMTS);
UICC-terminal interface;
Universal Subscriber Identity Module (USIM)
application test specification
(3GPP TS 31.121 version 6.6.0 Release 6)**



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Foreword

This Technical Specification (TS) has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
 - 1 presented to TSG for information;
 - 2 presented to TSG for approval;
 - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

Introduction

The present document defines the application test specification.

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

Application specific details for applications residing on an UICC are specified in the respective application specific documents. The logical and physical Characteristics of the UICC Terminal interface is specified in document TS 102 221 [5]. The Universal Subscriber Identity Module (USIM)-application for 3G telecommunication networks is specified in document TS 31.102 [4].

1 Scope

The present document provides the UICC -Terminal Interface Conformance Test Specification between the 3rd Generation Terminal and USIM (Universal Subscriber Identity Module) as an application on the UICC and the Terminal for 3G telecom network operation and between a GERAN Terminal and USIM (Universal Subscriber Identity Module) as an application on the UICC and the GERAN Terminal for 2G telecom network operation:

- the default setting of the USIM;
- the applicability of each test case;
- the test configurations;
- the conformance requirement and reference to the core specifications;
- the test purposes; and
- a brief description of the test procedure and the specific acceptance criteria.

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 in same release as the implementation release of the terminal under test applies.

- [1] Void
- [2] Void
- [3] 3GPP TS 23.038: "Alphabets and language-specific information".
- [4] 3GPP TS 31.102: "Characteristics of the USIM application".
- [5] ETSI TS 102 221: "UICC-Terminal interface; Physical and logical characteristics".
- [6] 3GPP TS 22.011: "Service accessibility".
- [7] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [8] 3GPP TS 22.024: "Description of Charge Advice Information (CAI)".
- [9] 3GPP TS 23.086: "Advice of Charge (AoC) Supplementary Service - Stage 2".
- [10] 3GPP TS 24.086: "Advice of Charge (AoC) Supplementary Service - Stage 3".
- [11] 3GPP TS 22.101: "Service aspects; Service principles".
- [12] 3GPP TS 22.030: "Man-Machine Interface (MMI) of the User Equipment (UE)".
- [13] 3GPP TS 23.040: "Technical realization of the Short Message Service (SMS)".
- [14] 3GPP TS 23.003: "Numbering, Addressing and Identification".
- [15] 3GPP TS 44.018: "Mobile radio interface layer 3 specification; Radio Resource Control Protocol".
- [16] 3GPP TS 24.008: "Mobile radio interface Layer 3 specification; Core Network protocols; Stage 3".

- [17] 3GPP TS 24.080: "Mobile radio Layer 3 supplementary service specification; Formats and coding".
- [18] 3GPP TS 22.086: "Advice of Charge (AoC) supplementary services; Stage 1".
- [19] 3GPP TS 21.111: "USIM and IC card requirements".
- [20] 3GPP TS 25.331 "Radio Resource Control (RRC); Protocol Specification".
- [21] 3GPP TS 34.108 "Common test environments for User Equipment (UE) conformance testing".
- [22] 3GPP TS 51.010-1 "Mobile Station (MS) conformance specification; Part1: Conformance specification".
- [23] 3GPP TS 23.140 "Multimedia Messaging Service (MMS); Functional description; Stage 2".
- [24] 3GPP TS 24.002 " GSM - UMTS Public Land Mobile Network (PLMN) Access Reference Configuration".
- [25] 3GPP TS 23.060 "General Packet Radio Service (GPRS); Service description; Stage 2".

3 Definitions, symbols, abbreviations and coding

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply.

Application DF (ADF): entry point to an application

access conditions: set of security attributes associated with a file

access technology: Radio Access Technology of the Terminal (e.g. UTRAN or GSM)

application: consists of a set of security mechanisms, files, data and protocols (excluding transmission protocols)

application protocol: set of procedures required by the application

card session: link between the card and the external world starting with the ATR and ending with a subsequent reset or a deactivation of the card

current directory: latest MF or DF or ADF selected

current EF: latest EF selected

data object: information coded as TLV objects, i.e. consisting of a Tag, a Length and a Value part

Dedicated File (DF): file containing access conditions and, optionally, Elementary Files (EFs) or other Dedicated Files (DFs)

directory: general term for MF, DF and ADF

Elementary File (EF): file containing access conditions and data and no other files

file: directory or an organised set of bytes or records in the UICC

file identifier: 2 bytes which address a file in the UICC

function: function contains a command and a response pair

GSM session: that part of the card session dedicated to the GSM operation

Master File (MF): unique mandatory file containing access conditions and optionally DFs and/or EFs

MMS Relay/Server: MMS-specific network entity/application that is under the control of the MMS service provider

NOTE: An MMS Relay/Server transfers messages, provides operations of the MMS that are specific or required by the mobile environment and provides (temporary and/or persistent) storage services to the MMS

MMS User Agent: application residing on a UE or an external device that performs MMS-specific operations on a user's behalf

normal USIM operation: relating to general, PIN related, 3G and or GSM security and subscription related procedures

record: string of bytes within an EF handled as a single entity

record number: number, which identifies a record within an EF

record pointer: pointer, which addresses one record in an EF

terminal: device into which a UICC can be inserted and which is capable of providing access to 3GPP system services to users, either alone or in conjunction with a UICC

User Equipment (UE): terminal with a UICC inserted with one or several Universal Subscriber Identity Module(s) (USIM) available for access either UTRAN or GERAN or both.

USIM session: USIM session is a selectable application session for a USIM application

3.2 Symbols

For the purposes of the present document, the following symbols apply:

| | |
|----|-------------------------------------|
| bx | Bit x of byte (leftmost bit is MSB) |
| Bn | Byte No. n |

3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

| | |
|--------|--|
| 2G | 2 nd Generation |
| 3G | 3 rd Generation |
| 3GPP | 3 rd Generation Partnership Project |
| ACC | ACcess Class |
| ACL | APN Control List |
| ACM | Accumulated Call Meter |
| ACMmax | ACM maximal value |
| ACT | ACcess Technology |
| ADF | Application Dedicated File |
| AoC | Advice of Charge |
| AoCC | Advice of Charge Charging |
| APN | Access Point Name |
| ATR | Answer To Reset |
| BCCH | Broadcast Control Channel |
| BCD | Binary Coded Decimal |
| BDN | Barred Dialling Number |
| CCI | Capability / Configuration1 Identifier |
| CCI2 | Capability / Configuration(2) Identifier |
| CCM | Current Call Meter |
| CK | Cipher key |
| CN | Core Network |
| CS | Circuit switched |
| DF | Dedicated File |
| EF | Elementary File |
| EMMI | Electrical Man Machine Interface |
| Ext n | Extension n |
| FDN | Fixed Dialling Number |
| FPLMN | Forbidden PLMN |
| GSM | Global System for Mobile communications |

| | |
|-------|--|
| HPLMN | Home PLMN |
| ICC | Integrated Circuit Card |
| ID | IDentifier |
| IEC | International Electrotechnical Commission |
| IK | Integrity key |
| IMSI | International Mobile Subscriber Identity |
| ISO | International Organization for Standardization |
| KSI | Key Set Identifier |
| LAC | Location Area Code |
| LAI | Location Area Information |
| LSB | Least Significant Bit |
| MCC | Mobile Country Code |
| MF | Master File |
| MM | Multimedia Message |
| MMI | Man Machine Interface |
| MMS | Multimedia Messaging Service |
| MNC | Mobile Network Code |
| MS | Mobile Station |
| MSB | Most Significant Bit |
| NAS | Non Access Stratum |
| NPI | Numbering Plan Identifier |
| OFM | Operational Feature Monitor |
| OSI | Open System Interconnection |
| P1 | Parameter 1 |
| P2 | Parameter 2 |
| P3 | Parameter 3 |
| PIN | Personal Identification Number |
| PLMN | Public Land Mobile Network |
| PS | Packet switched |
| RACH | Random Access Channel |
| RFU | Reserved for Future Use |
| RRC | Radio Resource Control |
| SFI | Short File Identifier |
| SM | Short Message |
| SMS | Short Message Service |
| SS | System Simulator (GSM) |
| TE | Terminal Equipment |
| TLV | Tag Length Value |
| TMSI | Temporary Mobile Subscriber Identity |
| TON | Type Of Number |
| UE | User Equipment |
| USIM | Universal Subscriber Identity Module |
| USS | UMTS System Simulator |
| UTRAN | UMTS Terrestrial Radio Access Network |
| VPLMN | Visitor PLMN |

3.4 Coding Conventions

For the purposes of the present document, the following coding conventions apply:

All lengths are presented in bytes, unless otherwise stated. Each byte B is represented by eight bits b8 to b1, where b8 is the most significant bit (MSB) and b1 is the least significant bit (LSB). In each representation, the leftmost bit is the MSB.

In the UICC, all bytes specified as RFU shall be set to '00' and all bits specified as RFU shall be set to '0'. If the GSM and/or USIM application exists on a UICC or is built on a generic telecommunications card, then other values may apply for the non-GSM or non-USIM applications. The values will be defined in the appropriate specifications for such cards and applications. These bytes and bits shall not be interpreted by a Terminal in a GSM or 3G session.

The coding of all data objects in the present document is according to TS 102 221 [5]. All data objects are BER-TLV except if otherwise defined.

3.5 Generic procedures for UTRAN/GERAN

If a test case contains the statement "This test applies to Terminals accessing UTRAN", the procedures defined in 3GPP TS 34. 108 [21], subclause 7.2 shall be the basis for all performed procedures during the test. The procedures in subclause 7 describe the default behaviour of a conformant UE regarding the specified protocols to be used for UTRAN and the required procedures from the NAS.

If a test case contains the statement "This test applies to Terminals accessing GERAN", the procedures defined in 3GPP TS 51. 010 [22], subclause 10 shall be the basis for all performed procedures during the test. The procedures in subclause 10 describe the default behaviour of a conformant UE regarding the specified protocols to be used for GERAN and the required procedures from the NAS.

3.6 Applicability

3.6.1 Applicability of the present document

The present document applies to a terminal equipment supporting the USIM.

3.6.2 Applicability to terminal equipment

The applicability to terminal equipment supporting the USIM is specified in table B.1, unless otherwise specified in the specific clause.

3.6.3 Applicability of the individual tests

Table B.1 lists the optional, conditional or mandatory features for which the supplier of the implementation states the support. As pre-condition the supplier of the implementation shall state the support of possible options in table A.1.

The "Release XY ME" columns shows the status of the entries as follows:

The following notations, defined in ISO/IEC 9646-7 [19], are used for the status column:

| | |
|-----|--|
| M | mandatory - the capability is required to be supported. |
| O | optional - the capability may be supported or not. |
| N/A | not applicable - in the given context, it is impossible to use the capability. |
| X | prohibited (excluded) - there is a requirement not to use this capability in the given context. |
| O.i | qualified optional - for mutually exclusive or selectable options from a set. "i" is an integer which identifies a unique group of related optional items and the logic of their selection which is defined immediately following the table. |
| Ci | conditional - the requirement on the capability ("M", "O", "X" or "N/A") depends on the support of other optional or conditional items. "i" is an integer identifying a unique conditional status expression which is defined immediately following the table. For nested conditional expressions, the syntax "IF ... THEN (IF ... THEN ... ELSE...) ELSE ..." shall be used to avoid ambiguities. |

References to items

For each possible item answer (answer in the support column) there exists a unique reference, used, for example, in the conditional expressions. It is defined as the table identifier, followed by a solidus character "/", followed by the item number in the table. If there is more than one support column in a table, the columns shall be discriminated by letters (a, b, etc.), respectively.

EXAMPLE: A.1/4 is the reference to the answer of item 4 in table A.1.

3.7 Table of optional features

Support of several features is optional or release dependent for the terminal equipment. However, if an ME states conformance with a specific 3GPP release, it is mandatory for the ME to support all mandatory functions of that release, as stated in table A.1.

The supplier of the implementation shall state the support of possible options in table A.1.

Table A.1: Options

| Item | Option | Status | Support | Mnemonic |
|------|---|--------|---------|------------------------------|
| 1 | Support of CS | O | | O_CS |
| 2 | Support of a feature requiring PIN2 entry (such as e.g. AoC or FDN) | O | | O_PIN2_ENTRY_FEAT |
| 3 | Support of UTRAN access | C001 | | O_UTRAN |
| 4 | Support of GERAN access | C002 | | O_GERAN |
| 5 | Support of Fixed Dialling Numbers | O | | O_FDN |
| 6 | Support of Advice of Charge Charging | O | | O_AoCC |
| 7 | Support of Higher priority PLMN selector with Access Technology service (Implementation is optional in Rel-6 and onwards) | C003 | | O_HPLMNwACT |
| 8 | Support of local phonebook | C004 | | O_Local_PB |
| 9 | Support of global phonebook | C004 | | O_Global_PB |
| 10 | Support of "Receive SMS" functionality | O | | O_Receive_SMS |
| 11 | Support of MMS | O | | O_MMS |
| 12 | Support of usage of MMS related data stored on the USIM | C005 | | O_MMS_USIM_DATA |
| 13 | Supported of unselected user MMS connectivity parameters | O | | O_NO_USER_MMS_CONF_SELECT |
| 14 | Support of MMS notification storage on the USIM | O | | O_MMS_NOTIF_STORAGE |
| 15 | Support of ACL | O | | O_ACL |
| 16 | Support of SDN | O | | O_SDN |
| 17 | Support of numerical entry of PLMN codes in EF PLMNwACT | O | | O_EFPLMNwACT_numerical entry |
| C001 | If terminal is 3G terminal then M else N/A | | | |
| C002 | If terminal is 2G terminal then M else O | | | |
| C003 | If Higher priority PLMN selector with Access Technology service is implemented according to Rel-6 or later then O else M | | | |
| C004 | If terminal is implemented according to Rel-6 or later then M, else O | | | |
| C005 | If terminal is implemented according to R99 then N/A else if terminal is implemented according to Rel-4 then O else M | | | |

3.8 Applicability table

Table B.1: Applicability of tests

| Item | Description | Tested feature defined in Release | Test sequence(s) | R99 ME | Rel-4 ME | Rel-5 ME | Rel-6 ME | Support |
|------|---|-----------------------------------|------------------|--------|----------|----------|----------|---------|
| 1 | UE identification by short IMSI | R99 | 5.1.1 | M | M | M | M | |
| 2 | UE identification by short IMSI using 2 digit MNC | R99 | 5.1.2 | M | M | M | M | |
| 3 | UE identification by "short" TMSI | R99 | 5.1.3 | C004 | C004 | C004 | C004 | |
| 4 | UE identification by "long" TMSI | R99 | 5.1.4 | C004 | C004 | C004 | C004 | |
| 5 | UE identification by long IMSI, TMSI updating after key set identifier assignment | R99 | 5.1.5 | C004 | C004 | C004 | C004 | |
| 6 | Access Control information handling | R99 | 5.2.1 | C004 | C004 | C004 | C004 | |
| 7 | Entry of PIN | R99 | 6.1.1 | M | M | M | M | |
| 8 | Change of PIN | R99 | 6.1.2 | M | M | M | M | |
| 9 | Unblock PIN | R99 | 6.1.3 | M | M | M | M | |
| 10 | Entry of PIN2 | R99 | 6.1.4 | C005 | C005 | C005 | C005 | |
| 11 | Change of PIN2 | R99 | 6.1.5 | C005 | C005 | C005 | C005 | |
| 12 | Unblock PIN2 | R99 | 6.1.6 | C005 | C005 | C005 | C005 | |
| 13 | Replacement of PIN | R99 | 6.1.7 | M | M | M | M | |
| 14 | Change of Universal PIN | R99 | 6.1.8 | M | M | M | M | |
| 15 | Unblock Univesal PIN | R99 | 6.1.9 | M | M | M | M | |
| 16 | Entry of PIN on multi-verification capable UICCs | Rel-4 | 6.1.10 | N/A | M | M | M | |
| 17 | Change of PIN on multi-verification capable UICCs | Rel-4 | 6.1.11 | N/A | M | M | M | |
| 18 | Unblock PIN on multi-verification capable UICCs | Rel-4 | 6.1.12 | N/A | M | M | M | |
| 19 | Entry of PIN2 on multi-verification capable UICCs | Rel-4 | 6.1.13 | N/A | C005 | C005 | C005 | |
| 20 | Change of PIN2 on multi-verification capable UICCs | Rel-4 | 6.1.14 | N/A | C005 | C005 | C005 | |
| 21 | Unblock PIN2 on multi-verification capable UICCs | Rel-4 | 6.1.15 | NA/ | C005 | C005 | C005 | |
| 22 | Replacement of PIN with key reference "07" | Rel-4 | 6.1.16 | N/A | M | M | M | |
| 23 | Terminal and USIM with FDN enabled, EF _{ADN} readable and updateable | R99 | 6.2.1 | C006 | N/A | N/A | N/A | |
| 24 | Terminal and USIM with FDN disabled | R99 | 6.2.2 | C006 | C006 | C006 | C006 | |
| 25 | Enabling, disabling and updating FDN | R99 | 6.2.3 | C006 | C006 | C006 | C006 | |
| 26 | Terminal and USIM with FDN enabled, EF _{ADN} readable and updateable (Rel-4 and onwards) | Rel-4 | 6.2.4 | N/A | C006 | C006 | C006 | |
| 27 | AoC not supported by USIM | R99 | 6.4.1 | C007 | C007 | C007 | C007 | |
| 28 | Maximum frequency of ACM updating | R99 | 6.4.2 | C008 | C008 | C008 | C008 | |
| 29 | Call terminated when ACM greater than ACM _{max} | R99 | 6.4.3 | C008 | C008 | C008 | C008 | |
| 30 | Response codes of increase command of ACM | R99 | 6.4.4 | C008 | C008 | C008 | C008 | |
| 31 | Adding FPLMN to the forbidden PLMN list | R99 | 7.1.1 | M | M | M | M | |
| 32 | UE updating forbidden PLMNs | R99 | 7.1.2 | M | M | M | M | |
| 33 | UE deleting forbidden PLMNs | R99 | 7.1.3 | M | M | M | M | |

| Item | Description | Tested feature defined in Release | Test sequence(s) | R99 ME | Rel-4 ME | Rel-5 ME | Rel-6 ME | Support |
|------|--|-----------------------------------|------------------|--------|----------|----------|----------|---------|
| 34 | User controlled PLMN selector handling | R99 | 7.2.1 | C022 | C022 | C022 | C022 | |
| 35 | UE recognising the priority order of the User controlled PLMN selector list with the same access technology | R99 | 7.2.2 | M | M | M | M | |
| 36 | UE recognising the priority order of the User controlled PLMN selector list using an ACT preference | R99 | 7.2.3 | C009 | C009 | C009 | C009 | |
| 37 | UE recognising the priority order of the Operator controlled PLMN selector list | R99 | 7.3.1 | M | M | M | M | |
| 38 | UE recognising the priority order of the User controlled PLMN selector over the Operator controlled PLMN selector list | R99 | 7.3.2 | M | M | M | M | |
| 39 | UE recognising the search period of the Higher priority PLMN | R99 | 7.4.1 | C010 | C010 | C010 | C010 | |
| 40 | GSM/UMST dual mode UEs recognising the search period of the Higher priority PLMN | R99 | 7.4.2 | C011 | C011 | C011 | C011 | |
| 41 | Recognition of a previously changed phonebook | R99 | 8.1.1 | C012 | C012 | C012 | M | |
| 42 | Update of the Phonebook Synchronisation counter (PSC) | R99 | 8.1.2 | C012 | C012 | C012 | M | |
| 43 | Handling of BCD number/SSC content extension | R99 | 8.1.3.1 | N/A | N/A | C013 | M | |
| 44 | Phonebook selection | R99 | 8.1.4 | N/A | N/A | C014 | M | |
| 45 | Local Phonebook handling | R99 | 8.1.5 | N/A | N/A | C012 | M | |
| 46 | Correct storage of a SM on the USIM | R99 | 8.2.1 | C015 | C015 | C015 | C015 | |
| 47 | Correct reading of a SM on the USIM | R99 | 8.2.2 | C015 | C015 | C015 | C015 | |
| 48 | UE recognising the priority order of MMS Issuer Connectivity Parameters | Rel-4 | 8.3.1 | N/A | C016 | C017 | C017 | |
| 49 | UE recognising the priority order of MMS User Connectivity Parameters | Rel-4 | 8.3.2 | N/A | C016 | C017 | C017 | |
| 50 | UE recognising the priority order of MMS Issuer Connectivity Parameters over the MMS User Connectivity Parameters | Rel-4 | 8.3.3 | N/A | C016 | C017 | C017 | |
| 51 | Usage of MMS notification | Rel-4 | 8.3.4 | N/A | C018 | C018 | C018 | |
| 52 | UICC presence detection | Rel-5 | 8.4 | N/A | N/A | M | M | |
| 53 | Access Point Control List handling for terminals supporting ACL | R99 | 9.1.1 | N/A | N/A | C019 | C019 | |
| 54 | Network provided APN handling for terminals supporting ACL | R99 | 9.1.2 | N/A | N/A | C019 | C019 | |
| 55 | Access Point Control List handling for terminals not supporting ACL | R99 | 9.1.3 | N/A | N/A | C020 | C020 | |
| 56 | Service Dialling Numbers handling | R99 | 9.2 | N/A | N/A | N/A | C021 | |

| Item | Description | Tested feature defined in Release | Test sequence(s) | R99 ME | Rel-4 ME | Rel-5 ME | Rel-6 ME | Support |
|------|--|-----------------------------------|------------------|--|----------|----------|----------|---------|
| C001 | (NOT A.1/3) AND A.1/4 | | -- | (NOT O_UTRAN) AND O_GERAN | | | | |
| C002 | A.1/1 AND A.1/3 | | -- | O_CS AND O_UTRAN | | | | |
| C003 | A.1/3 AND A.1/4 | | -- | O_UTRAN AND O_GERAN | | | | |
| C004 | IF (C001 OR C002) THEN M ELSE N/A | | -- | ((NOT O_UTRAN) AND O_GERAN) OR (O_CS AND O_UTRAN) | | | | |
| C005 | IF A.1/2 THEN M ELSE N/A | | -- | O_PIN2_ENTRY_FEAT | | | | |
| C006 | IF (C001 OR C002) AND A.1/5 THEN M ELSE N/A | | -- | ((NOT O_UTRAN) AND O_GERAN) OR (O_CS AND O_UTRAN) AND O_FDN | | | | |
| C007 | IF (C001 OR C002) AND A.1/6 THEN M ELSE N/A | | -- | ((NOT O_UTRAN) AND O_GERAN) OR (O_CS AND O_UTRAN) AND O_AoCC | | | | |
| C008 | IF (C001 OR C002) AND A.1/6 THEN O.1 ELSE N/A | | -- | ((NOT O_UTRAN) AND O_GERAN) OR (O_CS AND O_UTRAN) AND O_AoCC | | | | |
| C009 | IF C003 THEN M ELSE N/A | | -- | O_UTRAN AND O_GERAN | | | | |
| C010 | IF (C001 OR (A.1/3 AND (!A.1/4))) OR (C003 AND (!A.1/7))) THEN M ELSE N/A | | -- | ((NOT O_UTRAN) AND O_GERAN) OR (O_UTRAN AND (NOT O_GERAN)) OR (O_UTRAN AND O_GERAN AND (NOT O_HPLMNwACT))) | | | | |
| C011 | IF C003 AND A.1/7 THEN M ELSE O | | -- | O_UTRAN AND O_GERAN AND O_HPLMNwACT | | | | |
| C012 | IF A.1/8 THEN M ELSE N/A | | -- | O_Local_PB | | | | |
| C013 | IF A.1/9 THEN M ELSE N/A | | -- | O_Global_PB | | | | |
| C014 | IF A.1/8 AND A.1/9 THEN M ELSE N/A | | -- | O_Local_PB AND O_Global_PB | | | | |
| C015 | IF A.1/10 THEN M ELSE N/A | | -- | O_Receive_SMS | | | | |
| C016 | IF A.1/11 AND A.1/12 AND A.1/13 THEN M ELSE N/A | | -- | O_MMS AND O_MMS_USIM_DATA AND O_NO_USER_MMS_CONF_SELEC | | | | |
| C017 | IF A.1/11 AND A.1/13 THEN M ELSE N/A | | -- | O_MMS AND O_NO_USER_MMS_CONF_SELEC | | | | |
| C018 | IF A.1/11 AND A.1/14 THEN M ELSE N/A | | -- | O_MMS AND O_MMS_NOTIF_STORAGE | | | | |
| C019 | IF A.1/15 THEN M ELSE N/A | | -- | O_ACL | | | | |
| C020 | IF (NOT A.1/15) M ELSE N/A | | -- | NOT O_ACL | | | | |
| C021 | IF A.1/16 THEN M ELSE N/A | | -- | O_SDN | | | | |
| C022 | IF A.1/17 THEN M ELSE N/A | | -- | O_EFPLMNwACT_numerical entry | | | | |
| O.1 | IF C001 THEN "Expected Sequence A" M ELSE IF C002 THEN "Expected Sequence B" M | | | | | | | |

4 Default Values

All tests defined in the subsequent clauses apply to Terminals using card types specified in TS 102 221 [5], unless otherwise stated.

The following sequence of tests confirms:

- a) the correct interpretation of data read from the USIM (Universal Subscriber Identification Module) by the Terminal;
- b) the correct writing of data to the USIM by the Terminal;
- c) the initiation of appropriate procedures by the Terminal;
- d) High level protocols.

All tests apply to the USIM application on the UICC.

A USIM simulator will be required as part of the USS. Alternatively, to perform the logical tests, USIMs programmed with specific data may be used. The USIM data is not defined within the initial conditions of the tests unless it differs from the default values defined below.

4.1 Definition of default values for USIM-Terminal interface testing (Default UICC)

A USIM containing the following default values is used for all tests of this present document unless otherwise stated.

For each data item, the logical default values and the coding within the elementary files (EF) of the USIM follow.

NOTE 1: Bx represents byte x of the coding.

NOTE 2: Unless otherwise defined, the coding values are hexadecimal.

4.1.1 Values of the EF's (Default UICC)

4.1.1.1 EF_{IMSI} (IMSI)

Logically: 2460813579

| | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 |
| Hex | 06 | 21 | 64 | 80 | 31 | 75 | F9 | FF | FF |

4.1.1.2 EF_{AD} (Administrative Data)

Logically: Normal operation
OFM to be deactivated by the Terminal
MNC: 3 digit

| | | | | |
|---------|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 |
| Hex | 00 | 00 | 00 | 03 |

4.1.1.3 EF_{LOCI} (Location Information)

Logically: LAI-MCC: 246
LAI-MNC: 081
LAI-LAC: 0001
TMSI: "FF .. FF"

| | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
| Hex | FF | FF | FF | FF | 42 | 16 | 80 | 00 | 01 | FF | 00 |

4.1.1.4 EF_{Keys} (Ciphering and Integrity Keys)

Logically: Key Set Identifier KSI: 0x
Ciphering Keys CK: xx
Integrity Keys IK: xx

| | | | | | | | | | | | | |
|---------|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | ... | B16 | B17 | B18 | ... | B30 | B31 | B32 | B33 |
| Hex | 0x | xx | xx | ... | xx | xx | xx | ... | xx | xx | xx | xx |

4.1.1.5 EF_{KeysPS} (Ciphering and Integrity Keys for Packet Switched domain)

Logically: Key Set Identifier KSI: 0x
Ciphering Keys CK: xx
Integrity Keys IK: xx

| | | | | | | | | | | | |
|---------|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | ... | B16 | B17 | B18 | ... | B31 | B32 | B33 |
| Hex | 0x | xx | xx | ... | xx | xx | xx | ... | xx | xx | xx |

4.1.1.6 EF_{ACC} (Access Control Class)

Logically: One and only one access class from 0 - 9, e.g. class 7 for which the coding is "00 80".

4.1.1.7 EF_{FPLMN} (Forbidden PLMNs)

Besides of the 4 mandatory EF_{FPLMN} 2 optional EF_{FPLMN} are defined according to TS 31.102 [4], subclause 4.2.16.

Logically: PLMN1: 234 001 (MCC MNC)
 PLMN2: 234 002
 PLMN3: 234 003
 PLMN4: 234 004
 PLMN5: 234 005
 PLMN6: 234 006

| | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|----|----|----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 |
| Hex | 32 | 14 | 00 | 32 | 24 | 00 | 32 | 34 | 00 | 32 | 44 | 00 |
| | B13 | B14 | B15 | B16 | B17 | B18 | | | | | | |
| | 32 | 54 | 00 | 32 | 64 | 00 | | | | | | |

4.1.1.8 EF_{UST} (USIM Service Table)

Logically: Local Phone Book available
 User controlled PLMN selector available
 Fixed dialling numbers available
 Barred dialling numbers available
 The GSM Access available
 The Group Identifier level 1 and level 2 not available
 Service n 33 (Packed Switched Domain) shall be set to '1'
 Enabled Services Table available

| | | | | | |
|---------|-----------|-----------|-----------|-----------|-----------|
| Coding: | B1 | B2 | B3 | B4 | B5 |
| binary | xx1x xx11 | xxxx xxxx | xxxx 1x00 | xxxx x1xx | xxxx xx11 |

The coding of EF_{UST} shall conform with the capabilities of the USIM used.

4.1.1.9 EF_{EST} (Enable Service Table)

Logically: Fixed Dialling Numbers (FDN) disabled.
 Barred Dialling Numbers (BDN) disabled.
 APN Control list (ACL) disabled

| | |
|---------|-----------|
| Coding: | B1 |
| binary | 0000 0000 |

The coding of EF_{EST} shall conform with the capabilities of the USIM, unused Bits are set to '0'.

4.1.1.10 EF_{ADN} (Abbreviated Dialling Number)

Logically:

At least 10 records, each non empty record unique.

| | | |
|-----------|-----------------------------|------------------------------------|
| Record 1: | Length of alpha identifier: | 32 characters; |
| | Alpha identifier: | "ABCDEFGHJKLMNOPQRSTUVWXYZABCDEF"; |
| | Length of BCD number: | "03"; |
| | TON and NPI: | Telephony and Unknown; |
| | Dialled number: | 123; |
| | CCI: | None; |
| | Ext1: | None. |

Record 1:

| | | | | | | | | | | | | | | |
|---------|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | ... | B32 | B33 | B34 | B35 | B36 | B37 | B38 | B39 | ... | B46 |
| Hex | 41 | 42 | 43 | ... | 46 | 03 | 81 | 21 | F3 | FF | FF | FF | ... | FF |

4.1.1.11 EF_{PLMNwACT} (User Controlled PLMN Selector with Access Technology)

Besides of the 8 mandatory PLMNwACT entries 4 optional PLMNwACT entries are defined according to TS 31.102 [4], subclause 4.2.5. The Radio Access Technology identifier for the first two PLMN (1st PLMN and 2nd PLMN) are set to both UTRAN and GSM, all other PLMN to UTRAN only.

Logically:

| | |
|------------------------|-------------------|
| 1 st PLMN: | 244 081 (MCC MNC) |
| 1 st ACT: | UTRAN |
| 2 nd PLMN: | 244 081 |
| 2 nd ACT: | GSM |
| 3 rd PLMN: | 244 082 |
| 3 rd ACT: | UTRAN |
| 4 th PLMN: | 244 082 |
| 4 th ACT: | GSM |
| 5 th PLMN: | 244 003 |
| 5 th ACT: | UTRAN |
| 6 th PLMN: | 244 004 |
| 6 th ACT: | UTRAN |
| 7 th PLMN: | 244 005 |
| 7 th ACT: | UTRAN |
| 8 th PLMN: | 244 006 |
| 8 th ACT: | UTRAN |
| 9 th PLMN: | 244 007 |
| 9 th ACT: | UTRAN |
| 10 th PLMN: | 244 008 |
| 10 th ACT: | UTRAN |
| 11 th PLMN: | 244 009 |
| 11 th ACT: | UTRAN |
| 12 th PLMN: | 244 010 |
| 12 th ACT: | UTRAN |

| | | | | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | B13 | B14 | B15 |
| Hex | 42 | 14 | 80 | 80 | 00 | 42 | 14 | 80 | 00 | 80 | 42 | 24 | 80 | 80 | 00 |
| | B16 | B17 | B18 | B19 | B20 | B21 | B22 | B23 | B24 | B25 | B26 | B27 | B28 | B29 | B30 |
| | 42 | 24 | 80 | 00 | 80 | 42 | 34 | 00 | 80 | 00 | 42 | 44 | 00 | 80 | 00 |
| | B31 | B32 | B33 | B34 | B35 | B36 | B37 | B38 | B39 | B40 | B41 | B42 | B43 | B44 | B45 |
| | 42 | 54 | 00 | 80 | 00 | 42 | 64 | 00 | 80 | 00 | 42 | 74 | 00 | 80 | 00 |
| | B46 | B47 | B48 | B49 | B50 | B51 | B52 | B53 | B54 | B55 | B56 | B57 | B58 | B59 | B60 |
| | 42 | 84 | 00 | 80 | 00 | 42 | 94 | 00 | 80 | 00 | 42 | 04 | 10 | 80 | 00 |

4.1.1.12 EF_{OPLMNwACT} (Operator Controlled PLMN Selector with Access Technology)

The Radio Access Technology identifier for the first PLMN is set to both UTRAN and GSM, the other remaining PLMNs to UTRAN only.

Logically:

| | |
|-----------------------|-------------------|
| 1 st PLMN: | 254 001 (MCC MNC) |
| 1 st ACT: | UTRAN |
| 2 nd PLMN: | 254 001 |
| 2 nd ACT: | GSM |
| 3 rd PLMN: | 254 002 |
| 3 rd ACT: | UTRAN |
| 4 th PLMN: | 254 003 |
| 4 th ACT: | UTRAN |

5th PLMN: 254 004
 5th ACT: UTRAN
 6th PLMN: 254 005
 6th ACT: UTRAN
 7th PLMN: 254 006
 7th ACT: UTRAN
 8th PLMN: 254 007
 8th ACT: UTRAN

| | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Coding: | B01 | B02 | B03 | B04 | B05 | B06 | B07 | B08 | B09 | B10 |
| Hex | 52 | 14 | 00 | 80 | 00 | 52 | 14 | 00 | 00 | 80 |
| | B11 | B12 | B13 | B14 | B15 | B16 | B17 | B18 | B19 | B20 |
| | 52 | 24 | 00 | 80 | 00 | 52 | 34 | 00 | 80 | 00 |
| | B21 | B22 | B23 | B24 | B25 | B26 | B27 | B28 | B29 | B30 |
| | 52 | 44 | 00 | 80 | 00 | 52 | 54 | 00 | 80 | 00 |
| | B31 | B32 | B33 | B34 | B35 | B36 | B37 | B38 | B39 | B40 |
| | 52 | 64 | 00 | 80 | 00 | 52 | 74 | 00 | 80 | 00 |

4.1.1.13 Void

4.1.1.14 PIN

Key reference: 01

Logically: 2468

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 32 | 34 | 36 | 38 | FF | FF | FF | FF |

4.1.1.15 PIN2

Key reference: 81

Logically: 3579

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 33 | 35 | 37 | 39 | FF | FF | FF | FF |

4.1.1.16 Unblock PIN

Key reference: 01

Logically: 13243546

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 31 | 33 | 32 | 34 | 33 | 35 | 34 | 36 |

4.1.1.17 Unblock PIN2

Key reference: 81

Logically: 08978675

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 30 | 38 | 39 | 37 | 38 | 36 | 37 | 35 |

4.1.1.18 Other Values of the USIM

All other values of EFs provided by the USIM shall be set to the default values defined in the annex E of TS 31.102 [4]. Some EFs (like the GSM Access files) may necessary for some tests and apply only to those test cases.

4.1.1.19 EF_{PSLOCI} (Packet Switch Location Information)

Logically: RAI-MCC: 246
RAI-MNC: 081
RAI-LAC: 0001
RAI-RAC: 05
P-TMSI: "FF...FF"
P-TMSI signature value: "FF...FF"

| | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
| Hex | FF | FF | FF | FF | FF | FF | FF | 42 | 16 | 80 | 00 |

| | | | |
|---------|-----|-----|-----|
| Coding: | B12 | B13 | B14 |
| Hex | 01 | 05 | 00 |

4.1.1.20 Universal PIN

Key reference: 11

Logically: 2839

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 32 | 38 | 33 | 39 | FF | FF | FF | FF |

4.1.1.21 Unblock Universal PIN

Key reference: 11

Logically: 0203040506

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 30 | 32 | 30 | 33 | 30 | 34 | 30 | 35 |

4.2 Definition of FDN UICC

The FDN test cases require a different configuration than the one described in subclause 4.1. For that purpose a default FDN UICC is defined. In general the values of the FDN UICC are identical to the default UICC, with the following exceptions.

4.2.1 Values of the EF's (FDN UICC)

4.2.1.1 EF_{UST} (USIM Service Table)

Logically: Local Phone Book available
 User controlled PLMN selector available
 Fixed dialling numbers available
 Barred dialling numbers available
 The GSM Access available
 The Group Identifier level 1 and level 2 not available.
 Service n 33 (Packed Switched Domain) shall be set to '1'
 Enabled Services Table available

| | | | | | |
|---------|-----------|-----------|-----------|-----------|-----------|
| Coding: | B1 | B2 | B3 | B4 | B5 |
| binary | xx1x xx11 | xxxx xxxx | xxxx 1x00 | xxxx x1xx | xxxx xx11 |

The coding of EF_{UST} shall conform with the capabilities of the USIM used.

4.2.1.2 EF_{EST} (Enable Service Table)

Logically: Fixed Dialling Numbers enabled.
 Barred Dialling Numbers disabled.
 APN Control list (ACL) disabled.

| | |
|---------|-----------|
| Coding: | B1 |
| binary | 0000 0001 |

The coding of EF_{EST} shall conform with the capabilities of the USIM, unused Bits are set to '0'..

4.2.1.3 EF_{FDN} (Fixed Dialling Numbers)

Logically:
 Record 1: Length of alpha identifier: 6 characters;
 Alpha identifier: "FDN111";
 Length of BCD number: "06";
 TON and NPI: Telephony and International;
 Dialed number: +1357924680;
 CCI2: None;
 Ext2: None.

Coding for record 1:

| | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|----|----|-----|-----|-----|-----|
| Hex | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | B13 |
| | 46 | 44 | 4E | 31 | 31 | 31 | 06 | 91 | 31 | 75 | 29 | 64 | 08 |
| | B14 | B15 | B16 | B17 | B18 | B19 | B20 | | | | | | |
| | FF | FF | FF | FF | FF | FF | FF | | | | | | |

Record 2: Length of alpha identifier: 6 characters;
 Alpha identifier: "FDN222";
 Length of BCD number: "04";
 TON and NPI: Telephony and Unknown;
 Dialed number: 24680;
 CCI2: None;
 Ext2: None.

Coding for record 2:

| | | | | | | | | | | | | | |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|----------|-----------|-----------|-----------|-----------|
| Hex | B1 46 | B2 44 | B3 4E | B4 32 | B5 32 | B6 32 | B7 04 | B8 81 | B9 42 | B10 86 | B11 F0 | B12 FF | B13 FF |
| | B14 FF | B15 FF | B16 FF | B17 FF | B18 FF | B19 FF | B20 FF | | | | | | |

Record 3: Length of alpha identifier: 6 characters;
 Alpha identifier: "FDN333";
 Length of BCD number: "0B";
 TON and NPI: Telephony and International;
 Dialed number: +12345678901234567890;
 CCI2: None;
 Ext2: None.

Coding for record 3:

| | | | | | | | | | | | | | |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|----------|-----------|-----------|-----------|-----------|
| Hex | B1 46 | B2 44 | B3 4E | B4 33 | B5 33 | B6 33 | B7 0B | B8 91 | B9 21 | B10 43 | B11 65 | B12 87 | B13 09 |
| | B14 21 | B15 43 | B16 65 | B17 87 | B18 09 | B19 FF | B20 FF | | | | | | |

4.2.1.4 EF_{ECC} (Emergency Call Codes)

Logically: Emergency call code: "122";
 Emergency call code alpha identifier: "TEST";
 Emergency call Service Category: Mountain Rescue.

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 21 | F2 | FF | 54 | 45 | 53 | 54 | 10 |

4.2.1.5 Other Values of the USIM

All other values of EFs provided by the USIM shall be set to the default values defined in the annex E of TS 31.102 [4]. Some EFs (like the GSM Access files) may necessary for some tests and apply only to those test cases.

4.3 Void

5 Subscription related tests

5.1 IMSI / TMSI handling

5.1.1 UE identification by short IMSI

5.1.1.1 Definition and applicability

The IMSI is used for unique identification of the UE by UTRAN/ a GERAN. The IMSI is stored in the USIM and read during the UICC-Terminal initialisation procedure.

5.1.1.2 Conformance requirement

After successful completion of the RRC Connection Establishment procedure (in case of Terminals accessing UTRAN) respectively after receipt of an IMMEDIATE ASSIGNMENT message (in case of a Terminal accessing a GERAN) the UE shall send PAGING RESPONSE containing the IMSI of the USIM, which is less than the maximum length.

Reference:

- TS 31.102 [4], subclauses 5.1.1 and 5.2.2;
- TS 24.008 [16], subclause 10.5.1.4;
- TS 102 221 [5], subclause 14.1.1.

5.1.1.3 Test purpose

- 1) To verify that the Terminal uses the IMSI of the USIM.
- 2) To verify that the Terminal can handle an IMSI of less than the maximum length.
- 3) To verify that the READ EF_{IMSI} command is performed correctly by the terminal

5.1.1.4 Method of test

5.1.1.4.1 Initial conditions

The USS (in case of a Terminal accessing UTRAN) / SS (in case of a Terminal accessing a GERAN) transmits on the BCCH, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 246/081/0001.
- Access control: unrestricted.

The default UICC is installed into the Terminal and the UE is powered on.

In case of a Terminal accessing UTRAN "Expected Sequence A" and in case of a Terminal accessing a GERAN "Expected Sequence B" shall be performed.

5.1.1.4.2 Procedure

Expected Sequence A:

- a) The USS sends PAGING TYPE 1 to the UE using the IMSI stored in the USIM.
- b) After receipt of a RRC CONNECTION REQUEST from the UE, the USS sends RRC CONNECTION SETUP to the UE, followed by RRC CONNECTION SETUP COMPLETE sent by the UE to the USS.
- c) After receipt of a PAGING RESPONSE from the UE, the USS sends RRC CONNECTION RELEASE to the UE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS.

Expected Sequence B:

- a) The SS sends PAGING REQUEST to the UE using the IMSI stored in the USIM.
- b) After receipt of a CHANNEL REQUEST from the UE, the SS sends IMMEDIATE ASSIGNMENT to the UE.
- c) After receipt of a PAGING RESPONSE from the UE, the SS sends CHANNEL RELEASE to the UE.

5.1.1.5 Acceptance criteria

After step b) the UE shall send PAGING RESPONSE to the USS/SS containing the IMSI stored in the USIM.

5.1.2 UE identification by short IMSI using a 2 digit MNC

5.1.2.1 Definition and applicability

In some networks the IMSI identifying the UTRAN/ GERAN can be consistence of a 2 digit MNC. The IMSI is stored in the USIM and read during the UICC-Terminal initialisation procedure.

5.1.2.2 Conformance requirement

After successful completion of the RRC Connection Establishment procedure (in case of Terminals accessing UTRAN) respectively after receipt of an IMMEDIATE ASSIGNMENT message (in case of a Terminal accessing a GERAN) the UE shall send PAGING RESPONSE containing the IMSI of the USIM.

Reference:

- TS 31.102 [4], subclause 4.2.18;
- TS 24.008 [16], subclause 10.5.1.4.

5.1.2.3 Test purpose

- 1) To verify that the Terminal can handle an IMSI consistence of a 2 digit MNC.

5.1.2.4 Method of test

5.1.2.4.1 Initial conditions

The USS (in case of a Terminal accessing UTRAN) / SS (in case of a Terminal accessing a GERAN) transmits on the BCCH, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 246/81/0001.
- Access control: unrestricted.

The default UICC is used with the following exception:

EF_{LOCI} (Location Information)

Logically: LAI-MCC: 246
LAI-MNC: 81
LAI-LAC: 0001
TMSI: "FF .. FF"

| | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
| Hex | FF | FF | FF | FF | 42 | F6 | 18 | 00 | 01 | FF | 00 |

EF_{IMSI} (IMSI)

Logically: 246813579

| | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 |
| Hex | 05 | 29 | 64 | 18 | 53 | 97 | FF | FF | FF |

EF_{AD} (Administrative Data)

Logically: Normal operation
OFM to be deactivated by the Terminal
MNC: 2 digit

| | | | | |
|---------|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 |
| Hex | 00 | 00 | 00 | 02 |

The UICC is installed into the Terminal and the UE is powered on.

In case of a Terminal accessing UTRAN "Expected Sequence A" and in case of a Terminal accessing a GERAN "Expected Sequence B" shall be performed.

5.1.2.4.2 Procedure

Expected Sequence A:

- a) The USS sends PAGING TYPE 1 to the UE using the IMSI stored in the USIM.
- b) After receipt of a RRC CONNECTION REQUEST from the UE, the USS sends RRC CONNECTION SETUP to the UE, followed by RRC CONNECTION SETUP COMPLETE sent by the UE to the USS.
- c) After receipt of a PAGING RESPONSE from the UE, the USS sends RRC CONNECTION RELEASE to the UE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS.

Expected Sequence B:

- a) The SS sends PAGING REQUEST to the UE using the IMSI stored in the USIM.
- b) After receipt of a CHANNEL REQUEST from the UE, the SS sends IMMEDIATE ASSIGNMENT to the UE.
- c) After receipt of a PAGING RESPONSE from the UE, the SS sends CHANNEL RELEASE to the UE.

5.1.2.5 Acceptance criteria

After step b) the UE shall send PAGING RESPONSE to the USS/SS containing the IMSI stored in the USIM.

5.1.3 UE identification by "short" TMSI

5.1.3.1 Definition and applicability

The TMSI is temporarily used for identification of the UE by UTRAN/ a GERAN. It will have been previously assigned by the network. The TMSI is stored in the USIM by the Terminal and read during the USIM-Terminal initialisation procedure.

NOTE: According to TS 23.003 [14], subclause 2.4, a TMSI always consists of 8 digits (4 bytes). With this tests the handling of a TMSI with leading zeros will be tested. The term "short" TMSI is used in order to distinguish between the tests as defined in subclauses 5.1.3 and 5.1.4.

5.1.3.2 Conformance requirement

After successful completion of the RRC Connection Establishment procedure (in case of Terminals accessing UTRAN) respectively after receipt of an IMMEDIATE ASSIGNMENT message (in case of a Terminal accessing a GERAN) the UE shall send PAGING RESPONSE containing the TMSI of the USIM. According to subclause 10.3.1.17 in TS 25.331 [20] the TMSI has a fixed length of 32 bit (8 digits) when used inside the PAGING TYPE 1/ PAGING REQUEST message.

Reference:

- TS 31.102 [4], subclauses 5.1.1 and 5.2.2;
- TS 24.008 [16], subclause 10.5.1.4.
- TS 25.331 [20], subclause 10.3.1.17

5.1.3.3 Test purpose

- 1) To verify that the Terminal uses the TMSI stored in the USIM.
- 2) To verify that the Terminal can handle a TMSI of less than maximum length.

5.1.3.4 Method of test

5.1.3.4.1 Initial conditions

The USS (in case of a Terminal accessing UTRAN) / SS (in case of a Terminal accessing a GERAN) transmits on the BCCH, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 246/081/0001.
- Access control: unrestricted.

The default UICC is used with the following exception:

EF_{LocI} (Location Information)

Logically: LAI-MCC: 246
 LAI-MNC: 081
 LAI-LAC: 0001
 TMSI: "00002143"

| | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
| Hex | 00 | 00 | 21 | 43 | 42 | 16 | 80 | 00 | 01 | FF | 00 |

The UICC is installed into the Terminal and the UE is powered on.

In case of a Terminal accessing UTRAN "Expected Sequence A" and in case of a Terminal accessing a GERAN "Expected Sequence B" shall be performed.

5.1.3.4.2 Procedure

Expected Sequence A:

- a) The USS sends PAGING TYPE 1 to the UE using the TMSI stored in the USIM matching the required length of 8 digits.
- b) After receipt of a RRC CONNECTION REQUEST from the UE, the USS sends RRC CONNECTION SETUP to the UE, followed by RRC CONNECTION SETUP COMPLETE sent by the UE to the USS.
- c) After receipt of a PAGING RESPONSE from the UE, the USS sends RRC CONNECTION RELEASE to the UE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS.

Expected Sequence B:

- a) The SS sends PAGING REQUEST to the UE using the TMSI stored in the USIM matching the required length of 8 digits.
- b) After receipt of a CHANNEL REQUEST from the UE, the SS sends IMMEDIATE ASSIGNMENT to the UE.
- c) After receipt of a PAGING RESPONSE from the UE, the SS sends CHANNEL RELEASE to the UE.

5.1.3.5 Acceptance criteria

After step b) the UE shall send PAGING RESPONSE to the USS/SS containing the TMSI stored in the USIM.

5.1.4 UE identification by "long" TMSI

5.1.4.1 Definition and applicability

The TMSI is temporarily used for identification of the UE by UTRAN/ a GERAN. It will have been previously assigned by the network. The TMSI is stored in the USIM by the Terminal and read during the USIM-Terminal initialisation procedure.

NOTE: According to TS 23.003 [14], subclause 2.4, a TMSI always consists of 8 digits (4 bytes). With this tests the handling of a new assigned TMSI will be tested. The term "long" TMSI is used in order to distinguish between the tests as defined in subclauses 5.1.3 and 5.1.4.

5.1.4.2 Conformance requirement

After successful completion of the RRC Connection Establishment procedure (in case of Terminals accessing UTRAN) respectively after receipt of an IMMEDIATE ASSIGNMENT message (in case of a Terminal accessing a GERAN) the UE shall send PAGING RESPONSE containing the correct TMSI stored in the USIM.

According to subclause 10.3.1.17 in TS 25.331 [20] the TMSI has a fixed length of 32 bit (8 digits) when used inside the PAGING TYPE 1/PAGING REQUEST message.

Reference:

- TS 31.102 [4], subclauses 5.1.1 and 5.2.2;
- TS 24.008 [16], subclause 10.5.1.4.
- TS 25.331 [20], subclause 10.3.1.17

5.1.4.3 Test purpose

- 1) To verify that the Terminal uses the TMSI stored in the USIM.
- 2) To verify that the Terminal can handle a TMSI of maximum length.
- 3) To verify that the Terminal does not respond to page requests containing a previous TMSI.

5.1.4.4 Method of test

5.1.4.4.1 Initial conditions

Prior to this test, the Terminal shall have been operated with a USIM containing TMSI "2143". This may be achieved by executing the previous test (5.1.3) prior to this test. Only under this condition will test purpose 3) be verified.

The USS (in case of a Terminal accessing UTRAN) / SS (in case of a Terminal accessing a GERAN) transmits on the BCCH, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 246/081/0001.
- Access control: unrestricted.

The default UICC is used with the following exception:

EF_{LocI} (Location Information)

Logically: LAI-MCC: 246
 LAI-MNC: 081
 LAI-LAC: 0001
 TMSI: "21430000"

| | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
| Hex | 21 | 43 | 00 | 00 | 42 | 16 | 80 | 00 | 01 | FF | 00 |

The UICC is installed into the Terminal and the UE is powered on.

In case of a Terminal accessing UTRAN "Expected Sequence A" and in case of a Terminal accessing a GERAN "Expected Sequence B" shall be performed.

5.1.4.4.2 Procedure

Expected Sequence A:

- a) The USS sends PAGING TYPE 1 to the UE using the TMSI "00002143".
- b) The USS sends PAGING TYPE 1 to the UE using the TMSI stored in the USIM.
- c) After receipt of a RRC CONNECTION REQUEST from the UE, the USS sends RRC CONNECTION SETUP to the UE, followed by RRC CONNECTION SETUP COMPLETE sent by the UE to the USS.
- d) After receipt of a PAGING RESPONSE from the UE, the USS sends RRC CONNECTION RELEASE to the UE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS.

Expected Sequence B:

- a) The SS sends PAGING REQUEST to the UE using the TMSI "00002143".
- b) The SS sends PAGING REQUEST to the UE using the TMSI stored in the USIM.
- c) After receipt of a CHANNEL REQUEST from the UE, the SS sends IMMEDIATE ASSIGNMENT to the UE.
- d) After receipt of a PAGING RESPONSE from the UE, the SS sends CHANNEL RELEASE to the UE.

5.1.4.5 Acceptance criteria

- 1) After step a) the UE shall not respond to the PAGING TYPE 1 respectively to the PAGING REQUEST.
- 2) After step c) the UE shall send PAGING RESPONSE to the USS/ SS containing the TMSI stored in the USIM.

5.1.5 UE identification by long IMSI, TMSI updating and key set identifier assignment

5.1.5.1 Definition and applicability

The IMSI and TMSI are used for identification of the UE by UTRAN/ a GERAN. They are read from the USIM during the USIM-Terminal initialisation procedure. Within the authentication procedure the UTRAN sends a key set identifier respectively a GERAN sends a ciphering key sequence number to the UE. In addition the network may allocate a new TMSI to the UE. Key set identifier and TMSI are stored in the USIM after UTRAN call termination and/or at a 3G session termination. Ciphering key sequence number and TMSI are stored in the USIM after GERAN call termination and/or at a 3G session termination.

NOTE: According to TS 24.008 [16] the term KSI may be used instead of the term ciphering key sequence number which is used inside the MM message AUTHENTICATION REQUEST.

5.1.5.2 Conformance requirement

- 1) After successful completion of the RRC Connection Establishment procedure (in case of Terminals accessing UTRAN) respectively after receipt of an IMMEDIATE ASSIGNMENT message (in case of a Terminal accessing a GERAN) the UE shall send PAGING RESPONSE containing the correct IMSI stored in the USIM.

Reference:

- TS 31.102 [4], subclauses 5.1.1 and 5.2.2;
- TS 24.008 [16], subclause 10.5.1.4.

- 2) After call termination the USIM shall contain the key set identifier (ciphering key sequence number) and TMSI received by the UE during the authentication and TMSI reallocation procedures.

Reference:

- TS 31.102 [4], subclauses 5.1.2, 5.2.5 and 5.2.6;
- TS 21.111 [19], subclause 10.1.
- TS 24.008 [16], subclause 4.3.2.4.

- 3) After call termination the Terminal shall have updated EFLOCI.

Reference:

- TS 102 221 [5], subclause 14.1.2.

5.1.5.3 Test purpose

- 1) To verify that the Terminal uses the IMSI stored in the USIM.
- 2) To verify that the Terminal does not respond to page requests containing a previous IMSI.
- 3) To verify that the Terminal can handle an IMSI of maximum length.
- 4) To verify that the Terminal correctly updates the key set identifier respectively the ciphering key sequence number at call termination.
- 5) To verify that the Terminal correctly updates the TMSI at call termination.
- 6) To verify that the UPDATE EF_{LOCI} command is performed correctly by the terminal

5.1.5.4 Method of test

5.1.5.4.1 Initial conditions

Prior to this test, the Terminal shall have been operated with a USIM containing IMSI "2460813579". This may be achieved by executing the previous test (5.1.4) prior to this test. Only under this condition will test purpose 2) be verified.

The USS (in case of a Terminal accessing UTRAN) / SS (in case of a Terminal accessing a GERAN) transmits on the BCCH, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 246/081/0001.
- Access control: unrestricted.

The default UICC is used with the following exception:

EF_{IMSI} (IMSI)

Logically: 2460811111111111

| | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 |
| Hex | 08 | 29 | 64 | 80 | 11 | 11 | 11 | 11 | 11 |

EF_{Kc} (GSM Ciphering Key Kc)

Logically: Ciphering key Kc: xx
Ciphering key sequence number n: 01

| | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 |
| Hex | xx | xx | xx | xx | xx | xx | xx | xx | 01 |

The UICC is installed into the Terminal and the UE is powered on.

In case of a Terminal accessing UTRAN "Expected Sequence A" and in case of a Terminal accessing a GERAN "Expected Sequence B" shall be performed.

5.1.5.4.2 Procedure

Expected Sequence A:

- The USS sends PAGING TYPE 1 to the UE using the IMSI "2460813579".
- The USS sends PAGING TYPE 1 to the UE using the IMSI stored in the USIM.
- After receipt of a RRC CONNECTION REQUEST from the UE, the USS sends RRC CONNECTION SETUP to the UE, followed by RRC CONNECTION SETUP COMPLETE sent by the UE to the USS.
- After receipt of a PAGING RESPONSE from the UE, the USS sends AUTHENTICATION REQUEST to the UE containing Key Set Identifier KSI (ciphering key sequence number) set to binary 010.
- After receipt of AUTHENTICATION RESPONSE from the UE and subsequent completion of the security procedure on RRC, the USS sends TMSI REALLOCATION COMMAND to the UE containing TMSI "32547698".
- Within 5 s after receipt of TMSI REALLOCATION COMPLETE from the UE, the USS sends RRC CONNECTION RELEASE to the UE.
- To allow examination of the values in the USIM after connection termination the UE shall not be soft powered down. If the test is performed with a USIM simulator, the simulation is stopped. If the test is performed with a USIM, the UICC is removed without soft powering down the UE. If this is not possible, the power supply of the Terminal is removed and then the UICC removed.

Expected sequence B:

- The SS sends PAGING REQUEST to the UE using the IMSI "2460813579".
- The SS sends PAGING REQUEST to the UE using the IMSI stored in the USIM.
- After receipt of a CHANNEL REQUEST from the UE, the SS sends IMMEDIATE ASSIGNMENT to the UE.
- After receipt of a PAGING RESPONSE from the UE, the SS sends AUTHENTICATION REQUEST to the UE containing ciphering key sequence number set to binary 010.
- After receipt of AUTHENTICATION RESPONSE from the UE, the SS sends TMSI REALLOCATION COMMAND to the UE containing TMSI "32547698".
- Within 5 s after receipt of TMSI REALLOCATION COMPLETE from the UE, the SS sends CHANNEL RELEASE to the UE.
- To allow examination of the values in the USIM after connection termination the UE shall not be soft powered down. If the test is performed with a USIM simulator, the simulation is stopped. If the test is performed with a

USIM, the UICC is removed without soft powering down the UE. If this is not possible, the power supply of the Terminal is removed and then the UICC removed.

5.1.5.5 Acceptance criteria

- 1) After step a) the UE shall not respond to the PAGING TYPE 1/ PAGING REQUEST.
- 2) After step c) the UE shall send PAGING RESPONSE to the USS/SS containing the IMSI stored in the USIM.
- 3) After step e) the UE shall send TMSI REALLOCATION COMPLETE to the USS/SS.
- 4) After step g) the USIM shall contain the following values:

EF_{LocI} (Location Information)

Logically: LAI-MCC: 246
 LAI-MNC: 081
 TMSI: "32547698"

| | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
| Hex | 32 | 54 | 76 | 98 | 42 | 16 | 80 | xx | xx | xx | 00 |

In case of a Terminal accessing UTRAN:

EF_{Keys} (Cipherring and Integrity Keys)

Logically: Key Set Identifier KSI: 02
 Cipherring Keys CK: xx (result of the authentication algorithm)
 Integrity Keys IK: xx (result of the authentication algorithm)

| | | | | | | | | | | | |
|---------|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | ... | B16 | B17 | B18 | ... | B31 | B32 | B33 |
| Hex | 02 | xx | xx | ... | xx | xx | xx | ... | xx | xx | xx |

In case of a Terminal accessing a GERAN:

EF_{Kc} (GSM Cipherring Key Kc)

Logically: Cipherring key Kc: xx (result of the authentication algorithm)
 Cipherring key sequence number n: 02

| | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 |
| Hex | xx | xx | xx | xx | Xx | xx | xx | xx | 02 |

5.2 Access Control handling

5.2.1 Access Control information handling

5.2.1.1 Definition and applicability

Access Control allows restriction of call access attempts. All User Equipments are assigned to one out of ten randomly allocated classes, and optionally (for priority uses) also to one or more special categories.

An Access Class of the special Categories is only valid in the HPLMN or HPLMN country. Otherwise, the randomly allocated class is used.

The classes are programmed on the USIM. The network controls which classes at any time may be barred.

In addition, there is a separate mechanism for control of network access for emergency call attempts.

5.2.1.2 Conformance requirement

1. The Terminal shall read the access control value as part of the USIM-Terminal initialisation procedure, and subsequently adopt this value.

Reference:

- TS 31.102 [4], subclause 5.1.1.
2. If the UE is a member of at least one access class which corresponds to the permitted classes as signalled over the air interface, and the access class is applicable in the serving network, access attempts are allowed. Otherwise access attempts are not allowed.
 3. If access class 10 is barred, then the UEs of classes 0 - 9 and the Terminals without UICCs shall not make emergency call attempts.
 4. UE of classes 11 - 15 are not allowed to make emergency call attempts if access class 10 and the relevant access class(es) between 11 and 15 are barred. Otherwise, emergency call attempts are allowed irrespective of the conditions of access class 10.

All options are shown in figure 5-1 and are referenced to the tests.

Reference:

- TS 22.011 [6], subclauses 4.3 and 4.4.

5.2.1.3 Test purpose

- 1) To verify that the Terminal reads the access control value as part of the USIM-Terminal initialisation procedure, and subsequently adopts this value.
- 2) To verify that the UE controls its network access in accordance with its access control class and the conditions imposed by the serving network.

The tests verify Terminal performance for the following:

Tests (a) and (b) No UICC in Terminal.

Tests (c) to (e) UE with access class 0 to 9.

Test (f) UE with access class 11 and 15 not in HPLMN, and
UE with access class 12,13 and 14 not in HPLMN country.

Test (g) and (h) UE with access class 11 and 15 in HPLMN, and
UE with access class 12,13 and 14 in HPLMN country.

Each of the above are tested against all relevant combinations of access control and emergency call bits signalled by the network, as shown in table 5-1.

5.2.1.4 Method of test

5.2.1.4.1 Initial conditions

The USS (in case of a Terminal accessing UTRAN)/ SS (in case of a GERAN Terminal) transmits on the BCCH, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): see table 5-1.
- Access control: see table 5-1.
- RACH: see table 5-1.

The default UICC is installed in the Terminal containing IMSI and access control values as given in table 5-1 and the UE is powered on.

NOTE: Depending on the initial value of the EF_{LOCAL} , the UE may perform a location update. This shall be accepted by the USS/SS.

5.2.1.4.2 Coding details

USIM IMSI EF_{IMSI} : Data Field "6F 07"

| | | | | | | | | | | |
|------------|-------|--------------|----|----|----|----|----|----|----|--|
| Logically: | IMSI: | "2460813579" | | | | | | | | |
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | |
| Hex | 06 | 21 | 64 | 80 | 31 | 75 | F9 | FF | FF | |

| | | | | | | | | | | |
|------------|-------|--------------|----|----|----|----|----|----|----|--|
| Logically: | IMSI: | "24608135x9" | | | | | | | | |
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | |
| Hex | 06 | 21 | 64 | 80 | 31 | x5 | F9 | FF | FF | |

Access Control class EF_{ACC} : Data field "6F 78"

Reference:

- See TS 31.102 [4].

NETWORK (USS in case of a Terminal accessing UTRAN)

Access Class Barred List in SIB 3 should be set as table 5.1a:

Reference

- TS 25.331 clause 10.3.2.1

NOTE: The first instance of the parameter corresponds to Access Class 0, the second to Access Class 1 and so on up to Access Class 15.

NETWORK (SS in case of a Terminal accessing GERAN)

RACH: As defined in TS 44.018 subclause 10.5.2.29.

NOTE: TS 44.018 also apply for the Radio Resource management for UMTS (see TS 24.008, subclause 10.5.2).

| | |
|---------|-----------------|
| Octet 1 | 0111 1000 |
| Octet 2 | 0000 1000 |
| Octet 3 | } |
| Octet 4 | } as table 5-1b |

5.2.1.4.3 Procedure

- Using the MMI or EMMI a normal call set-up is attempted.
- Using the MMI or EMMI an emergency call set-up is attempted.
- The test is repeated for each set of values in table 5-1.

5.2.1.5 Acceptance criteria

After steps a) and b) the UE shall access the network, or shall make no access attempt, in accordance with table 5-1.

NOTE: For conformance testing, to limit testing, in tests (c), (d) and (e) it is only necessary that one of the access classes is tested. This access class may randomly chosen.

Table 5-1a

| USIM | | | Network | | | Test Results | |
|----------|------------------------|-----------------|--|----------------------------------|--------------|----------------|-------------------|
| IMS | MSI | | RACH SIB3: Access Class Barred List | Informative: Cell Barred for: | BCCH/ LAI | Normal Call | Emergency Call |
| | | Access Class | AC15- AC08 AC07- AC00 | Emergency Call Normal Call | MCC MNC | | |
| Test (a) | No UICC in Terminal | N/A | 0000 0100 0000 0000 | Yes No | 234 001 | No | No |
| Test (b) | No UICC in Terminal | N/A | 0000 0000 0000 0000 | No No | 234 001 | No | Yes |
| Test (c) | "2460813579" | 0 | 0000 0100 0000 0001 | Yes No, except for ACC | 246 081 | No | No |
| | "2460813579" | 1 | 0000 0100 0000 0010 | Yes No, except for ACC | 246 081 | No | No |
| | "2460813579" | 2 | 0000 0100 0000 0100 | Yes No, except for ACC | 246 081 | No | No |
| | "2460813579" | 3 | 0000 0100 0000 1000 | Yes No, except for ACC | 246 081 | No | No |
| | "2460813579" | 4 | 0000 0100 0001 0000 | Yes No, except for ACC | 246 081 | No | No |
| | "2460813579" | 5 | 0000 0100 0010 0000 | Yes No, except for ACC | 246 081 | No | No |
| | "2460813579" | 6 | 0000 0100 0100 0000 | Yes No, except for ACC | 246 081 | No | No |
| | "2460813579" | 7 | 0000 0100 1000 0000 | Yes No, except for ACC | 246 081 | No | No |
| | "2460813579" | 8 | 0000 0101 0000 0000 | Yes No, except for ACC | 246 081 | No | No |
| | "2460813579" | 9 | 0000 0110 0000 0000 | Yes No, except for ACC | 246 081 | No | No |
| Test (d) | "2460813579" | 0 | 0000 0000 0000 0001 | No None, except for ACC | 246 081 | No | Yes |
| | "2460813579" | 1 | 0000 0000 0000 0010 | No None, except for ACC | 246 081 | No | Yes |
| | "2460813579" | 2 | 0000 0000 0000 0100 | No None, except for ACC | 246 081 | No | Yes |

| | | | | | | |
|--------------|---|------------------------|-------------------------------|------------|----|-----|
| "2460813579" | 3 | 0000 0000 0000 1000 | No None, except for ACC | 246 081 | No | Yes |
| "2460813579" | 4 | 0000 0000 0001 0000 | No None, except for ACC | 246 081 | No | Yes |
| "2460813579" | 5 | 0000 0000 0010 0000 | No None, except for ACC | 246 081 | No | Yes |
| "2460813579" | 6 | 0000 0000 0100 0000 | No None, except for ACC | 246 081 | No | Yes |
| "2460813579" | 7 | 0000 0000 1000 0000 | No None, except for ACC | 246 081 | No | Yes |
| "2460813579" | 8 | 0000 0001 0000 0000 | No None, except for ACC | 246 081 | No | Yes |
| "2460813579" | 9 | 0000 0010 0000 0000 | No None, except for ACC | 246 081 | No | Yes |

| | | | | | | | |
|----------|--------------|--------|------------------------|---|------------|-----|-----|
| Test (e) | "2460813579" | 0 | 1111 1011 1111 1110 | No All, except ACC on USIM | 246 081 | Yes | Yes |
| | "2460813579" | 1 | 1111 1011 1111 1101 | No All, except ACC on USIM | 246 081 | Yes | Yes |
| | "2460813579" | 2 | 1111 1011 1111 1011 | No All, except ACC on USIM | 246 081 | Yes | Yes |
| | "2460813579" | 3 | 1111 1011 1111 0111 | No All, except ACC on USIM | 246 081 | Yes | Yes |
| | "2460813579" | 4 | 1111 1011 1110 1111 | No All, except ACC on USIM | 246 081 | Yes | Yes |
| | "2460813579" | 5 | 1101 1011 1101 1111 | No All, except ACC on USIM | 246 081 | Yes | Yes |
| | "2460813579" | 6 | 1111 1011 1011 1111 | No All, except ACC on USIM | 246 081 | Yes | Yes |
| | "2406813579" | 7 | 1111 1011 0111 1111 | No All, except ACC on USIM | 246 081 | Yes | Yes |
| | "2460813579" | 8 | 1111 1010 1111 1111 | No All, except ACC on USIM | 246 081 | Yes | Yes |
| | "2460813579" | 9 | 1111 1001 1111 1111 | No All, except ACC on USIM | 246 081 | Yes | Yes |
| Test (f) | "24608135x9" | 11 & x | 0000 0111 1111 1111 | Yes All, except ACC greater than 11 | 246 082 | No | No |
| | " | 11 & x | 0000 0011 1111 1111 | No All, except ACC greater than 11 | 246 082 | No | Yes |
| | " | 11 & x | 0000 0000 0000 0000 | No None | 246 082 | Yes | Yes |
| | "24608135x9" | 12 & x | 0000 0111 1111 1111 | Yes All, except ACC greater than 11 | 244 001 | No | No |
| | " | 12 & x | 0000 0011 1111 1111 | No All, except ACC greater than 11 | 244 001 | No | Yes |
| | " | 12 & x | 0000 0000 0000 0000 | No None | 244 001 | Yes | Yes |
| | "24608135x9" | 13 & x | 0000 0111 1111 1111 | Yes All, except ACC greater than 11 | 244 001 | No | No |
| | " | 13 & x | 0000 0011 | No | 244 | No | Yes |

| | | | | | | | |
|--|--------------|--------|------------------------|--|------------|-----|-----|
| | | | 1111 1111 | All, except ACC greater than 11 | 001 | | |
| " | 13 & x | | 0000 0000 0000 0000 | No None | 244 001 | Yes | Yes |
| "24608135x9" | 14 & x | | 0000 0111 1111 1111 | Yes All, except ACC greater than 11 | 244 001 | No | No |
| " | 14 & x | | 0000 0011 1111 1111 | No All, except ACC greater than 11 | 244 001 | No | Yes |
| " | 14 & x | | 0000 0000 0000 0000 | No None | 244 001 | Yes | Yes |
| "24608135x9" | 15 & x | | 0000 0111 1111 1111 | Yes All, except ACC greater than 11 | 246 082 | No | No |
| " | 15 & x | | 0000 0011 1111 1111 | No All, except ACC greater than 11 | 246 082 | No | Yes |
| " Set "x" to an arbitrary value in the range 0 to 9 | 15 & x | | 0000 0000 0000 0000 | No None | 246 082 | Yes | Yes |
| Test (g) | "2460813579" | 11 & x | 0000 1111 1111 1111 | Yes All normal ACC and ACC on USIM | 246 081 | No | No |
| " | | 11 & x | 0000 1011 1111 1111 | No All normal ACC and ACC on USIM | 246 081 | No | Yes |
| "2460813579" | | 12 & x | 0001 0111 1111 1111 | Yes All normal ACC and ACC on USIM | 246 082 | No | No |
| " | | 12 & x | 0001 0011 1111 1111 | No All normal ACC and ACC on USIM | 246 082 | No | Yes |
| "2460813579" | | 13 & x | 0010 0111 1111 1111 | Yes All normal ACC and ACC on USIM | 246 082 | No | No |
| " | | 13 & x | 0010 0011 1111 1111 | No All normal ACC and ACC on USIM | 246 082 | No | Yes |
| "2460813579" | | 14 & x | 0100 0111 1111 1111 | Yes All normal ACC and ACC on USIM | 246 082 | No | No |
| " | | 14 & x | 0100 0011 1111 1111 | No All normal ACC and ACC on USIM | 246 082 | No | Yes |
| "2460813579" | | 15 & x | 1000 0111 1111 1111 | Yes All normal ACC and ACC on USIM | 246 081 | No | No |

| | | | | | | | |
|----------|--------------|--------|------------------------|---|------------|-----|-----|
| | " | 15 & x | 1000 0011 1111 1111 | No All normal ACC and ACC on USIM | 246 081 | No | Yes |
| Test (h) | "2460813579" | 11 & x | 1111 0011 1111 1111 | No All, except "special" ACC on USIM | 246 081 | Yes | Yes |
| | " | 11 & x | 1111 0111 1111 1111 | Yes All, except "special" ACC on USIM | 246 081 | Yes | Yes |
| | "2460813579" | 12 & x | 1110 1011 1111 1111 | No All, except "special" ACC on USIM | 246 082 | Yes | Yes |
| | " | 12 & x | 1110 1111 1111 1111 | Yes All, except "special" ACC on USIM | 246 082 | Yes | Yes |
| | "2460813579" | 13 & x | 1101 1011 1111 1111 | No All, except "special" ACC on USIM | 246 082 | Yes | Yes |
| | " | 13 & x | 1101 1111 1111 1111 | Yes All, except "special" ACC on USIM | 246 082 | Yes | Yes |
| | "2460813579" | 14 & x | 1011 1011 1111 1111 | No All, except "special" ACC on USIM | 246 082 | Yes | Yes |
| | " | 14 & x | 1011 1111 1111 1111 | Yes All, except "special" ACC on USIM | 246 082 | Yes | Yes |
| | "2460813579" | 15 & x | 0111 1011 1111 1111 | No All, except "special" ACC on USIM | 246 081 | Yes | Yes |
| | " | 15 & x | 0111 1111 1111 1111 | Yes All, except "special" ACC on USIM | 246 081 | Yes | Yes |

Table 5-1b

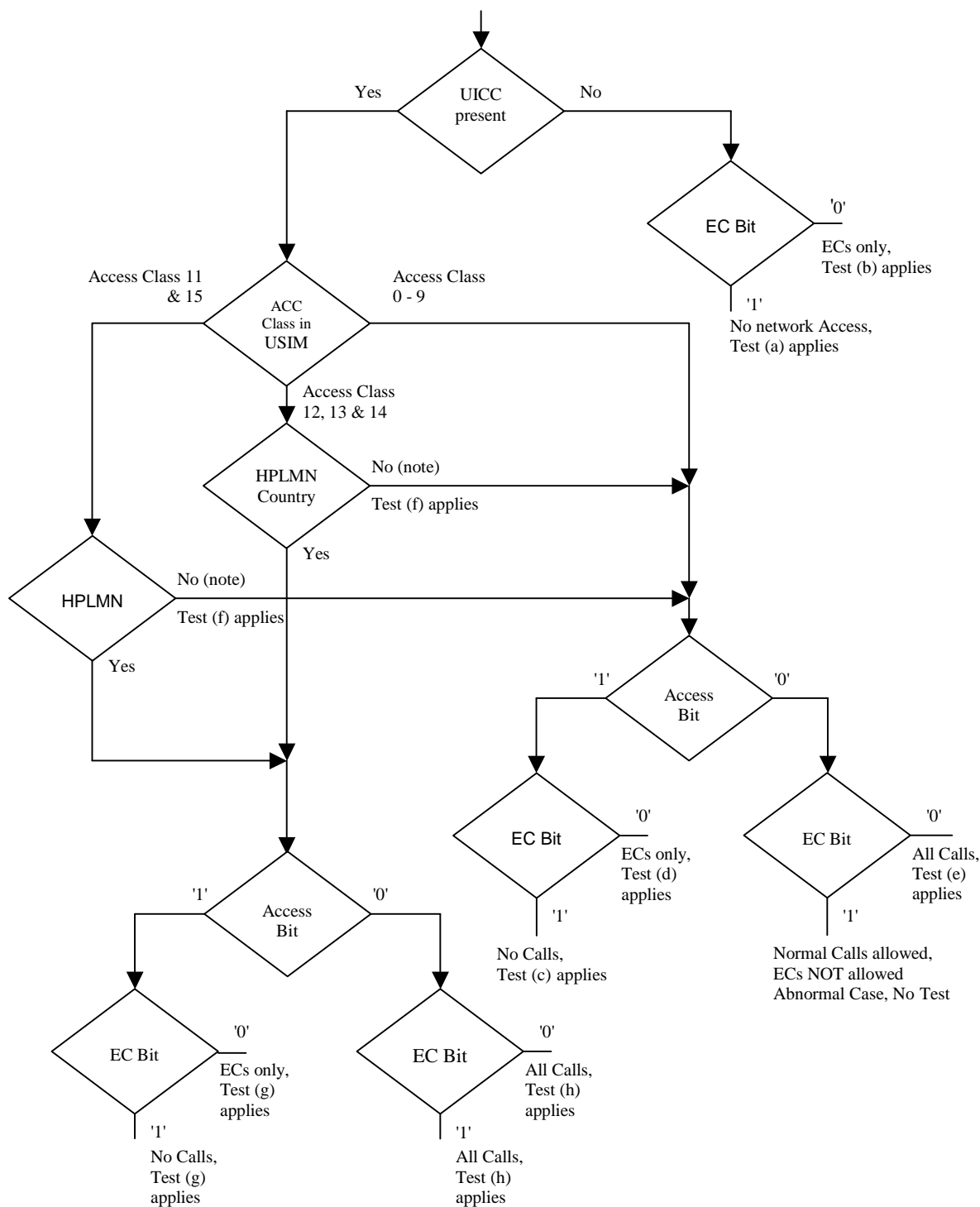
| USIM | | | Network | | | Test Results | |
|----------|---------------------|--------------|------------------------|-------------------------------|------------|--------------|----------------|
| IMSI | | Access Class | RACH | Informative: Cell Barred for: | BCCH/LAI | Normal Call | Emergency Call |
| | | | Octet 3 Octet 4 | Emergency Call Normal Call | MCC MNC | | |
| Test (a) | No UICC in Terminal | N/A | 0000 0100 0000 0000 | Yes No | 234 001 | No | No |
| Test (b) | No UICC in Terminal | N/A | 0000 0000 0000 0000 | No No | 234 001 | No | Yes |
| Test (c) | "2460813579" | 0 | 0000 0100 0000 0001 | Yes No, except for ACC | 246 081 | No | No |
| | "2460813579" | 1 | 0000 0100 0000 0010 | Yes No, except for ACC | 246 081 | No | No |
| | "2460813579" | 2 | 0000 0100 0000 0100 | Yes No, except for ACC | 246 081 | No | No |
| | "2460813579" | 3 | 0000 0100 0000 1000 | Yes No, except for ACC | 246 081 | No | No |
| | "2460813579" | 4 | 0000 0100 0001 0000 | Yes No, except for ACC | 246 081 | No | No |
| | "2460813579" | 5 | 0000 0100 0010 0000 | Yes No, except for ACC | 246 081 | No | No |
| | "2460813579" | 6 | 0000 0100 0100 0000 | Yes No, except for ACC | 246 081 | No | No |
| | "2460813579" | 7 | 0000 0100 1000 0000 | Yes No, except for ACC | 246 081 | No | No |
| | "2460813579" | 8 | 0000 0101 0000 0000 | Yes No, except for ACC | 246 081 | No | No |
| | "2460813579" | 9 | 0000 0110 0000 0000 | Yes No, except for ACC | 246 081 | No | No |
| Test (d) | "2460813579" | 0 | 0000 0000 0000 0001 | No None, except for ACC | 246 081 | No | Yes |
| | "2460813579" | 1 | 0000 0000 0000 0010 | No None, except for ACC | 246 081 | No | Yes |
| | "2460813579" | 2 | 0000 0000 0000 0100 | No None, except for ACC | 246 081 | No | Yes |
| | "2460813579" | 3 | 0000 0000 0000 1000 | No None, except for ACC | 246 081 | No | Yes |
| | "2460813579" | 4 | 0000 0000 0001 0000 | No None, except for ACC | 246 081 | No | Yes |
| | "2460813579" | 5 | 0000 0000 | No | 246 | No | Yes |

| | | | | | | |
|--------------|---|-----------|----------------------|-----|----|-----|
| | | 0010 0000 | None, except for ACC | 081 | | |
| "2460813579" | 6 | 0000 0000 | No | 246 | No | Yes |
| | | 0100 0000 | None, except for ACC | 081 | | |
| "2460813579" | 7 | 0000 0000 | No | 246 | No | Yes |
| | | 1000 0000 | None, except for ACC | 081 | | |
| "2460813579" | 8 | 0000 0001 | No | 246 | No | Yes |
| | | 0000 0000 | None, except for ACC | 081 | | |
| "2460813579" | 9 | 0000 0010 | No | 246 | No | Yes |
| | | 0000 0000 | None, except for ACC | 081 | | |

| | | | | | | | |
|----------|--------------|--------|------------------------|---|------------|-----|-----|
| Test (e) | "2460813579" | 0 | 1111 1011 1111 1110 | No All, except ACC on USIM | 246 081 | Yes | Yes |
| | "2460813579" | 1 | 1111 1011 1111 1101 | No All, except ACC on USIM | 246 081 | Yes | Yes |
| | "2460813579" | 2 | 1111 1011 1111 1011 | No All, except ACC on USIM | 246 081 | Yes | Yes |
| | "2460813579" | 3 | 1111 1011 1111 0111 | No All, except ACC on USIM | 246 081 | Yes | Yes |
| | "2460813579" | 4 | 1111 1011 1110 1111 | No All, except ACC on USIM | 246 081 | Yes | Yes |
| | "2460813579" | 5 | 1101 1011 1101 1111 | No All, except ACC on USIM | 246 081 | Yes | Yes |
| | "2460813579" | 6 | 1111 1011 1011 1111 | No All, except ACC on USIM | 246 081 | Yes | Yes |
| | "2406813579" | 7 | 1111 1011 0111 1111 | No All, except ACC on USIM | 246 081 | Yes | Yes |
| | "2460813579" | 8 | 1111 1010 1111 1111 | No All, except ACC on USIM | 246 081 | Yes | Yes |
| | "2460813579" | 9 | 1111 1001 1111 1111 | No All, except ACC on USIM | 246 081 | Yes | Yes |
| Test (f) | "24608135x9" | 11 & x | 0000 0111 1111 1111 | Yes All, except ACC greater than 11 | 246 082 | No | No |
| | " | 11 & x | 0000 0011 1111 1111 | No All, except ACC greater than 11 | 246 082 | No | Yes |
| | " | 11 & x | 0000 0000 0000 0000 | No None | 246 082 | Yes | Yes |
| | "24608135x9" | 12 & x | 0000 0111 1111 1111 | Yes All, except ACC greater than 11 | 244 001 | No | No |
| | " | 12 & x | 0000 0011 1111 1111 | No All, except ACC greater than 11 | 244 001 | No | Yes |
| | " | 12 & x | 0000 0000 0000 0000 | No None | 244 001 | Yes | Yes |
| | "24608135x9" | 13 & x | 0000 0111 1111 1111 | Yes All, except ACC greater than 11 | 244 001 | No | No |
| | " | 13 & x | 0000 0011 | No | 244 | No | Yes |

| | | | | | | | |
|--|--------------|--------|------------------------|--|------------|-----|-----|
| | | | 1111 1111 | All, except ACC greater than 11 | 001 | | |
| " | 13 & x | | 0000 0000 0000 0000 | No None | 244 001 | Yes | Yes |
| "24608135x9" | 14 & x | | 0000 0111 1111 1111 | Yes All, except ACC greater than 11 | 244 001 | No | No |
| " | 14 & x | | 0000 0011 1111 1111 | No All, except ACC greater than 11 | 244 001 | No | Yes |
| " | 14 & x | | 0000 0000 0000 0000 | No None | 244 001 | Yes | Yes |
| "24608135x9" | 15 & x | | 0000 0111 1111 1111 | Yes All, except ACC greater than 11 | 246 082 | No | No |
| " | 15 & x | | 0000 0011 1111 1111 | No All, except ACC greater than 11 | 246 082 | No | Yes |
| " Set "x" to an arbitrary value in the range 0 to 9 | 15 & x | | 0000 0000 0000 0000 | No None | 246 082 | Yes | Yes |
| Test (g) | "2460813579" | 11 & x | 0000 1111 1111 1111 | Yes All normal ACC and ACC on USIM | 246 081 | No | No |
| " | | 11 & x | 0000 1011 1111 1111 | No All normal ACC and ACC on USIM | 246 081 | No | Yes |
| "2460813579" | | 12 & x | 0001 0111 1111 1111 | Yes All normal ACC and ACC on USIM | 246 082 | No | No |
| " | | 12 & x | 0001 0011 1111 1111 | No All normal ACC and ACC on USIM | 246 082 | No | Yes |
| "2460813579" | | 13 & x | 0010 0111 1111 1111 | Yes All normal ACC and ACC on USIM | 246 082 | No | No |
| " | | 13 & x | 0010 0011 1111 1111 | No All normal ACC and ACC on USIM | 246 082 | No | Yes |
| "2460813579" | | 14 & x | 0100 0111 1111 1111 | Yes All normal ACC and ACC on USIM | 246 082 | No | No |
| " | | 14 & x | 0100 0011 1111 1111 | No All normal ACC and ACC on USIM | 246 082 | No | Yes |
| "2460813579" | | 15 & x | 1000 0111 1111 1111 | Yes All normal ACC and ACC on USIM | 246 081 | No | No |

| | | | | | | | |
|----------|--|--------|------------------------|---|------------|-----|-----|
| | " Set "x" to an arbitrary value in the range 0 to 9 | 15 & x | 1000 0011 1111 1111 | No All normal ACC and ACC on USIM | 246 081 | No | Yes |
| Test (h) | "2460813579" | 11 & x | 1111 0011 1111 1111 | No All, except "special" ACC on USIM | 246 081 | Yes | Yes |
| | " | 11 & x | 1111 0111 1111 1111 | Yes All, except "special" ACC on USIM | 246 081 | Yes | Yes |
| | "2460813579" | 12 & x | 1110 1011 1111 1111 | No All, except "special" ACC on USIM | 246 082 | Yes | Yes |
| | " | 12 & x | 1110 1111 1111 1111 | Yes All, except "special" ACC on USIM | 246 082 | Yes | Yes |
| | "2460813579" | 13 & x | 1101 1011 1111 1111 | No All, except "special" ACC on USIM | 246 082 | Yes | Yes |
| | " | 13 & x | 1101 1111 1111 1111 | Yes All, except "special" ACC on USIM | 246 082 | Yes | Yes |
| | "2460813579" | 14 & x | 1011 1011 1111 1111 | No All, except "special" ACC on USIM | 246 082 | Yes | Yes |
| | " | 14 & x | 1011 1111 1111 1111 | Yes All, except "special" ACC on USIM | 246 082 | Yes | Yes |
| | "2460813579" | 15 & x | 0111 1011 1111 1111 | No All, except "special" ACC on USIM | 246 081 | Yes | Yes |
| | " Set "x" to an arbitrary value in the range 0 to 9 | 15 & x | 0111 1111 1111 1111 | Yes All, except "special" ACC on USIM | 246 081 | Yes | Yes |



NOTE: UE adopts Access Class 0-9, based on IMSI, see TS 22.011 [6].
 Access Class in USIM, See TS 31.102 [4], EF ACC, "6F 78".

ECs: Emergency Calls.

EC Bit: In case of GERAN:
 Bit 3 of Octet 3 of RACH Control Parameters, See TS 44.018 Section 10.5.2.29.
 In case of UTRAN
 Access Class 10 defined in TS 22.011 clause 4.4.

AC Bit: See Access Class Barred List defined in TS 25.331 clause 10.3.2.1.

HPLMN: Country means that the MCC of the VPLMN is the same as the MCC of the HPLMN.

Figure 5-1: Access control information

6 Security related Tests

6.1 PIN handling

6.1.1 Entry of PIN

6.1.1.1 Definition and applicability

The PIN is a number used to authenticate the user to the UICC for security. Entry of the correct PIN allows PIN-protected data to be accessed over the UICC-Terminal interface.

6.1.1.2 Conformance requirement

Following insertion of the UICC and switching on the UE, the Terminal shall check the state of the PIN. If the PIN is enabled, the Terminal asks the user for PIN verification.

The VERIFY PIN function verifies the PIN presented by the Terminal to the UICC.

Reference:

- TS 102 221 [5], subclauses 9 and 11.1.9;
- TS 31.102 [4], clause 6;
- TS 22.030 [12], subclause 6.6.1.

6.1.1.3 Test purpose

- 1) To verify that the PIN verification procedure is performed by the Terminal correctly.
- 2) To verify that the basic public MMI string is supported.

6.1.1.4 Method of test

6.1.1.4.1 Initial conditions

The Terminal is connected to a UICC or UICC simulator with the PIN enabled, and powered off.

The default UICC is used.

6.1.1.4.2 Procedure

- a) The Terminal is powered on.
- b) When the UE is in the "PIN check" mode, the sequence "2468#" shall be entered.

6.1.1.5 Acceptance criteria

- 1) After step b) the Terminal shall send a VERIFY PIN command to the UICC, with parameter P2 = "01".
- 2) After step b) the UE shall give an indication "OK", following a successful execution of the command.

6.1.2 Change of PIN

6.1.2.1 Definition and applicability

The PIN may be changed by the user, by entering the old and new PIN. The length of the PIN is between 4 and 8 digits.

6.1.2.2 Conformance requirement

The Terminal shall support the change of PIN procedure as defined in TS 102 221 [5], subclause 11.1.10.

Reference:

- TS 102 221 [5], subclauses 9 and 11.1.10;
- TS 31.102 [4], clause 6;
- TS 22.030 [12], subclause 6.6.2.

6.1.2.3 Test purpose

- 1) To verify that the PIN substitution procedure is performed correctly by the Terminal.
- 2) To verify that the basic public MMI string is supported.

6.1.2.4 Method of test

6.1.2.4.1 Initial conditions

The Terminal is connected to a UICC or UICC simulator with the PIN enabled.

The default UICC is used.

The Terminal is powered-on, with the correct PIN entered.

6.1.2.4.2 Procedure

- a) Enter "***04*2468*01234567*01234567#".
- b) The UE is switched off and on.
- c) When the UE is in the "PIN check" mode, the sequence "2468#" shall be entered.
- d) The UE is switched off and on.
- e) When the UE is in the "PIN-check", mode the sequence "01234567#" shall be entered.

6.1.2.5 Acceptance criteria

- 1) After step a), the Terminal shall send a CHANGE PIN command to the UICC, with the parameter P2 set to "01".
- 2) Following the successful execution of the command, the UE shall give an indication that the new PIN is accepted.
- 3) After step c), the UE shall give an indication that the entered PIN is not accepted.
- 4) After step e), the UE shall give an indication "OK".

6.1.3 Unblock PIN

6.1.3.1 Definition and applicability

After three consecutive wrong entries of the PIN, the PIN shall become blocked. The Unblock PIN command is used to unblock the PIN. This function may be performed whether or not the PIN is blocked.

6.1.3.2 Conformance requirement

The Terminal shall support the Unblock PIN command, as defined in TS 102 221 [5], subclause 11.1.13.

Reference:

- TS 102 221 [5], subclause 11.1.13;
- TS 31.102 [4], clause 6;
- TS 22.030 [12], subclause 6.6.3.

6.1.3.3 Test purpose

- 1) To verify that the PIN unblocking procedure is performed correctly.
- 2) To verify that the basic public MMI string is supported.

6.1.3.4 Method of test

6.1.3.4.1 Initial conditions

The Terminal is connected to the UICC simulator.

The default UICC is used.

6.1.3.4.2 Procedure

- a) The Terminal is powered on and the correct PIN is entered.
- b) Enter "***05*13243546*1234*1234#"
- c) The Terminal is powered off and on.
- d) Enter the new PIN: "1234#".
- e) The Terminal is powered off and on.
- f) Enter a wrong PIN three times.
- g) Enter "***05*13243546*2468*2468#".
- h) The Terminal is powered off and on.
- i) Enter the new PIN: "2468#".

6.1.3.5 Acceptance criteria

- 1) After step b), the Terminal shall send an UNBLOCK PIN command to the UICC, with parameter P2 = "01".
- 2) After step d), the Terminal shall indicate that the PIN has been accepted.
- 3) After step f), the Terminal shall indicate that the PIN has been blocked.
- 4) After step g), the Terminal shall send an UNBLOCK PIN command to the UICC, with parameter P2 = "01".
- 5) After step i), the Terminal shall indicate that the PIN has been accepted.

6.1.4 Entry of PIN2

6.1.4.1 Definition and applicability

The PIN2 is a number used to authenticate the user to the UICC for security. Entry of the correct PIN2 allows PIN2-protected data to be accessed over the UICC-Terminal interface.

6.1.4.2 Conformance requirement

Before allowing the access to PIN2 protected data, the Terminal shall ask the user for PIN2 verification. Only after presenting the PIN2, the user shall get access to these data.

The VERIFY PIN function verifies the PIN2 presented by the Terminal to the UICC.

Reference:

- TS 102 221 [5], subclauses 9 and 11.1.9;
- TS 31.102 [4], clause 6;
- TS 22.030 [12], subclause 6.6.1.

6.1.4.3 Test purpose

- 1) To verify that the PIN2 verification procedure is performed by the Terminal correctly.
- 2) To verify that the basic public MMI string is supported.

6.1.4.4 Method of test

6.1.4.4.1 Initial conditions

The Terminal is connected to a UICC or UICC simulator with the PIN enabled, and powered off.

The default UICC is used.

NOTE: To perform the UPDATE FDN data (as described in the procedure below), the default FDN UICC may be used.

6.1.4.4.2 Procedure

- a) The Terminal is powered on and the correct PIN is entered.
- b) The access to a PIN2 protected data field shall be performed (e.g. UPDATE FDN)
- c) When the UE is in the "PIN2 check" mode, the sequence "3579#" shall be entered.

6.1.4.5 Acceptance criteria

- 1) After step c) the Terminal shall send a VERIFY PIN command to the UICC, with parameter P2 = "81".
- 2) After step c) the UE shall give an indication "OK", following a successful execution of the command.

6.1.5 Change of PIN2

6.1.5.1 Definition and applicability

The PIN2 may be changed by the user, by entering the old and new PIN2. The length of the PIN2 is between 4 and 8 digits.

6.1.5.2 Conformance requirement

The Terminal shall support the change of PIN2 procedure as defined in TS 102 221 [5], subclause 11.1.10.

Reference:

- TS 102 221 [5], subclauses 9 and 11.1.10;
- TS 31.102 [4], clause 6;

- TS 22.030 [12], subclause 6.6.2.

6.1.5.3 Test purpose

- 1) To verify that the PIN2 substitution procedure is performed correctly by the Terminal.
- 2) To verify that the basic public MMI string is supported.

6.1.5.4 Method of test

6.1.5.4.1 Initial conditions

The Terminal is connected to a UICC or UICC simulator with the PIN2 enabled.

The default UICC is used.

NOTE: To perform the UPDATE FDN data (as described in the procedure below), the default FDN UICC may be used.

The Terminal is powered-on, with the correct PIN entered.

6.1.5.4.2 Procedure

- a) Enter "***042*3579*12345678*12345678#".
- b) The UE is switched off and on and the correct PIN is entered.
- c) The access to a PIN2 protected data field shall be performed (e.g. UPDATE FDN).
- d) When the UE is in the "PIN2 check" mode, the sequence "3579#" shall be entered.
- e) The UE is switched off and on and the correct PIN is entered.
- f) The access to a PIN2 protected data field shall be performed (e.g. UPDATE FDN).
- g) When the UE is in the "PIN2 check", mode the sequence "12345678#" shall be entered.

6.1.5.5 Acceptance criteria

- 1) After step a), the Terminal shall send a CHANGE PIN2 command to the UICC, with the parameter P2 set to "81".
- 2) Following the successful execution of the command, the UE shall give an indication that the new PIN2 is accepted.
- 3) After step d), the UE shall give an indication that the entered PIN2 is not accepted.
- 4) After step g), the UE shall give an indication "OK".

6.1.6 Unblock PIN2

6.1.6.1 Definition and applicability

After three consecutive wrong entries of the PIN2, the PIN2 shall become blocked. The Unblock PIN2 command is used to unblock the PIN2. This function may be performed whether or not the PIN2 is blocked.

6.1.6.2 Conformance requirement

The Terminal shall support the Unblock PIN2 command, as defined in TS 102 221 [5], subclause 11.1.13.

Reference:

- TS 102 221[5], subclauses 9 and 11.1.13;
- TS 31.102 [4], clause 6;
- TS 22.030 [12], subclause 6.6.3.

6.1.6.3 Test purpose

- 1) To verify that the PIN2 unblocking procedure is performed correctly.
- 2) To verify that the basic public MMI string is supported.

6.1.6.4 Method of test

6.1.6.4.1 Initial conditions

The Terminal is connected to the UICC simulator.

The default UICC is used.

NOTE: To perform the UPDATE FDN data (as described in the procedure below), the default FDN UICC may be used.

6.1.6.4.2 Procedure

- a) The Terminal is powered on and the correct PIN is entered.
- b) Enter "***052*08978675*1234*1234#".
- c) The Terminal is powered off and on and the correct PIN is entered.
- d) The access to a PIN2 protected data field shall be performed (e.g. UPDATE FDN).
- e) Enter the new PIN2: "1234#".
- f) The Terminal is powered off and on and the correct PIN is entered.
- g) The access to a PIN2 protected data field shall be performed (e.g. UPDATE FDN).
- h) Enter a wrong PIN2 three times.
- i) Enter "***052*08978675*3579*3579#".
- j) The Terminal is powered off and on and the correct PIN is entered.
- k) The access to a PIN2 protected data field shall be performed (e.g. UPDATE FDN).
- l) Enter the new PIN2: "3579#".

6.1.6.5 Acceptance criterias

- 1) After step b), the Terminal shall send an UNBLOCK PIN command to the UICC, with parameter P2 = "81".
- 2) After step e), the Terminal shall indicate that the PIN2 has been accepted.
- 3) After step h), the Terminal shall indicate that the PIN2 has been blocked.
- 4) After step i), the Terminal shall send an UNBLOCK PIN command to the UICC, with parameter P2 = "81".
- 5) After step l), the Terminal shall indicate that the PIN2 has been accepted.

6.1.7 Replacement of PIN

6.1.7.1 Definition and applicability

The Universal PIN may be used to replace a PIN used to authenticate the user to the UICC for security. In this case entry of the correct Universal PIN allows PIN-protected data to be accessed over the UICC-Terminal interface. TS 102 221[5] defines the range of "01" to "08" as key reference of the PIN on a multi-verification capable UICC.

6.1.7.2 Conformance requirement

The Terminal shall support the usage of the Universal PIN as replacement PIN and the replacement procedure as defined in TS 102 221 [5], subclause 11.1.11, as well as the procedure to disable the replacement defined in TS 102 221 [5], subclause 11.1.12.

Reference:

- TS 102 221 [5], subclauses 9, 11.1.11 and 11.1.12;
- TS 31.102 [4], clause 6.

6.1.7.3 Test purpose

- 1) To verify that the PIN replacement is supported by the Terminal correctly.
- 2) To verify that the PIN replacement procedure is performed by the Terminal correctly.
- 3) To verify that the procedure to disable the PIN replacement is performed by the Terminal correctly.

6.1.7.4 Method of test

6.1.7.4.1 Initial conditions

The Terminal is connected to the UICC simulator with the PIN enabled, and powered off.

The default UICC is used.

6.1.7.4.2 Procedure

- a) The Terminal is powered on.
- b) When the Terminal is in the "PIN check" mode, the sequence "2468#" shall be entered.
- c) The user shall initiate an MMI dependent procedure to replace the PIN by the Universal PIN.
- d) The Terminal is powered off and on and when the Terminal is in "PIN check" mode the sequence "2468#" shall be entered.
- e) The correct Universal PIN is entered.
- f) The user shall initiate an MMI dependent procedure to disable the replacement of the PIN by the Universal PIN.
- g) The Terminal is powered off and on and when the Terminal is in "PIN check" mode the sequence "2839#" shall be entered.
- h) The correct PIN is entered.

6.1.7.5 Acceptance criteria

- 1) After step b) the Terminal shall send a VERIFY PIN command to the UICC, with parameter P2 = "01".
- 2) After step c), the Terminal shall send a DISABLE PIN command to the UICC, with parameter P1="91" and P2 = "01".

- 3) After step d) the Terminal shall send a VERIFY PIN command to the UICC, with parameter P2 = "11" and after unsuccessful execution of the command the Terminal shall indicate that the PIN has not been accepted.
- 4) After step e) the Terminal shall send a VERIFY PIN command to the UICC, with parameter P2 = "11" and after successful execution of the command the Terminal shall indicate that the PIN has been accepted.
- 5) After step f), the Terminal shall send an ENABLE PIN command to the UICC, with parameter P2 = "01".
- 6) After step g) the Terminal shall send a VERIFY PIN command to the UICC, with parameter P2 = "01" and after unsuccessful execution of the command the Terminal shall indicate that the PIN has not been accepted.
- 7) After step e) the Terminal shall send a VERIFY PIN command to the UICC, with parameter P2 = "01" and after successful execution of the command the Terminal shall indicate that the PIN has been accepted.

6.1.8 Change of Universal PIN

6.1.8.1 Definition and applicability

The Universal PIN may be changed by the user, by entering the old and new Universal PIN. The length of the Universal PIN is between 4 and 8 digits.

6.1.8.2 Conformance requirement

The Terminal shall support the change of PIN procedure as defined in TS 102 221 [5], subclause 11.1.10.

Reference:

- TS 102 221 [5], subclauses 9 and 11.1.10;
- TS 31.102 [4], clause 6.

6.1.8.3 Test purpose

To verify that the PIN substitution procedure is performed correctly by the Terminal.

6.1.8.4 Method of test

6.1.8.4.1 Initial conditions

The Terminal is connected to a UICC or UICC simulator with the PIN enabled.

The default UICC is used with the following exception:

- The Universal PIN is used as a replacement of the PIN.

The Terminal is powered-on, with the correct Universal PIN entered.

6.1.8.4.2 Procedure

- a) The user shall initiate an MMI dependent procedure to change the Universal PIN to "01234567".
- b) The UE is switched off and on.
- c) When the UE is in the "PIN check" mode, the sequence "2839#" shall be entered.
- d) The UE is switched off and on.
- e) When the UE is in the "PIN check", mode the sequence "01234567#" shall be entered.

6.1.8.5 Acceptance criteria

- 1) After step a), the Terminal shall send a CHANGE PIN command to the UICC, with the parameter P2 set to "11".

- 2) Following the successful execution of the command, the UE shall give an indication that the new (Universal) PIN is accepted.
- 3) After step c), the UE shall give an indication that the entered (Universal) PIN is not accepted.
- 4) After step e), the UE shall give an indication "OK".

6.1.9 Unblock Universal PIN

6.1.9.1 Definition and applicability

After three consecutive wrong entries of the PIN, the PIN shall become blocked. The Unblock PIN command is used to unblock the PIN. This function may be performed whether or not the PIN is blocked.

6.1.9.2 Conformance requirement

The Terminal shall support the Unblock PIN command, as defined in TS 102 221 [5], subclause 11.1.13.

Reference:

- TS 102 221 [5], subclause 11.1.13;
- TS 31.102 [4], clause 6.

6.1.9.3 Test purpose

To verify that the PIN unblocking procedure is performed correctly.

6.1.9.4 Method of test

6.1.9.4.1 Initial conditions

The Terminal is connected to the UICC simulator.

The default UICC is used.

6.1.9.4.2 Procedure

- a) The Terminal is powered on and the correct PIN is entered.
- b) The user shall initiate an MMI dependent procedure to unblock the Universal PIN and set the new Universal PIN value to "1234"
- c) The Terminal is powered off and on.
- d) Enter the new PIN: "1234#".
- e) The Terminal is powered off and on.
- f) Enter a wrong PIN three times.
- g) The user shall initiate an MMI dependent procedure to unblock the Universal PIN and set the new Universal PIN value to "2839".
- h) The Terminal is powered off and on.
- i) Enter the new PIN: "2839#".

6.1.9.5 Acceptance criteria

- 1) After step b), the Terminal shall send an UNBLOCK PIN command to the UICC, with parameter P2 = "11".

- 2) After step d), the Terminal shall indicate that the (Universal) PIN has been accepted.
- 3) After step f), the Terminal shall indicate that the (Universal) PIN has been blocked.
- 4) After step g), the Terminal shall send an UNBLOCK PIN command to the UICC, with parameter P2 = "11".
- 5) After step j), the Terminal shall indicate that the (Universal) PIN has been accepted.

6.1.10 Entry of PIN on multi-verification capable UICCs

6.1.10.1 Definition and applicability

The PIN is a number used to authenticate the user to the UICC for security. Entry of the correct PIN allows PIN-protected data to be accessed over the UICC-Terminal interface. TS 102 221[5] defines the range of "01" to "08" as key reference of the PIN on a multi-verification capable UICC.

6.1.10.2 Conformance requirement

Following insertion of the UICC and switching on the UE, the Terminal shall check the state of the PIN. If the PIN is enabled, the Terminal asks the user for PIN verification.

The VERIFY PIN function verifies the PIN presented by the Terminal to the UICC.

Reference:

- TS 102 221[5], subclauses 9 and 11.1.9;
- TS 31.102 [4], clause 6;
- TS 22.030 [12], subclause 6.6.1.

6.1.10.3 Test purpose

- 1) To verify that the PIN verification procedure is performed by the Terminal correctly.
- 2) To verify that the basic public MMI string is supported.
- 3) To verify that the Terminal supports key references in the range of "01" to "08" as PIN.

6.1.10.4 Method of test

6.1.10.4.1 Initial conditions

The Terminal is connected to the UICC simulator with the PIN enabled, and powered off.

The default UICC is used with the following exceptions:

The UICC shall be configured to use "07" as the key reference of the PIN and "87" as key reference of the PIN2 with the following values:

PIN

Key reference: 07

Logically: 8642

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 38 | 36 | 34 | 32 | FF | FF | FF | FF |

Unblock PIN

Key reference 07

Logically: 64534231

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 36 | 34 | 35 | 33 | 34 | 32 | 33 | 31 |

PIN2

Key reference 87

Logically: 9753

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 39 | 37 | 35 | 33 | FF | FF | FF | FF |

Unblock PIN2

Key reference 87

Logically: 57687980

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 35 | 37 | 36 | 38 | 37 | 39 | 38 | 30 |

6.1.10.4.2 Procedure

- a) The Terminal is powered on.
- b) When the UE is in the "PIN check" mode, the sequence "8642#" shall be entered.

6.1.10.5 Acceptance criteria

- 1) After step b) the Terminal shall send a VERIFY PIN command to the UICC, with parameter P2 = "07".
- 2) After step b) the UE shall give an indication "OK", following a successful execution of the command.

6.1.11 Change of PIN on multi-verification capable UICCs

6.1.11.1 Definition and applicability

The PIN may be changed by the user, by entering the old and new PIN. The length of the PIN is between 4 and 8 digits. TS 102 221[5] defines the range of "01" to "08" as key reference of the PIN on a multi-verification capable UICC.

6.1.11.2 Conformance requirement

The Terminal shall support the change of PIN procedure as defined in TS 102 221[5], subclause 11.1.10.

Reference:

- TS 102 221 [5], subclauses 9 and 11.1.10;
- TS 31.102 [4], clause 6;
- TS 22.030 [12], subclause 6.6.2.

6.1.11.3 Test purpose

- 1) To verify that the PIN substitution procedure is performed correctly by the Terminal.
- 2) To verify that the basic public MMI string is supported.
- 3) To verify that the Terminal supports key references in the range of "01" to "08" as PIN.

6.1.11.4 Method of test

6.1.11.4.1 Initial conditions

The Terminal is connected to the UICC simulator with the PIN enabled.

The default UICC is used with the following exceptions:

The UICC shall be configured to use "07" as the reference of the PIN and "87" as reference of the PIN2 with the following values:

PIN

Key reference: 07

Logically: 8642

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 38 | 36 | 34 | 32 | FF | FF | FF | FF |

Unblock PIN

Key reference 07

Logically: 64534231

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 36 | 34 | 35 | 33 | 34 | 32 | 33 | 31 |

PIN2

Key reference 87

Logically: 9753

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 39 | 37 | 35 | 33 | FF | FF | FF | FF |

Unblock PIN2

Key reference 87

Logically: 57687980

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 35 | 37 | 36 | 38 | 37 | 39 | 38 | 30 |

The Terminal is powered-on, with the correct PIN entered.

6.1.11.4.2 Procedure

- Enter "***04*8642*01234567*01234567#".
- The UE is switched off and on.
- When the UE is in the "PIN check" mode, the sequence "8642#" shall be entered.
- The UE is switched off and on.
- When the UE is in the "PIN check", mode the sequence "01234567#" shall be entered.

6.1.11.5 Acceptance criteria

- 1) After step a), the Terminal shall send a CHANGE PIN command to the UICC, with the parameter P2 set to "07".
- 2) Following the successful execution of the command, the UE shall give an indication that the new PIN is accepted.
- 3) After step c), the UE shall give an indication that the entered PIN is not accepted.
- 3) After step e), the UE shall give an indication "OK".

6.1.12 Unblock PIN on multi-verification capable UICCs

6.1.12.1 Definition and applicability

After three consecutive wrong entries of the PIN, the PIN shall become blocked. The Unblock PIN command is used to unblock the PIN. This function may be performed whether or not the PIN is blocked. TS 102 221[5] defines the range of "01" to "08" as key reference of the PIN on a multi-verification capable UICC.

6.1.12.2 Conformance requirement

The Terminal shall support the Unblock PIN command, as defined in TS 102 221 [5], subclause 11.1.13.

Reference:

- TS 102 221 [5], subclauses 9 and 11.1.13;
- TS 31.102 [4], clause 6;
- TS 22.030 [12], subclause 6.6.3.

6.1.12.3 Test purpose

- 1) To verify that the PIN unblocking procedure is performed correctly.
- 2) To verify that the basic public MMI string is supported.
- 3) To verify that the Terminal supports key references in the range of "01" to "08" as PIN.

6.1.12.4 Method of test

6.1.12.4.1 Initial conditions

The Terminal is connected to the UICC simulator.

The default UICC is used with the following exceptions:

The UICC shall be configured to use "07" as the reference of the PIN and "87" as reference of the PIN2 with the following values:

PIN

Key reference: 07

Logically: 8642

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 38 | 36 | 34 | 32 | FF | FF | FF | FF |

Unblock PIN

Key reference 07

Logically: 64534231

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 36 | 34 | 35 | 33 | 34 | 32 | 33 | 31 |

PIN2

Key reference 87

Logically: 9753

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 39 | 37 | 35 | 33 | FF | FF | FF | FF |

Unblock PIN2

Key reference 87

Logically: 57687980

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 35 | 37 | 36 | 38 | 37 | 39 | 38 | 30 |

6.1.12.4.2 Procedure

- a) The Terminal is powered on and the correct PIN is entered.
- b) Enter "***05*64534231*1234*1234#".
- c) The Terminal is powered off and on.
- d) Enter the new PIN: "1234#".
- e) The Terminal is powered off and on.
- f) Enter a wrong PIN three times.
- g) Enter "***05*64534231*8642*8642#".
- h) The Terminal is powered off and on.
- i) Enter the new PIN: "8642#".

6.1.12.5 Acceptance criteria

- 1) After step b), the Terminal shall send an UNBLOCK PIN command to the UICC, with parameter P2 = "07".
- 2) After step d), the Terminal shall indicate that the PIN has been accepted.
- 3) After step f), the Terminal shall indicate that the PIN has been blocked.
- 4) After step g), the Terminal shall send an UNBLOCK PIN command to the UICC, with parameter P2 = "07".
- 5) After step j), the Terminal shall indicate that the PIN has been accepted.

6.1.13 Entry of PIN2 on multi-verification capable UICCs

6.1.13.1 Definition and applicability

The PIN2 is a number used to authenticate the user to the UICC for security. Entry of the correct PIN2 allows PIN2-protected data to be accessed over the UICC-Terminal interface. TS 102 221[5] defines the range of "81" to "88" as key reference of the PIN2 on a multi-verification capable UICC.

6.1.13.2 Conformance requirement

Before allowing the access to PIN2 protected data, the Terminal shall ask the user for PIN2 verification. Only after presenting the PIN2, the user shall get access to these data.

The VERIFY PIN function verifies the PIN2 presented by the Terminal to the UICC.

Reference:

- TS 102 221[5], 9 and subclause 11.1.9;
- TS 31.102 [4], clause 6;
- TS 22.030 [12], subclause 6.6.1.

6.1.13.3 Test purpose

- 1) To verify that the PIN2 verification procedure is performed by the Terminal correctly.
- 2) To verify that the basic public MMI string is supported.
- 3) To verify that the Terminal supports key references in the range of "81" to "88" as PIN2.

6.1.13.4 Method of test

6.1.13.4.1 Initial conditions

The Terminal is connected to the UICC simulator with the PIN enabled, and powered off.

The default UICC is used with the following exceptions:

The UICC shall be configured to use "07" as the reference of the PIN and "87" as reference of the PIN2 with the following values:

PIN

Key reference: 07

Logically: 8642

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 38 | 36 | 34 | 32 | FF | FF | FF | FF |

Unblock PIN

Key reference 07

Logically: 64534231

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 36 | 34 | 35 | 33 | 34 | 32 | 33 | 31 |

PIN2

Key reference 87

Logically: 9753

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 39 | 37 | 35 | 33 | FF | FF | FF | FF |

Unblock PIN2

Key reference 87

Logically: 57687980

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 35 | 37 | 36 | 38 | 37 | 39 | 38 | 30 |

NOTE: To perform the UPDATE FDN data (as described in the procedure below), the default FDN UICC may be used. In this case the above mentioned exceptions shall apply.

6.1.13.4.2 Procedure

- a) The Terminal is powered on and the correct PIN is entered.
- b) The access to a PIN2 protected data field shall be performed (e.g. UPDATE FDN)
- c) When the UE is in the "PIN2 check" mode, the sequence "9753#" shall be entered.

6.1.13.5 Acceptance criteria

- 1) After step b) the Terminal shall send a VERIFY PIN command to the UICC, with parameter P2 = "87".
- 2) After step b) the UE shall give an indication "OK", following a successful execution of the command.

6.1.14 Change of PIN2 on multi-verification capable UICCs

6.1.14.1 Definition and applicability

The PIN2 may be changed by the user, by entering the old and new PIN2. The length of the PIN2 is between 4 and 8 digits. TS 102 221[5] defines the range of "81" to "88" as key reference of the PIN2 on a multi-verification capable UICC.

6.1.14.2 Conformance requirement

The Terminal shall support the change of PIN2 procedure as defined in TS 102 221 [5], subclause 11.1.10.

Reference:

- TS 102 221 [5], subclauses 9 and 11.1.10;
- TS 31.102 [4], clause 6;
- TS 22.030 [12], subclause 6.6.2.

6.1.14.3 Test purpose

- 1) To verify that the PIN2 substitution procedure is performed correctly by the Terminal.
- 2) To verify that the basic public MMI string is supported.
- 3) To verify that the Terminal supports key references in the range of "81" to "88" as PIN2.

6.1.14.4 Method of test

6.1.14.1 Initial conditions

The Terminal is connected to the UICC simulator with the PIN2 enabled.

The default UICC is used with the following exceptions:

The UICC shall be configured to use "07" as the reference of the PIN and "87" as reference of the PIN2 with the following values:

PIN

Key reference: 07

Logically: 8642

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 38 | 36 | 34 | 32 | FF | FF | FF | FF |

Unblock PIN

Key reference 07

Logically: 64534231

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 36 | 34 | 35 | 33 | 34 | 32 | 33 | 31 |

PIN2

Key reference 87

Logically: 9753

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 39 | 37 | 35 | 33 | FF | FF | FF | FF |

Unblock PIN2

Key reference 87

Logically: 57687980

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 35 | 37 | 36 | 38 | 37 | 39 | 38 | 30 |

NOTE: To perform the UPDATE FDN data (as described in the procedure below), the default FDN UICC may be used. In this case the above mentioned exceptions shall apply.

The Terminal is powered-on, with the correct PIN entered.

6.1.14.4.2 Procedure

- Enter "***042*9753*12345678*12345678#".
- The UE is switched off and on and the correct PIN is entered.
- The access to a PIN2 protected data field shall be performed (e.g. UPDATE FDN).
- When the UE is in the "PIN2 check" mode, the sequence "9753#" shall be entered.
- The UE is switched off and on and the correct PIN is entered.
- The access to a PIN2 protected data field shall be performed (e.g. UPDATE FDN).
- When the UE is in the "PIN2-check", mode the sequence "12345678#" shall be entered.

6.1.14.5 Acceptance criteria

- 1) After step a), the Terminal shall send a CHANGE PIN2 command to the UICC, with the parameter P2 set to "87".
- 2) Following the successful execution of the command, the UE shall give an indication that the new PIN2 is accepted.
- 3) After step d), the UE shall give an indication that the entered PIN2 is not accepted.
- 3) After step g), the UE shall give an indication "OK".

6.1.15 Unblock PIN2 on multi-verification capable UICCs

6.1.15.1 Definition and applicability

After three consecutive wrong entries of the PIN2, the PIN2 shall become blocked. The Unblock PIN2 command is used to unblock the PIN2. This function may be performed whether or not the PIN2 is blocked. TS 102 221[5] defines the range of "81" to "88" as key reference of the PIN2 on a multi-verification capable UICC.

6.1.15.2 Conformance requirement

The Terminal shall support the Unblock PIN2 command, as defined in TS 102 221 [5], subclause 11.1.13.

Reference:

- TS 102 221 [5], subclauses 9 and 11.1.13;
- TS 31.102 [4], clause 6;
- TS 22.030 [12], subclause 6.6.3.

6.1.15.3 Test purpose

- 1) To verify that the PIN2 unblocking procedure is performed correctly.
- 2) To verify that the basic public MMI string is supported.
- 3) To verify that the Terminal supports key references in the range of "81" to "88" as PIN2.

6.1.15.4 Method of test

6.1.15.4.1 Initial conditions

The Terminal is connected to the UICC simulator.

The default UICC is used with the following exceptions:

The UICC shall be configured to use "07" as the reference of the PIN and "87" as reference of the PIN2 with the following values:

PIN

Key reference: 07

Logically: 8642

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 38 | 36 | 34 | 32 | FF | FF | FF | FF |

Unblock PIN

Key reference 07

Logically: 64534231

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 36 | 34 | 35 | 33 | 34 | 32 | 33 | 31 |

PIN2

Key reference 87

Logically: 9753

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 39 | 37 | 35 | 33 | FF | FF | FF | FF |

Unblock PIN2

Key reference 87

Logically: 57687980

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 35 | 37 | 36 | 38 | 37 | 39 | 38 | 30 |

NOTE: To perform the UPDATE FDN data (as described in the procedure below), the default FDN UICC may be used. In this case the above mentioned exceptions shall apply.

6.1.15.4.2 Procedure

- a) The Terminal is powered on and the correct PIN is entered.
- b) Enter "***052*57687980*1234*1234#"
- c) The Terminal is powered off and on and the correct PIN is entered.
- d) The access to a PIN2 protected data field shall be performed (e.g. UPDATE FDN).
- e) Enter the new PIN2: "1234#".
- f) The Terminal is powered off and on and the correct PIN is entered.
- g) The access to a PIN2 protected data field shall be performed (e.g. UPDATE FDN).
- h) Enter a wrong PIN2 three times.
- i) Enter "***052*57687980*9753*9753#"
- j) The Terminal is powered off and on and the correct PIN is entered.
- k) The access to a PIN2 protected data field shall be performed (e.g. UPDATE FDN).
- l) Enter the new PIN2: "9753#".

6.1.15.5 Acceptance criterias

- 1) After step b), the Terminal shall send an UNBLOCK PIN command to the UICC, with parameter P2 = "87".
- 2) After step e), the Terminal shall indicate that the PIN2 has been accepted.
- 3) After step h), the Terminal shall indicate that the PIN2 has been blocked.
- 4) After step i), the Terminal shall send an UNBLOCK PIN command to the UICC, with parameter P2 = "87".

5) After step 1), the Terminal shall indicate that the PIN2 has been accepted.

6.1.16 Replacement of PIN with key reference "07"

6.1.16.1 Definition and applicability

The Universal PIN may be used to replace a PIN used to authenticate the user to the UICC for security. In this case entry of the correct Universal PIN allows PIN-protected data to be accessed over the UICC-Terminal interface.

6.1.16.2 Conformance requirement

The Terminal shall support the usage of the Universal PIN as replacement PIN and the replacement procedure as defined in TS 102 221 [5], subclause 11.1.11, as well as the procedure to disable the replacement defined in TS 102 221 [5], subclause 11.1.12.

Reference:

- TS 102 221 [5], subclauses 9, 11.1.11 and 11.1.12;
- TS 31.102 [4], clause 6.

6.1.16.3 Test purpose

- 1) To verify that the PIN replacement is supported by the Terminal correctly.
- 2) To verify that the PIN replacement procedure is performed by the Terminal correctly.
- 3) To verify that the procedure to disable the PIN replacement is performed by the Terminal correctly.
- 4) To verify that the Terminal supports key references in the range of "01" to "08" as PIN.

6.1.16.4 Method of test

6.1.16.4.1 Initial conditions

The Terminal is connected to the UICC simulator with the PIN enabled, and powered off.

The default UICC is used with the following exceptions:

The UICC shall be configured to use "07" as the reference of the PIN and "87" as reference of the PIN2 with the following values:

PIN

Key reference: 07

Logically: 8642

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 38 | 36 | 34 | 32 | FF | FF | FF | FF |

Unblock PIN

Key reference 07

Logically: 64534231

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 36 | 34 | 35 | 33 | 34 | 32 | 33 | 31 |

PIN2

Key reference 87

Logically: 9753

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 39 | 37 | 35 | 33 | FF | FF | FF | FF |

Unblock PIN2

Key reference 87

Logically: 57687980

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 35 | 37 | 36 | 38 | 37 | 39 | 38 | 30 |

6.1.16.4.2 Procedure

- a) The Terminal is powered on.
- b) When the Terminal is in the "PIN check" mode, the sequence "8642#" shall be entered.
- c) The user shall initiate an MMI dependent procedure to replace the PIN by the Universal PIN.
- d) The Terminal is powered off and on and when the Terminal is in "PIN check" mode the sequence "8642#" shall be entered.
- e) The correct Universal PIN is entered.
- f) The user shall initiate an MMI dependent procedure to disable the replacement of the PIN by the Universal PIN.
- g) The Terminal is powered off and on and when the Terminal is in "PIN check" mode the sequence "2839#" shall be entered.
- h) The correct PIN is entered.

6.1.16.5 Acceptance criteria

- 1) After step b) the Terminal shall send a VERIFY PIN command to the UICC, with parameter P2 = "07".
- 2) After step c), the Terminal shall send a DISABLE PIN command to the UICC, with parameter P1="91" and P2 = "07".
- 3) After step d) the Terminal shall send a VERIFY PIN command to the UICC, with parameter P2 = "11" and after unsuccessful execution of the command the Terminal shall indicate that the PIN has not been accepted.
- 4) After step e) the Terminal shall send a VERIFY PIN command to the UICC, with parameter P2 = "11" and after successful execution of the command the Terminal shall indicate that the PIN has been accepted.
- 5) After step f), the Terminal shall send an ENABLE PIN command to the UICC, with parameter P2 = "07".
- 6) After step g) the Terminal shall send a VERIFY PIN command to the UICC, with parameter P2 = "07" and after unsuccessful execution of the command the Terminal shall indicate that the PIN has not been accepted.
- 7) After step e) the Terminal shall send a VERIFY PIN command to the UICC, with parameter P2 = "07" and after successful execution of the command the Terminal shall indicate that the PIN has been accepted.

6.2 Fixed Dialling Numbers (FDN) handling

6.2.1 Terminal and USIM with FDN enabled, EF_{ADN} readable and updateable

6.2.1.1 Definition and applicability

Fixed Dialling Numbers (FDN) is a service defined for the USIM. An enabled FDN service results in call restrictions for the UE. The call restrictions are controlled by the Terminal. To ascertain the type of USIM and state of FDN the UE runs the FDN capability request procedure during UICC-Terminal initialisation. During the initialisation the Terminal shall request the Emergency call codes of the USIM EF_{ECC}. At the time an emergency call is setup using the emergency call code read from the EF_{ECC}, the UE shall use the category of the emergency service indicated.

6.2.1.2 Conformance requirement

- 1) Recognising the state of the USIM (FDN enabled) the UE shall perform the UICC initialisation procedure as specified.
- 2) The UE allows call set-up to a directory number as stored in EF_{FDN}.
- 3) The UE allows call set-up to a directory number as stored in EF_{FDN} and extended by digits in the end.
- 4) The UE does not allow call set-up to a directory number stored in EF_{FDN} but with missing digits at the end.
- 5) The UE does not allow call set-up to a directory number having no reference in EF_{FDN}.
- 6) The UE does not allow call set-up of an emergency call using the emergency numbers stored in the Terminal except "112", "911", the emergency numbers stored on the SIM/USIM and emergency numbers downloaded from the serving network (if any).
- 7) The UE allows call set-up of an emergency call using the emergency number stored in the USIM.

Reference:

- TS 22.101 [11], clauses 8 and A.24;
- TS 31.102 [4], subclauses 4.4.2, 4.2.24, 5.1.1 and 5.3.2;
- TS 24.008 [16], subclause 10.5.4.33.

6.2.1.3 Test purpose

- 1) To verify that the Terminal allows call set-up to a FDN number.
- 2) To verify that the Terminal allows call set-up to a FDN number extended by some digits in the end.
- 3) To verify that the Terminal rejects call set-up to number having no reference in EF_{FDN}.
- 4) To verify that the Terminal rejects call set-up to a FDN number not completely corresponding to an entry in EF_{FDN}.
- 5) To verify that the Terminal does not allow emergency call set-up using the emergency number stored in the Terminal except "112", "911", the emergency numbers stored on the SIM/USIM and emergency numbers downloaded from the serving network (if any).
- 6) To verify that the Terminal allows emergency call set-up using the emergency number stored in the UISM.

6.2.1.4 Method of test

6.2.1.4.1 Initial conditions

The USS (in case of a Terminal accessing UTRAN)/ SS (in case of a Terminal accessing GERAN) transmits on the BCCH, with the following network parameters

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 246/081/0001.
- Access control: unrestricted.

The default FDN UICC with FDN service enabled and EF_{ADN} readable and updateable is installed into the Terminal.

The following expectation applies:

EF_{ECC} (Emergency Call Codes)

Logically: Emergency call code: "122";
 Emergency call code alpha identifier: "TEST";
 Emergency call Service Category: RFU.

| | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 |
| Hex | 21 | F2 | FF | 54 | 45 | 53 | 54 | 00 |

6.2.1.4.2 Procedure

- a) The UE is powered on and PIN is entered.
- b) Using the MMI a call set-up to the fixed dialling number 1 (record 1) is attempted.
- c) Using the MMI a call set-up to the fixed dialling number 2 (record 2) extended by "123" in the end is attempted.
- d) Using the MMI a call set-up to a number which is equal to the fixed dialling number 3 (record 3) without the last digit is attempted, e.g. by recalling the fixed dialling number 3 and deleting the last digit (only in display).
- e) Using the MMI a call set-up to the number "1234567" is attempted.
- f) Using the MMI an emergency call set-up is attempted using an emergency call code stored in the Terminal, but not "112", "911" nor one of the emergency numbers stored on the SIM/USIM emergency numbers downloaded from the serving network (if any).
- g) Using the MMI an emergency call set-up is attempted using either "112", "911" or an emergency number downloaded from the serving network (if any).
- h) Using the MMI an emergency call set-up is attempted using the emergency call code stored in the USIM (i.e. "122").

NOTE: For step f) one of the emergency call codes according to TS 22.101 [11], subclause 10.1, except "112" and "911", shall be used (i.e. "000", "08", "110", "118", "119" or "999").

6.2.1.5 Acceptance criteria

- 1) After step a) the UE is registered and in idle state.
- 2) After steps b) and c) the UE shall allow call set-up and send the requested number across the air interface.
- 3) After steps d), e) and f) the UE shall prevent call set-up.
- 4) After steps g) and h) the UE shall allow emergency call by indicating the call setup as "Emergency Call".

6.2.2 Terminal and USIM with FDN disabled

6.2.2.1 Definition and applicability

Fixed Dialling Numbers (FDN) is a service defined for the USIM. An enabled FDN service results in call restrictions for the UE. Only directory numbers which are stored in the EF_{FDN} may be dialled by the UE. The call restrictions are controlled by the Terminal. To ascertain the type of USIM and state of FDN the UE runs the FDN capability request procedure during UICC-Terminal initialisation. Deactivation of the service by the subscriber is possible under the control of PIN2 and switches the USIM into a "normal", non restrictive USIM.

6.2.2.2 Conformance requirement

- 1) Recognising the state of the USIM (FDN disabled) the UE correctly performs the UICC initialisation procedure.
- 2) The UE allows call set-up to a directory number as stored in EF_{FDN}.
- 3) The UE allows call set-up to a directory number as stored in EF_{ADN}.
- 4) The UE allows call set-up to a directory number given in manually.

Reference:

- R99: TS 22.101 [11], clauses 8 and A.24
- Rel-4: TS 22.101 [11], clauses 9 and A.25
- Rel-5, Rel-6: TS 22.101 [11], clauses 10 and A.25;
- TS 31.102 [4], subclauses 4.4.2.3, 4.2.24, 4.2.47, 5.1.1 and 5.3.2.

6.2.2.3 Test purpose

- 1) To verify that the Terminal as a result of the state of the USIM correctly performs the UICC-Terminal initialisation procedure.
- 2) To verify that the Terminal allows call set-up to a FDN number.
- 3) To verify that the Terminal allows call set-up to a ADN number.
- 4) To verify that the Terminal allows call set-up to manually given number.

6.2.2.4 Method of test

6.2.2.4.1 Initial conditions

The USS (in case of a Terminal accessing UTRAN) /SS (in case of a Terminal accessing GERAN) transmits on the BCCH, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 246/081/0001.
- Access control: unrestricted.

The default FDN UICC is used with the following exception:

EF_{EST} (Enable Service Table)

Logically: Fixed Dialling Numbers disabled.
 Barred Dialling Numbers disabled.
 APN Control list (ACL) disabled.

Coding: B1
binary 0000 0000

The UICC is installed into the Terminal and the UE is powered on.

6.2.2.4.2 Procedure

- a) Using the MMI a call set-up to the fixed dialling number 1 is attempted.
- b) Using the MMI a call set-up to the abbreviated dialling number 1 is attempted.
- c) Using the MMI a call set-up to the number "1234567" is attempted.

6.2.2.5 Acceptance criteria

After steps a), b) and c) the UE shall allow call set-up and send the requested number across the air interface.

6.2.3 Enabling, disabling and updating of FDN

6.2.3.1 Definition and applicability

FDN may be enabled and disabled by the subscriber under control of PIN2. Fixed dialling numbers are read with PIN and updated under control of PIN2.

6.2.3.2 Conformance requirement

- 1) Recognising the state of the USIM (FDN enabled) the UE shall perform the UICC initialisation procedure as specified.
- 2) The UE shall allow updating of EF_{FDN} by the use of PIN2.
- 3) The UE provides means to disable the FDN service by the use of PIN2.
- 4) The UE shall allow the use of EF_{ADN} after disabling of FDN.

Reference:

- R99: TS 22.101 [11], clauses 8 and A.24
- Rel-4: TS 22.101 [11], clauses 9 and A.25
- Rel-5, Rel-6: TS 22.101 [11], clause 10 and A.25;
- TS 31.102 [4], subclauses 4.4.2.3, 4.2.24, 4.2.47, 5.1.1 and 5.3.2.

6.2.3.3 Test purpose

- 1) To verify that the Terminal correctly performs the update of a number in EF_{FDN}.
- 2) To verify that the Terminal correctly disables FDN service.
- 3) To verify that the Terminal recognises disabling of FDN and allows access to EF_{ADN}.

6.2.3.4 Method of test

6.2.3.4.1 Initial conditions

The USS (in case of a Terminal accessing UTRAN)/SS (in case of a Terminal accessing GERAN) transmits on the BCCH, with the following network parameters

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 246/081/0001.
- Access control: unrestricted.

The default FDN UICC with FDN service enabled is installed into the Terminal.

6.2.3.4.2 Procedure

- a) The UE is powered on and PIN is entered.
- b) Using the MMI the directory number "+876543210" is stored in EF_{FDN} as fixed dialling number 1 (record 1). The alpha identifier is not changed. On request of the UE PIN2 is entered.
- c) Using the MMI the FDN disabling procedure is performed. On request of the UE PIN2 is entered.
- d) Using the MMI a call set-up to the abbreviated dialling number 1 (record 1) is attempted.
- e) The UE is soft-powered down.

6.2.3.5 Acceptance criteria

- 1) After step a) the UE is registered and in idle state.
- 2) After step c) the UE shall indicate that the FDN disabling procedure has been successful.
- 3) After step d) the UE shall allow call set-up and send the requested number across the air interface.
- 4) After step e) record 1 in EF_{FDN}, shall contain the following values:

| | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|----|----|-----|-----|-----|-----|
| Hex | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | B13 |
| | 46 | 44 | 4E | 31 | 31 | 31 | 06 | 91 | 78 | 56 | 34 | 12 | F0 |
| | B14 | B15 | B16 | B17 | B18 | B19 | B20 | | | | | | |
| | FF | FF | FF | FF | FF | FF | FF | | | | | | |

6.2.4 Terminal and USIM with FDN enabled, EF_{ADN} readable and updateable (Rel-4 and onwards)

6.2.4.1 Definition and applicability

Fixed Dialling Numbers (FDN) is a service defined for the USIM. An enabled FDN service results in call restrictions for the UE. The call restrictions are controlled by the Terminal. To ascertain the type of USIM and state of FDN the UE runs the FDN capability request procedure during UICC-Terminal initialisation. During the initialisation the Terminal shall request the Emergency call codes of the USIM EF_{ECC}. At the time an emergency call is setup using the emergency call code read from the EF_{ECC}, the UE shall use the category of the emergency service indicated.

6.2.4.2 Conformance requirement

- 1) Recognising the state of the USIM (FDN enabled) the UE shall perform the UICC initialisation procedure as specified.
- 2) The UE allows call set-up to a directory number as stored in EF_{FDN}.

- 3) The UE allows call set-up to a directory number as stored in EF_{FDN} and extended by digits in the end.
- 4) The UE does not allow call set-up to a directory number stored in EF_{FDN} but with missing digits at the end.
- 5) The UE does not allow call set-up to a directory number having no reference in EF_{FDN} .
- 6) The UE does not allow call set-up of an emergency call using the emergency numbers stored in the Terminal except "112", "911", the emergency numbers stored on the SIM/USIM and emergency numbers downloaded from the serving network (if any).
- 7) The UE allows call set-up of an emergency call using the emergency number stored in the USIM.
- 8) The UE shall indicate the emergency service category as "Mountain Rescue", when using the emergency number stored in the USIM.

Reference:

- Rel-4: TS 22.101 [11], clauses 9 and A.25
- Rel-5, Rel-6: TS 22.101 [11], clauses 10 and A.25;
- TS 31.102 [4], subclauses 4.4.2, 4.2.24, 5.1.1 and 5.3.2;
- TS 24.008 [16], subclause 10.5.4.33.

6.2.4.3 Test purpose

- 1) To verify that the Terminal allows call set-up to a FDN number.
- 2) To verify that the Terminal allows call set-up to a FDN number extended by some digits in the end.
- 3) To verify that the Terminal rejects call set-up to number having no reference in EF_{FDN} .
- 4) To verify that the Terminal rejects call set-up to a FDN number not completely corresponding to an entry in EF_{FDN} .
- 5) To verify that the Terminal does not allow emergency call set-up using the emergency number stored in the Terminal except "112", "911", the emergency numbers stored on the SIM/USIM and emergency numbers downloaded from the serving network (if any).
- 6) To verify that the Terminal allows emergency call set-up using the emergency number stored in the UISM.
- 7) To verify that the Terminal reads correctly the emergency service category.

6.2.4.4 Method of test

6.2.4.4.1 Initial conditions

The USS (in case of a Terminal accessing UTRAN)/ SS (in case of a Terminal accessing GERAN) transmits on the BCCH, with the following network parameters

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 246/081/0001.
- Access control: unrestricted.

The default FDN UICC with FDN service enabled and EF_{ADN} readable and updateable is installed into the Terminal.

6.2.4.4.2 Procedure

- a) The UE is powered on and PIN is entered.
- b) Using the MMI a call set-up to the fixed dialling number 1 (record 1) is attempted.

- c) Using the MMI a call set-up to the fixed dialling number 2 (record 2) extended by "123" in the end is attempted.
- d) Using the MMI a call set-up to a number which is equal to the fixed dialling number 3 (record 3) without the last digit is attempted, e.g. by recalling the fixed dialling number 3 and deleting the last digit (only in display).
- e) Using the MMI a call set-up to the number "1234567" is attempted.
- f) Using the MMI an emergency call set-up is attempted using an emergency call code stored in the Terminal, but not "112", "911" nor one of the emergency numbers stored on the SIM/USIM emergency numbers downloaded from the serving network (if any).
- g) Using the MMI an emergency call set-up is attempted using either "112", "911" or an emergency number downloaded from the serving network (if any).
- h) Using the MMI an emergency call set-up is attempted using the emergency call code stored in the USIM (i.e. "122").

NOTE: For step f) one of the emergency call codes according to TS 22.101 [11], subclause 10.1, except "112" and "911", shall be used (i.e. "000", "08", "110", "118", "119" or "999").

6.2.4.5 Acceptance criteria

- 1) After step a) the UE is registered and in idle state.
- 2) After steps b) and c) the UE shall allow call set-up and send the requested number across the air interface.
- 3) After steps d), e) and f) the UE shall prevent call set-up.
- 4) After steps g) and h) the UE shall allow emergency call by indicating the call setup as "Emergency Call".
- 5) After step h) the UE shall send the emergency service category correctly as "Mountain Rescue".

6.3 Void

6.4 Advice of charge (AoC) handling

6.4.1 AoC not supported by USIM

6.4.1.1 Definition and applicability

If the Terminal under test supports Advice of Charge Charging, it shall still look at the capability of the USIM, before responding to any AoCC information from the network.

6.4.1.2 Conformance requirement

- 1) An UE not supporting AoCC and in the outgoing call / U4 call delivered state, on receipt of a CONNECT message containing AoCC information shall acknowledge the CONNECT message but ignore and not acknowledge the AoCC information sent within the CONNECT.
- 2) An UE not supporting AoCC and in the outgoing call / U4 call delivered state, on receipt of a FACILITY message containing AoCC information shall ignore and not acknowledge the AoCC information sent within the FACILITY.
- 3) An UE not supporting AoCC and in the incoming call / U9 call confirmed state, on receipt of a FACILITY message containing AoCC information shall ignore and not acknowledge the AoCC information sent within the FACILITY.
- 4) An UE not supporting AoCC and in the U10 call active state, on receipt of a FACILITY message containing AoCC information, shall ignore and not acknowledge the AoCC information sent within the FACILITY.

References:

- TS 24.008 [16], subclause 5.1.2.1;
- TS 23.086 [9], subclauses 1.2, 1.3, 2.2 and 2.3;
- TS 24.086 [10], clause 2.

6.4.1.3 Test purpose

- 1) To verify that an UE not supporting AoCC (where the Terminal does support AoCC but the USIM does not) and in the outgoing call / U4 call delivered state, on receipt of a CONNECT message containing AoCC information shall acknowledge the CONNECT message but ignore and not acknowledge the AoCC information sent within the CONNECT.
- 2) To verify that an UE not supporting AoCC (where the Terminal does support AoCC but the USIM does not) and in the outgoing call / U4 call delivered state, on receipt of a FACILITY message containing AoCC information shall ignore and not acknowledge the AoCC information sent within the FACILITY.
- 3) To verify that an UE not supporting AoCC (where the Terminal does support AoCC but the USIM does not) and in the incoming call / U9 call confirmed state, on receipt of a FACILITY message containing AoCC information shall ignore and not acknowledge the AoCC information sent within the FACILITY.
- 4) To verify that an UE not supporting AoCC (where the Terminal does support AoCC but the USIM does not) and in the U10 call active state, on receipt of a FACILITY message containing AoCC information, shall ignore and not acknowledge the AoCC information sent within the FACILITY.

6.4.1.4 Method of test

6.4.1.4.1 Initial conditions

The Terminal shall be installed with a UICC or USIM simulator, with all elementary files coded as for the default UICC, with the exception of:

EF_{UST} (USIM Service Table)

Logically: Local Phone Book available;
 User controlled PLMN selector available;
 Fixed dialling numbers available;
 The GSM Access available;
 The Group Identifier level 1 and level 2 not available;
 AoC not available.
 Service n 33 (Packed Switched Domain) shall be set to '1'
 Enabled Services Table available

| | | | | | |
|---------|-----------|-----------|-----------|-----------|-----------|
| Coding: | B1 | B2 | B3 | B4 | B5 |
| binary | xxxx xx11 | xxx0 xxxx | xxxx 1x00 | xxxx x1xx | xxxx xx11 |

The coding of EF_{UST} shall conform with the capabilities of the USIM used.

The generic call set up procedures for UTRAN defined in TS 34.108 [21], subclause 7.2.3.2.3 and 7.2.3.1.3 and defined in 51.010-1[22], clause 10 for GERAN are followed up to and including the reception, or transmission of the ALERTING message by the UE.

6.4.1.4.2 Procedure

- a) For an MO call in the U4 state the USS/SS transmits CONNECT containing AoCC information.
- b) For an MO call in the U4 state the USS/SS transmits FACILITY containing AoCC information.
- c) For an MT call in the U9 state the USS/SS transmits FACILITY containing AoCC information.
- d) For an MO call in the U10 state the USS/SS transmits FACILITY containing AoCC information.

6.4.1.5 Acceptance criteria

In all cases, the UE shall ignore the AoCC information sent to it in the Facility information elements as part of the CONNECT/FACILITY messages and not send any AoCC information acknowledgement. It shall be checked for 15 s that the UE does not transmit any AoCC information acknowledgement after the receipt of AoCC information.

6.4.2 Maximum frequency of ACM updating

6.4.2.1 Definition and applicability

During a call, the ACM shall be updated at the end of every interval. The interval length is the greater of either 5 s or the value given by parameter e2 (part of the Facility Information Element).

6.4.2.2 Conformance requirement

The ACM shall be incremented when the CCM is incremented or once every 5 s, whichever is the longer period.

When used the value '1C' shall be used as SFI for EF_{ACM}, for compatibility reasons the terminal shall accept other values.

Reference:

- TS 22.024 [8], subclause 4.3, part h;
- TS 31.102 [4], subclauses 4.2.9, 5.3.4 and Annex H.1.

6.4.2.3 Test purpose

- 1) To verify that the Terminal, during a call, increments the ACM every 5 s when e2 is less or equal to 5 s.
- 2) To verify that the Terminal is able to handle other values than '1C' as SFI of EF_{ACM}.

6.4.2.4 Method of test

6.4.2.4.1 Initial conditions

The Terminal shall be connected to the USIM simulator, with all elementary files coded as default with the exception of:

EF_{UST} (USIM Service Table)

Logically: Local Phone Book available;
 User controlled PLMN selector available;
 Fixed dialling numbers available;
 The GSM Access available;
 The Group Identifier level 1 and level 2 not available;
 AoC available.
 Service n 33 (Packed Switched Domain) shall be set to '1'
 Enabled Services Table available

| | | | | | |
|---------|-----------|-----------|-----------|-----------|-----------|
| Coding: | B1 | B2 | B3 | B4 | B5 |
| binary | xxxx xx11 | xxx1 xxxx | xxxx 1x00 | xxxx x1xx | xxxx xx11 |

The coding of EF_{UST} shall conform with the capabilities of the USIM used.

EF_{ACM} (Accumulated call meter)

Logically: 50 units

The SFI of EF_{ACM} shall be set to '18'.

EF_{ACMmax} (Accumulated call meter maximum)

Logically: 150 units

The USS (in case of a Terminal accessing UTRAN)/ SS (in case of a Terminal accessing a GERAN) transmits on the BCCH, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 246/081/0001.
- Access control: unrestricted.

User Equipment:

The UE is in MM-state "idle, updated".

In case of a Terminal accessing UTRAN "Expected Sequence A" and in case of a Terminal accessing a GERAN "Expected Sequence B" shall be performed.

6.4.2.4.2 Procedure

- a) The UE is made to initiate a call. The call establishment shall be performed according to the procedures defined in TS 34.108 [21], subclause 7.2.3.2.3 extended by the messages of the AoCC. The call is established with AoCC e-parameters sent in a Facility IE in the CONNECT message, as given below. The UE returns the AoCC acknowledgement after the reception of the CONNECT message. It is an implementation option whether the AoCC acknowledge is sent by the UE before or after the CONNECT ACKNOWLEDGE.
- b) The call is maintained for 90 s, then terminated by the USS. During the call, the USIM-simulator monitors the time intervals between successive INCREMENT commands. As the final INCREMENT command will have occurred as a result of call termination, the time interval calculated since the prior INCREMENT command shall be ignored.

Maximum Duration of Test:

2 minutes.

Expected Sequence A:

| Step | Direction | Message | Comments |
|------|-----------|---------------------------------|--|
| 1 | UE | | The UE is made to initiate a call |
| 2 | UE -> USS | RRC CONNECTION REQUEST | |
| 3 | USS -> UE | RRC CONNECTION SETUP | |
| 4 | UE -> USS | RRC CONNECTION SETUP COMPLETE | |
| 5 | UE -> USS | CM SERVICE REQUEST | |
| 6 | USS -> UE | AUTHENTICATION REQUEST | MM procedure, to ensure the successful start of integrity in step 8 |
| 7 | UE -> USS | AUTHENTICATION RESPONSE | |
| 8 | USS -> UE | SECURITY MODE COMMAND | RRC procedure, start of integrity is mandatory during call setup |
| 9 | UE -> USS | SECURITY MODE COMPLETE | |
| 10 | UE -> USS | SETUP | |
| 11 | USS -> UE | CALL PROCEEDING | |
| 12 | USS -> UE | RADIO BEARER SETUP | To a supported channel type |
| 13 | UE -> USS | RADIO BEARER SETUP COMPLETE | |
| 14 | USS -> UE | ALERTING | |
| 15 | USS -> UE | CONNECT | As default message except contains Facility IE with contents as indicated in i) below |
| | | | Either A or B branch is taken |
| A16 | UE -> USS | CONNECT ACKNOWLEDGE | |
| A17 | UE -> USS | FACILITY | As default message except contains Facility IE with contents as indicated in ii) below |
| B16 | UE -> USS | FACILITY | As default message except contains Facility IE with contents as indicated in ii) below |
| B17 | UE -> USS | CONNECT ACKNOWLEDGE | |
| 18 | | | call duration 90 s after CAI information sent by USS, |
| 19 | USS -> UE | DISCONNECT | |
| 20 | UE -> USS | RELEASE | |
| 21 | USS -> UE | RELEASE COMPLETE | |
| 22 | USS -> UE | RRC CONNECTION RELEASE | |
| 23 | UE -> USS | RRC CONNECTION RELEASE COMPLETE | All connections of RRC are released. |

Expected Sequence B:

| Step | Direction | Message | Comments |
|------|-----------|----------------------|--|
| 1 | UE | | The UE is made to initiate a call |
| 2 | UE -> SS | CHANNEL REQUEST | |
| 3 | SS -> UE | IMMEDIATE ASSIGNMENT | |
| 4 | UE -> SS | CM SERVICE REQUEST | |
| 5 | SS -> UE | CM SERVICE ACCEPT | |
| 6 | UE -> SS | SETUP | |
| 7 | SS -> UE | CALL PROCEEDING | |
| 8 | SS -> UE | ASSIGNMENT COMMAND | To a supported channel type |
| 9 | UE -> SS | ASSIGNMENT COMPLETE | |
| 10 | SS -> UE | ALERTING | |
| 11 | SS -> UE | CONNECT | As default message except contains Facility IE with contents as indicated in i) below |
| | | | Either A or B branch is taken |
| A12 | UE -> SS | CONNECT ACKNOWLEDGE | |
| A13 | UE -> SS | FACILITY | As default message except contains Facility IE with contents as indicated in ii) below |
| B12 | UE -> SS | FACILITY | As default message except contains Facility IE with contents as indicated in ii) below |
| B13 | UE -> SS | CONNECT ACKNOWLEDGE | |
| 14 | | | call duration 90 s after CAI information sent by SS, |
| 15 | SS -> UE | DISCONNECT | |
| 16 | UE -> SS | RELEASE | |
| 17 | SS -> UE | RELEASE COMPLETE | |
| 18 | SS -> UE | CHANNEL RELEASE | The main signalling link is released. |

Specific Message Contents:

- i) **FACILITY Information Element** with **Invoke = ForwardChargeInformation** component type as defined in TS 24.080 [17], subclause 3.6.1 table 3.3.

For ASN.1 description see default message contents in TS 51.010-1 [22], subclause 31.6.4.

The values of the e-parameters within the parameter part of the Facility Information Element shall be set as below:

e-parameters:

| | | | | | | | |
|------------|----|----|----|----|----|----|----|
| parameter: | e1 | e2 | e3 | e4 | e5 | e6 | E7 |
| value | 1 | 1 | 1 | 0 | 0 | 0 | 0 |

Values shown in table are in the format and have units as in TS 22.024 [8], clause 3.

- ii) **FACILITY Information Element** with **Return Result** component type as defined in TS 24.080 [17], subclause 3.6.1 table 3.4.

For ASN.1 description see default message contents in TS 51.010-1 [22], subclause 31.6.4.

6.4.2.5 Acceptance criteria

The UE shall, during a call, send INCREMENT commands to the USIM every 5 s.

6.4.3 Call terminated when ACM greater than ACMmax

6.4.3.1 Definition and applicability

ACMmax gives the maximum value of ACM, at which the current chargeable calls shall be terminated and no further calls may be made (except emergency calls).

6.4.3.2 Conformance requirement

ACM shall be incremented by the value of CCM.

If the ACMmax is valid, and the ACM becomes equal to or exceeds the value of the ACMmax, then all calls in progress, chargeable to the user, shall be terminated by the UE, once the chargeable interval determined by the CAI has elapsed, (except emergency calls).

When used the value '1C' shall be used as SFI for EF_{ACM} , for compatibility reasons the terminal shall accept other values.

Reference:

- TS 22.024 [8], subclauses 4.2.2 and 4.3 (part h);
- TS 102 221 [5], subclause 14.1.3;
- TS 31.102 [4], subclause 4.2.9, 5.3.4 and Annex H.1.

6.4.3.3 Test purpose

- 1) To verify that the Terminal increments the ACM by the correct number of units, even though this may take ACM above ACMmax.
- 2) To verify that the Terminal terminates the call.
- 3) To verify that the INCREMENT EF_{ACM} command is performed correctly by the terminal.
- 4) To verify that the Terminal is able to handle other values than '1C' as SFI of EF_{ACM} .

6.4.3.4 Method of test

6.4.3.4.1 Initial conditions

The Terminal shall be connected to a UICC or the USIM simulator, with all elementary files coded as default with the exception of:

EF_{UST} (USIM Service Table)

Logically: Local Phone Book available;
 User controlled PLMN selector available;
 Fixed dialling numbers available;
 The GSM Access available;
 The Group Identifier level 1 and level 2 not available;
 AoC available.
 Service n 33 (Packed Switched Domain) shall be set to 'I'
 Enabled Services Table available

| | | | | | |
|---------|-----------|-----------|-----------|-----------|-----------|
| Coding: | B1 | B2 | B3 | B4 | B5 |
| binary | xxxx xx11 | xxx1 xxxx | xxxx 1x00 | xxxx x1xx | xxxx xx11 |

The coding of EF_{UST} shall conform with the capabilities of the USIM used.

EF_{ACM} (Accumulated call meter)

Logically: 80 units

| | | | |
|---------|-----------|-----------|-----------|
| Coding: | B1 | B2 | B3 |
| binary | 0000 0000 | 0000 0000 | 0101 0000 |

The SFI of EF_{ACM} shall be set to '18'.

EF_{ACMmax} (Accumulated call meter maximum)

Logically: 94 units

| | | | |
|---------|-----------|-----------|-----------|
| Coding: | B1 | B2 | B3 |
| binary | 0000 0000 | 0000 0000 | 0101 1110 |

The USS transmits on the BCCH, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 246/081/0001.
- Access control: unrestricted.

User Equipment:

The UE is in MM-state "idle, updated".

In case of a Terminal accessing UTRAN "Expected Sequence A" and in case of a Terminal accessing a GERAN "Expected Sequence B" shall be performed.

6.4.3.4.2 Procedure

- a) The UE is made to initiate a call. The call establishment shall be performed according to the procedures defined in TS 34.108 [21], subclause 7.2.3.2.3 extended by the messages of the AoCC. The call is established with AoCC e-parameters sent in a Facility IE in the CONNECT message, as given below. The UE returns the AoCC acknowledgement after the reception of the CONNECT message. It is an implementation option whether the AoCC acknowledge is sent by the UE before or after the CONNECT ACKNOWLEDGE.

- b) The call is maintained until cleared by the UE (after 30 s).
- c) The contents of ACM are checked.

Maximum Duration of Test:

2 minutes.

Expected Sequence A:

| Step | Direction | Message | Comments | |
|------|-----------|---------------------------------|--|---|
| 1 | UE | | The UE is made to initiate a call | |
| 2 | UE -> USS | RRC CONNECTION REQUEST | | |
| 3 | USS -> UE | RRC CONNECTION SETUP | | |
| 4 | UE -> USS | RRC CONNECTION SETUP COMPLETE | | |
| 5 | USS -> UE | AUTHENTICATION REQUEST | | MM procedure, to ensure the successful start of integrity in step 8 |
| 6 | UE -> USS | AUTHENTICATION RESPONSE | | |
| 7 | USS -> UE | SECURITY MODE COMMAND | | RRC procedure, start of integrity is mandatory during call setup |
| 8 | UE -> USS | SECURITY MODE COMPLETE | | |
| 9 | UE -> USS | SETUP | | |
| 10 | USS -> UE | CALL PROCEEDING | | To a supported channel type |
| 11 | USS -> UE | RADIO BEARER SETUP | | |
| 12 | UE -> USS | RADIO BEARER SETUP COMPLETE | | |
| 13 | USS -> UE | ALERTING | | |
| 14 | USS -> UE | CONNECT | | As default message except contains Facility IE with contents as indicated in i) below |
| | | | Either A or B branch is taken | |
| A15 | UE -> USS | CONNECT ACKNOWLEDGE | As default message except contains Facility IE with contents as indicated in ii) below | |
| A16 | UE -> USS | FACILITY | | |
| B15 | UE -> USS | FACILITY | As default message except contains Facility IE with contents as indicated in ii) below | |
| B16 | UE -> USS | CONNECT ACKNOWLEDGE | | |
| 17 | | | call duration 30 s after CAI information sent by USS | |
| 18 | UE -> USS | DISCONNECT | All connections of RRC are released. | |
| 19 | USS -> UE | RELEASE | | |
| 20 | UE -> USS | RELEASE COMPLETE | | |
| 21 | USS -> UE | RRC CONNECTION RELEASE | | |
| 22 | USS -> UE | RRC CONNECTION RELEASE COMPLETE | | |
| | | | | |

Expected Sequence B:

| Step | Direction | Message | Comments |
|------|-----------|---|--|
| 1 | UE | | The UE is made to initiate a call |
| 2 | UE -> SS | CHANNEL REQUEST | |
| 3 | SS -> UE | IMMEDIATE ASSIGNMENT | |
| 4 | UE -> SS | CM SERVICE REQUEST | |
| 5 | SS -> UE | CM SERVICE ACCEPT | |
| 6 | UE -> SS | SETUP | |
| 7 | SS -> UE | CALL PROCEEDING | |
| 8 | SS -> UE | ASSIGNMENT COMMAND to a supported channel type | |
| 9 | UE -> SS | ASSIGNMENT COMPLETE | |
| 10 | SS -> UE | ALERTING | |
| 11 | SS -> UE | CONNECT | |
| | | | As default message except contains Facility IE with contents as indicated in i) below |
| | | | Either A or B branch is taken |
| A12 | UE -> SS | CONNECT ACKNOWLEDGE | As default message except contains Facility IE with contents as indicated in ii) below |
| A13 | UE -> SS | FACILITY | |
| B12 | UE -> SS | FACILITY | As default message except contains Facility IE with contents as indicated in ii) below |
| B13 | UE -> SS | CONNECT ACKNOWLEDGE | |
| 14 | | | call duration 30 s after CAI information sent by SS |
| 15 | UE -> SS | DISCONNECT | The main signalling link is released. |
| 16 | SS -> UE | RELEASE | |
| 17 | UE -> SS | RELEASE COMPLETE | |
| 18 | SS -> UE | CHANNEL RELEASE | |

Specific Message Contents:

- i) **FACILITY Information Element** with **Invoke = ForwardChargeInformation** component type as defined in TS 24.080 [17], subclause 3.6.1 table 3.3.

For ASN.1 description see default message contents in TS 51.010-1 [22], subclause 31.6.4.

The values of the e-parameters within the parameter part of the Facility Information Element shall be set as below:

e-parameters:

| | | | | | | | |
|------------|----|----|----|----|----|----|----|
| parameter: | e1 | e2 | e3 | e4 | e5 | e6 | e7 |
| value | 10 | 10 | 1 | 0 | 0 | 0 | 0 |

Values shown in table are in the format and have units as in TS 22.024 [8], clause 3.

- ii) **FACILITY Information Element** with **Return Result** component type as defined in TS 24.080 [17], subclause 3.6.1 table 3.4.

For ASN.1 description see default message contents in TS 51.010-1 [22], subclause 31.6.4.

6.4.3.5 Acceptance criteria

- 1) The UE shall terminate the call correctly 30 s after CAI was sent.
- 2) The value of ACM shall be 100 units.

6.4.4 Response codes of increase command of ACM

6.4.4.1 Definition and applicability

ACM has a maximum value in terms of coding, and an attempt by the Terminal to exceed that value by sending an INCREASE command shall result in an error message from the USIM. As the maximum of the ACM is equal to the maximum value of ACMmax, all current chargeable calls shall be terminated and no further calls may be made (except emergency calls).

6.4.4.2 Conformance requirement

The Terminal shall perform the increasing procedure, sending the amount to be increased.

The running accumulated charge shall be stored in the ACM of the USIM.

Where this charge cannot be stored in the UE, use of the telecommunications service shall be prevented.

At the time ACM exceeds it's maximum value, then all calls in progress, chargeable to the user, shall be terminated by the UE, once the chargeable interval determined by the CAI has elapsed, (except emergency calls).

When used the value '1C' shall be used as SFI for EF_{ACM} , for compatibility reasons the terminal shall accept other values.

References:

- TS 31.102 [4], subclauses 4.2.9, 5.3.4 and Annex H.1;
- TS 22.086 [18], subclauses 2.1 and 2.2.1.

6.4.4.3 Test purpose

- 1) To verify that the Terminal clears a charged call if the USIM indicates that the ACM cannot be increased.
- 2) To verify that the Terminal is able to handle other values than "1C" as SFI of EF_{ACM} .

6.4.4.4 Method of test

6.4.4.4.1 Initial conditions

The Terminal shall be connected to the USIM simulator, with all elementary files coded as default with the exception of:

EF_{UST} (USIM Service Table)

Logically: Local Phone Book available;
 User controlled PLMN selector available;
 Fixed dialling numbers available;
 The GSM Access available;
 The Group Identifier level 1 and level 2 not available;
 AoC available.
 Service n 33 (Packed Switched Domain) shall be set to '1'
 Enabled Services Table available

| | | | | | |
|---------|-----------|-----------|-----------|-----------|-----------|
| Coding: | B1 | B2 | B3 | B4 | B5 |
| binary | xxxx xx11 | xxx1 xxxx | xxxx 1x00 | xxxx x1xx | xxxx xx11 |

The coding of EF_{UST} shall conform with the capabilities of the USIM used.

EF_{ACM} (Accumulated call meter)

Logically: (Maximum value - 10) units

| | | | |
|---------|-----------|-----------|-----------|
| Coding: | B1 | B2 | B3 |
| binary | 1111 1111 | 1111 1111 | 1111 0101 |

The SFI of EF_{ACM} shall be set to "18".

EF_{ACMmax} (Accumulated call meter maximum)

Logically: (Maximum value - 2) units

| | | | |
|---------|-----------|-----------|-----------|
| Coding: | B1 | B2 | B3 |
| binary | 1111 1111 | 1111 1111 | 1111 1101 |

The USS transmits on the BCCH, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 246/081/0001.
- Access control: unrestricted.

User Equipment:

The UE is in MM-state "idle, updated".

In case of a Terminal accessing UTRAN "Expected Sequence A" and in case of a Terminal accessing a GERAN "Expected Sequence B" shall be performed.

6.4.4.4.2 Procedure

- a) The UE is made to initiate a call. The call establishment shall be performed according to the procedures defined in TS 34.108 [21], subclause 7.2.3.2.3 extended by the messages of the AoCC. The call is established with AoCC e-parameters sent in a Facility IE in the CONNECT message, as given below. The UE returns the AoCC acknowledgement after reception of the CONNECT message. It is an implementation option whether the AoCC acknowledgement is sent by the UE before or after the CONNECT ACKNOWLEDGE.
- b) After an interval has elapsed, the Terminal increments the ACM. When an INCREASE command is received, the USIM-simulator sends back the error "98 50".
- c) Conditions are reset to those described in the initial conditions. Steps a) and b) of the test are repeated, except that the error code sent by the USIM simulator at step b) is now "6F xx".
- d) Conditions are reset to those described in the initial conditions. Steps a) and b) of the test are repeated, except that the error code sent by the USIM simulator at step b) is now "65 81".

References:

- TS 102 221 [5], subclause 10.2.1.

Maximum Duration of Test:

3 minutes.

Expected Sequence A:

| Step | Direction | Message | Comments |
|------|-----------|---------------------------------|--|
| 1 | UE | | The UE is made to initiate a call |
| 2 | UE -> USS | RRC CONNECTION REQUEST | |
| 3 | USS -> UE | RRC CONNECTION SETUP | |
| 4 | UE -> USS | RRC CONNECTION SETUP COMPLETE | |
| 5 | USS -> UE | AUTHENTICATION REQUEST | MM procedure, to ensure the successful start of integrity in step 8 |
| 6 | UE -> USS | AUTHENTICATION RESPONSE | |
| 7 | USS -> UE | SECURITY MODE COMMAND | RRC procedure, start of integrity is mandatory during call setup |
| 8 | UE -> USS | SECURITY MODE COMPLETE | |
| 9 | | | |
| 10 | UE -> USS | SETUP | |
| 11 | USS -> UE | CALL PROCEEDING | |
| 12 | USS -> UE | RADIO BEARER SETUP | To a supported channel type |
| 13 | UE -> USS | RADIO BEARER SETUP COMPLETE | |
| 14 | USS -> UE | ALERTING | |
| 15 | USS -> UE | CONNECT | As default message except contains Facility IE with contents as indicated in i) below |
| | | | Either A or B branch is taken |
| A16 | UE -> USS | CONNECT ACKNOWLEDGE | |
| A17 | UE -> USS | FACILITY | As default message except contains Facility IE with contents as indicated in ii) below |
| B16 | UE -> USS | FACILITY | As default message except contains Facility IE with contents as indicated in ii) below |
| B17 | UE -> USS | CONNECT ACKNOWLEDGE | |
| 18 | | | call duration 10s after CAI information sent by USS |
| 19 | UE -> USS | DISCONNECT | |
| 20 | USS -> UE | RELEASE | |
| 21 | UE -> USS | RELEASE COMPLETE | |
| 22 | USS -> UE | RRC CONNECTION RELEASE | All connections of RRC are released. |
| 23 | UE -> USS | RRC CONNECTION RELEASE COMPLETE | |

Expected Sequence B:

| Step | Direction | Message | Comments |
|------|-----------|---|--|
| 1 | UE | | The UE is made to initiate a call |
| 2 | UE -> SS | CHANNEL REQUEST | |
| 3 | SS -> UE | IMMEDIATE ASSIGNMENT | |
| 4 | UE -> SS | CM SERVICE REQUEST | |
| 5 | SS -> UE | CM SERVICE ACCEPT | |
| 6 | UE -> SS | SETUP | |
| 7 | SS -> UE | CALL PROCEEDING | |
| 8 | SS -> UE | ASSIGNMENT COMMAND to a supported channel type | |
| 9 | UE -> SS | ASSIGNMENT COMPLETE | |
| 10 | SS -> UE | ALERTING | |
| 11 | SS -> UE | CONNECT | |
| | | | As default message except contains Facility IE with contents as indicated in i) below |
| | | | Either A or B branch is taken |
| A12 | UE -> SS | CONNECT ACKNOWLEDGE | As default message except contains Facility IE with contents as indicated in ii) below |
| A13 | UE -> SS | FACILITY | |
| B12 | UE -> SS | FACILITY | As default message except contains Facility IE with contents as indicated in ii) below |
| B13 | UE -> SS | CONNECT ACKNOWLEDGE | |
| 14 | | | call duration 10s after CAI information sent by SS |
| 15 | UE -> SS | DISCONNECT | |
| 16 | SS -> UE | RELEASE | The main signalling link is released. |
| 17 | UE -> SS | RELEASE COMPLETE | |
| 18 | SS -> UE | CHANNEL RELEASE | |

Specific Message Contents:

- i) **FACILITY Information Element** with **Invoke = ForwardChargeInformation** component type as defined in TS 24.080 [17], subclause 3.6.1 table 3.3.

For ASN.1 description see default message contents in TS 51.010-1 [22], subclause 31.6.4.

The values of the e-parameters within the parameter part of the Facility Information Element shall be set as below:

e-parameters:

| | | | | | | | |
|------------|----|----|----|----|----|----|----|
| parameter: | e1 | e2 | e3 | e4 | e5 | e6 | e7 |
| value | 20 | 10 | 1 | 0 | 0 | 0 | 0 |

Values shown in table are in the format and have units as in TS 22.024 [8], clause 3.

- ii) **FACILITY Information Element** with **Return Result** component type as defined in TS 24.080 [17], subclause 3.6.1 table 3.4.

For ASN.1 description see default message contents in TS 51.010-1 [22], subclause 31.6.4.

6.4.4.5 Acceptance criteria

- 1) The UE shall terminate the call correctly 10 s after CAI was sent.
- 2) In each of the three cases, as described in steps b), c) and d) of the procedure, the UE shall terminate the call correctly when it receives an indication from the USIM that the ACM cannot be incremented.

7 PLMN related tests

7.1 FPLMN handling

7.1.1 Adding FPLMN to the Forbidden PLMN list

7.1.1.1 Definition and applicability

A list of forbidden PLMNs stored in the USIM and providing storage for at least 4 entries is managed by the UE. In automatic PLMN selection mode the UE controls registration attempts to appropriate networks with respect to this list of forbidden PLMNs. As a result of a registration reject with the cause "PLMN not allowed" the UE stores the PLMN which rejected the update request in the USIM.

The registration attempts initiated by the 3G UE depends on UEs capabilities and can be one of the following:

- I. registration procedures for UEs supporting CS or
- II. registration procedures for UEs supporting PS or
- III. registration procedures for UEs supporting CS/PS

7.1.1.2 Conformance requirement

In case of a 2G terminal:

- 1) In automatic PLMN selection mode the UE shall only attempt a LOCATION UPDATE if it receives a BCCH containing a LAI that is not indicated in the EF_{FPLMN} in the USIM.

Reference:

- TS 22.011 [6], subclause 2.3;
- TS 31.102 [4], subclauses 5.1.1 and 5.2.7.

- 2) After receipt of a LOCATION UPDATING REJECT message with the cause "PLMN not allowed" the Terminal shall update the EF_{FPLMN} in the USIM.

Reference:

- TS 22.011 [6], subclause 2.3;
- TS 31.102 [4], subclauses 5.1.1 and 5.2.7.

- 3) After call termination the USIM shall contain the correct Key Set Identifier.

Reference:

- TS 31.102 [4], subclauses 5.1.2, 5.2.5 and 5.2.6;
- TS 21.111 [19], subclause 10.1.

- 4) After call termination the USIM shall contain the correct TMSI and location information received by the UE.

Reference:

- TS 31.102 [4], subclauses 5.1.2, 5.2.5 and 5.2.6;
- TS 21.111 [19], subclause 10.1.

In case of a 3G terminal:

- 1) Depending on which domain the UE is going to be registered on, one of the following requirements should be fulfilled:
 - I. In automatic PLMN selection mode the UE shall only attempt a LOCATION UPDATING REQUEST during registration on CS if it receives a BCCH containing a PLMN(MCC,MNC) that is not indicated in the EF_{FPLMN} in the USIM or
 - II. in automatic PLMN selection mode the UE shall only attempt a ATTACH REQUEST during registration on PS if it receives a BCCH containing a PLMN(MCC,MNC) that is not indicated in the EF_{FPLMN} in the USIM or
 - III. in automatic PLMN selection mode the UE shall only attempt a LOCATION UPDATING REQUEST and/or ATTACH REQUEST during registration on CS/PS if it receives a BCCH containing a PLMN(MCC,MNC) that is not indicated in the EF_{FPLMN} in the USIM.

Reference:

- TS 22.011 [6], subclause 2.3;
- TS 31.102 [4], subclauses 5.1.1 and 5.2.7.

- 2) Depending on which domain the UE is going to be on, one of the following requirements should be fulfilled:
 - I. After after receipt of a LOCATION UPDATING REJECT message during registration on CS with the cause "PLMN not allowed" the Terminal shall update the EF_{FPLMN} in the USIM or.
 - II. after receipt of a ATTACH REJECT message during registration on PS with the cause "PLMN not allowed" the Terminal shall update the EF_{FPLMN} in the USIM or
 - III. after receipt of a LOCATION UPDATING REJECT and/or ATTACH REJECT message during registration on CS/PS with the cause "PLMN not allowed" the Terminal shall update the EF_{FPLMN} in the USIM.

Reference:

- TS 22.011 [6], subclause 3.2.2 2.3;
- TS 31.102 [4], subclauses 5.1.1 and 5.2.7.

- 3) After call termination the USIM shall contain the correct Key Set Identifier.

- 4) Depending on which domain the UE is going to be registered on, one of the following requirements should be fulfilled:
 - I. after registration on CS the USIM shall contain the correct TMSI and location information received by the UE or
 - II. after registration on PS the USIM shall contain the correct P-TMSI and routing information received by the UE or
 - III. after registration on CS/PS the USIM shall contain the correct TMSI, P-TMSI, location information and routing information received by the UE.

Reference:

- TS 31.102 [4], subclauses 5.1.2, 5.2.5 and 5.2.6;
- TS 21.111 [6], subclause 10.1.

- 5) After call termination the USIM shall contain the correct TMSI and location information received by the UE.

Reference:

- TS 31.102 [4], subclauses 5.1.2, 5.2.5 and 5.2.6;
- TS 21.111 [6], subclause 10.1.

7.1.1.3 Test purpose

In case of a 2G terminal:

- 1) To verify that in automatic PLMN selection mode the UE does not attempt to access PLMNs stored in EF_{FPLMN} on the USIM.
- 2) To verify that the EF_{FPLMN} is correctly updated by the Terminal after receipt of a LOCATION UPDATING REJECT message with cause "PLMN not allowed".
- 3) To verify that the EF_{Keys} has been correctly updated by the Terminal.
- 4) To verify that the EF_{LOCI} has been correctly updated by the Terminal.

In case of a 3G terminal:

- 1) To verify that in automatic PLMN selection mode the UE does not attempt to access PLMNs stored in EF_{FPLMN} on the USIM.
- 2) To verify that the EF_{FPLMN} is correctly updated by the Terminal after receipt of a
 - I. LOCATION UPDATING REJECT message with cause "PLMN not allowed" during registration on CS or.
 - II. ATTACH REJECT message with cause "PLMN not allowed" during registration on PS or.
 - III. LOCATION UPDATING REJECT and/or ATTACH REJECT message with cause "PLMN not allowed" during registration on CS/PS.
- 3) To verify that
 - I. the EF_{LOCI} has been correctly updated by the Terminal during registration on CS or.
 - II. the EF_{PSLOCI} has been correctly updated by the Terminal during registration on PS or.
 - III. the the EF_{LOCI} and EF_{PSLOCI} have been correctly updated by the Terminal during registration on CS/PS.

7.1.1.4 Method of test

7.1.1.4.1 Initial conditions

The USS (in case of a Terminal accessing UTRAN)/ SS (in case of a Terminal accessing a GERAN) transmits on the BCCH, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 234/002/0001.
- RAI (MCC/MNC/LAC/RAC): 234/002/0001/05. (only for UTRAN cell)
- Access control: unrestricted.

NOTE: In case of a GERAN no packet system information is transmitted

The default UICC is used with the following exception:

EF_{IMSI} (IMSI)

Logically: 2460811111111111

| | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 |
| Hex | 08 | 29 | 64 | 80 | 11 | 11 | 11 | 11 | 11 |

EF_{LOCI} (Location Information)

Logically: LAI-MCC: 234
LAI-MNC: 007

LAI-LAC: 0000
TMSI: "32547698"

| | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
| Hex | 32 | 54 | 76 | 98 | 32 | 74 | 00 | 00 | 00 | FF | 00 |

EF_{PSLOCI} (Packet Switched location Information)

Logically: RAI-MCC: 234
RAI-MNC: 007
RAI-LAC: 0000
RAI-RAC: 05
P-TMSI: "32547698"

P-TMSI signature value: "112233"

| | | | | | | | | | | | |
|---------|-----|-----|-----|----|----|----|----|----|----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
| Hex | 32 | 54 | 76 | 98 | 11 | 22 | 33 | 32 | 74 | 00 | 00 |
| | B12 | B13 | B14 | | | | | | | | |
| | 00 | 05 | 00 | | | | | | | | |

The UICC is installed into the Terminal and the UE is set to automatic PLMN selection mode.

In case of a Terminal accessing GERAN:**EF_{Keys} (Ciphering and Integrity Keys)**

Logically: Key Set Identifier KSI: 02
Ciphering Keys CK: undefined
Integrity Keys IK: undefined

| | | | | | | | | | | | |
|---------|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | ... | B16 | B17 | B18 | ... | B31 | B32 | B33 |
| Hex | 02 | xx | xx | ... | xx | xx | xx | ... | xx | xx | xx |

In case of a Terminal accessing UTRAN "Expected Sequence A" shall be performed and in case of a Terminal accessing a GERAN "Expected Sequence B" shall be performed.

7.1.1.4.2 Procedure

Expected Sequence A:

- The UE is powered on.
- The USS stops all RF output on the BCCH for a long enough period of time to cause a cell reselection procedure in the UE. The BCCH is changed to contain:

PLMN (MCC/MNC): 234/003

The USS then resumes RF output on the BCCH.

- The USS stops all RF output on the BCCH for a long enough period of time to cause a cell reselection procedure in the UE. The BCCH is changed to contain:

PLMN (MCC/MNC): 234/004

The USS then resumes RF output on the BCCH.

- The USS stops all RF output on the BCCH for a long enough period of time to cause a cell reselection procedure in the UE. The BCCH is changed to contain:

PLMN (MCC/MNC): 234/005

The USS then resumes RF output on the BCCH.

- e) The USS stops all RF output on the BCCH for a long enough period of time to cause a cell reselection procedure in the UE. The BCCH is changed to contain:

LAI (MCC/MNC/LAC):234/007/0001

RAI (MCC/MNC/LAC/RAC): 234/007/0001/05

The USS then resumes RF output on the BCCH.

- f) After receipt of a RRC CONNECTION REQUEST from the UE, the USS sends RRC CONNECTION SETUP to the UE, followed by RRC CONNECTION SETUP COMPLETE sent by the UE to the USS.
- g) Depending on which domain the UE is going to be registered on, one of the following sequences will be passed through:
- I. During registration on CS and after receipt of a LOCATION UPDATING REQUEST from the UE, the USS sends LOCATION UPDATING REJECT to the UE with cause "PLMN Not Allowed", followed by RRC CONNECTION RELEASE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS.
 - II. During registration on PS and after receipt of a ATTACH REQUEST from the UE, the USS sends ATTACH REJECT to the UE with cause "PLMN Not Allowed", followed by RRC CONNECTION RELEASE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS or
 - III. During registration on CS/PS and after receipt of a LOCATION UPDATING REQUEST and/or ATTACH REQUEST from the UE, the USS sends LOCATION UPDATING REJECT and/or ATTACH REJECT to the UE with cause "PLMN Not Allowed", followed by RRC CONNECTION RELEASE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS.

The USS stops all RF output on the BCCH for a long enough period of time to cause a cell reselection procedure in the UE. The BCCH is changed to contain:

LAI (MCC/MNC): 234/008/0001

RAI (MCC/MNC/LAC/RAC): 234/008/0001/05

The USS then resumes RF output on the BCCH.

- h) After receipt of a RRC CONNECTION REQUEST from the UE, the USS sends RRC CONNECTION SETUP to the UE, followed by RRC CONNECTION SETUP COMPLETE sent by the UE to the USS.
- i) Depending on which domain the UE is going to be registered on, one of the following sequences will be passed through:
- I. During registration on CS and after receipt of a LOCATION UPDATING REQUEST from the UE, the USS initiates authentication, starts integrity by using the security procedure and sends LOCATION UPDATING ACCEPT with:

LAI (MCC/MNC/LAC):234/008/0001

TMSI: "43658709"
 - II. During registration on PS and after receipt of a ATTACH REQUEST from the UE, the USS initiates authentication, starts integrity by using the security procedure and sends ATTACH ACCEPT to the UE with :

RAI (MCC/MNC/LAC/RAC): 234/008/000/05

P-TMSI: "43658709"

P-TMSI signature value "443322"
 - III. During registration on CS/PS and after receipt of a LOCATION UPDATING REQUEST and/or ATTACH REQUEST from the UE, the USS initiates authentication, starts integrity by using the security procedure and sends LOCATION UPDATING ACCEPT and/or ATTACH ACCEPT with some of the following values to the UE with :

LAI (MCC/MNC/LAC):234/008/0001

TMSI: "43658709"

RAI (MCC/MNC/LAC/RAC): 234/008/000/05

P-TMSI: "43658709"

P-TMSI signature value "443322"

j) After passing through the authentication procedure and after receipt of

- I. TMSI REALLOCATION COMPLETE during registration on CS from the UE the USS sends RRC CONNECTION RELEASE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS or.
- II. ATTACH COMPLETE during registration on PS from the UE, the USS sends RRC CONNECTION RELEASE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS or.
- III. TMSI REALLOCATION COMPLETE and/or ATTACH COMPLETE during registration on CS/PS from the UE, the USS sends RRC CONNECTION RELEASE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS.

k) The UE is soft powered down.

Expected Sequence B:

a) The UE is powered on.

b) The SS stops all RF output on the BCCH for a long enough period of time to cause a cell reselection procedure in the UE. The BCCH is changed to contain:

PLMN (MCC/MNC): 234/003

The SS then resumes RF output on the BCCH.

c) The SS stops all RF output on the BCCH for a long enough period of time to cause a cell reselection procedure in the UE. The BCCH is changed to contain:

PLMN (MCC/MNC): 234/004

The SS then resumes RF output on the BCCH.

d) The SS stops all RF output on the BCCH for a long enough period of time to cause a cell reselection procedure in the UE. The BCCH is changed to contain:

PLMN (MCC/MNC): 234/005

The SS then resumes RF output on the BCCH.

e) The SS stops all RF output on the BCCH for a long enough period of time to cause a cell reselection procedure in the UE. The BCCH is changed to contain:

PLMN (MCC/MNC): 234/007/0001

RAI (MCC/MNC/LAC/RAC): 234/007/0001/05

The SS then resumes RF output on the BCCH.

f) After receipt of a CHANNEL REQUEST from the UE, the SS sends IMMEDIATE ASSIGNMENT to the UE.

g) After receipt of a LOCATION UPDATING REQUEST from the UE, the SS sends LOCATION UPDATING REJECT to the UE with cause "PLMN Not Allowed", followed by CHANNEL RELEASE.

The SS stops all RF output on the BCCH for a long enough period of time to cause a cell reselection procedure in the UE. The BCCH is changed to contain:

PLMN (MCC/MNC): 234/008/0001

RAI (MCC/MNC/LAC/RAC): 234/008/0001/05

The SS then resumes RF output on the BCCH.

- h) After receipt of a CHANNEL REQUEST from the UE, the SS sends IMMEDIATE ASSIGNMENT to the UE.
- i) After receipt of a LOCATION UPDATING REQUEST from the UE, the SS sends LOCATION UPDATING ACCEPT with:
 - LAI (MCC/MNC/LAC): 234/008/0001
 - TMSI: "43658709"
 to the UE.
- j) After receipt of a TMSI REALLOCATION COMPLETE from the UE, the SS sends CHANNEL RELEASE to the UE.
- k) The UE is soft powered down.

7.1.1.5 Acceptance criteria

- 1) After each of the steps a) to d) the UE shall not attempt a LOCATION UPDATING and not a ATTACH procedure.
- 2) After step f) the 2G UE shall send LOCATION UPDATING REQUEST to the SS and a 3G terminal shall send
 - I. LOCATION UPDATING REQUEST to the USS during registration on CS or
 - II. ATTACH REQUEST during registration on PS or
 - III. LOCATION UPDATING REQUEST and/or ATTACH REQUEST to the USS during registration on CS/PS.
- 3) After step h) the 2G UE shall send LOCATION UPDATING REQUEST to the SS and a 3G terminal shall send
 - I. LOCATION UPDATING REQUEST to the USS during registration on CS or
 - II. ATTACH REQUEST during registration on PS or
 - III. LOCATION UPDATING REQUEST and/or ATTACH REQUEST to the USS during registration on CS/PS.
- 4) After step i) the 2G UE shall respond with TMSI REALLOCATION COMPLETE to the SS and a 3G terminal shall respond with
 - I. TMSI REALLOCATION COMPLETE to the USS during registration on CS or
 - II. ATTACH COMPLETE during registration on PS or
 - III. TMSI REALLOCATION COMPLETE and/or ATTACH COMPLETE to the USS during registration on CS/PS..
- 5) After step k) the USIM shall contain the following values:

EF_{FPLMN} (Forbidden PLMNs)

| | | |
|------------|--------|-------------------|
| Logically: | PLMN1: | 234 002 (MCC MNC) |
| | PLMN2: | 234 003 |
| | PLMN3: | 234 004 |
| | PLMN4: | 234 005 |
| | PLMN5: | 234 006 |
| | PLMN6: | 234 007 |

| | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|----|----|----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 |
| Hex | 32 | 24 | 00 | 32 | 34 | 00 | 32 | 44 | 00 | 32 | 54 | 00 |
| | B13 | B14 | B15 | B16 | B17 | B18 | | | | | | |
| | 32 | 64 | 00 | 32 | 74 | 00 | | | | | | |

For 2G terminals and 3G terminals supporting (CS and PS) or (CS only):

EF_{LocI} (Location Information)

Logically: LAI-MCC: 234
LAI-MNC: 008
TMSI: "43658709"

| | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
| Hex | 43 | 65 | 87 | 09 | 32 | 84 | 00 | xx | xx | xx | 00 |

For 3G terminals supporting (CS and PS) or (PS only):

EF_{PSLocI} (Location Information)

Logically: RAI-MCC: 234
RAI-MNC: 008
P-TMSI: "43658709"

| | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
| Hex | 43 | 65 | 87 | 09 | xx | xx | xx | 32 | 84 | 00 | xx |

| | | | |
|---------|-----|-----|-----|
| Coding: | B12 | B13 | B14 |
| Hex | xx | xx | 00 |

In case of a Terminal accessing GERAN:

EF_{Keys} (Cipherying and Integrity Keys)

Logically: Key Set Identifier KSI: 07 (not available)
Cipherying Keys CK: xx
Integrity Keys IK: xx

| | | | | | | | | | | | |
|---------|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | ... | B16 | B17 | B18 | ... | B31 | B32 | B33 |
| Hex | 07 | xx | xx | ... | xx | xx | xx | ... | xx | xx | Xx |

7.1.2 UE updating forbidden PLMNs

7.1.2.1 Definition and applicability

A list of forbidden PLMNs stored in the USIM provides storage for at least 4 entries, and is managed by the UE. In automatic PLMN selection mode the UE controls registration attempts to appropriate networks with respect to this list of forbidden PLMNs. As a result of a registration reject with the cause "PLMN not allowed" the UE stores the PLMN which rejected the update request in the USIM.

The registration attempts initiated by the 3G UE depends on UEs capabilities and can be one of the following:

- I. registration procedures for UEs supporting CS or
- II. registration procedures for UEs supporting PS or
- III. registration procedures for UEs supporting CS/PS

7.1.2.2 Conformance requirement

In case of a 2G terminal:

After the receipt of a LOCATION UPDATING REJECT message with the cause "PLMN not allowed" the UE shall update the EF_{FPLMN} in the USIM.

Reference:

- TS 22.011 [6], subclause 3.2.2.4.
- TS 31.102 [4], subclauses 5.1.1 and 5.2.7.

In case of a 3G terminal:

Depending on which domain the UE will be registered on, one of the following requirements should be fulfilled:

- I. After the receipt of a LOCATION UPDATING REJECT message during registration on CS with the cause "PLMN not allowed" the UE shall update the EF_{FPLMN} in the USIM or
- II. after receipt of a ATTACH REJECT message during registration on PS with the cause "PLMN not allowed" the Terminal shall update the EF_{FPLMN} in the USIM or
- III. after receipt of a LOCATION UPDATING REJECT and/or ATTACH REJECT message during registration on CS/PS with the cause "PLMN not allowed" the Terminal shall update the EF_{FPLMN} in the USIM.

Reference:

- TS 22.011 [6], subclause 3.2.2.4.
- TS 31.102 [4], subclauses 5.1.1 and 5.2.7.

7.1.2.3 Test purpose

To verify that the UE correctly updates the EF_{FPLMN}, i.e. fill up existing gaps in the elementary file before overwriting any existing entries.

7.1.2.4 Method of test

7.1.2.4.1 Initial conditions

The USS (in case of a Terminal accessing UTRAN)/ SS (in case of a Terminal accessing a GERAN) transmits on the BCCH, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 234/002/0001.
- RAI (MCC/MNC/LAC/RAC): 234/002/0001/05 (only for UTRAN cell)
- Access control: unrestricted.

NOTE: In case of a GERAN no packet system information is transmitted

The default UICC is used with the following exception:

EF_{FPLMN} (Forbidden PLMNs)

| | | |
|------------|--------|-------------------|
| Logically: | PLMN1: | 234 001 (MCC MNC) |
| | PLMN2: | empty |
| | PLMN3: | 234 003 |
| | PLMN4: | 234 004 |
| | PLMN5: | 234 005 |
| | PLMN6: | 234 006 |

| | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|----|----|----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 |
| Hex | 32 | 14 | 00 | FF | FF | FF | 32 | 34 | 00 | 32 | 44 | 00 |
| | B13 | B14 | B15 | B16 | B17 | B18 | | | | | | |
| | 32 | 54 | 00 | 32 | 64 | 00 | | | | | | |

The UICC is installed into the Terminal and the UE is set to automatic PLMN selection mode.

In case of a Terminal accessing UTRAN "Expected Sequence A" and in case of a Terminal accessing a GERAN "Expected Sequence B" shall be performed.

7.1.2.4.2 Procedure

Expected Sequence A:

- a) The UE is powered on.
- b) After receipt of a RRC CONNECTION REQUEST from the UE, the USS sends RRC CONNECTION SETUP to the UE, followed by RRC CONNECTION SETUP COMPLETE sent by the UE to the USS.
- c) Depending on which domain the UE is going to be registered on, one of the following sequences will be passed through:

During registration on CS and after receipt of a LOCATION UPDATING REQUEST from the UE, the USS sends LOCATION UPDATING REJECT to the UE with the cause "PLMN not allowed", followed by RRC CONNECTION RELEASE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS.

- d) The UE is soft powered down.

Expected Sequence B:

- a) The UE is powered on.
- b) After receipt of a CHANNEL REQUEST from the UE, the SS sends IMMEDIATE ASSIGNMENT to the UE.
- c) Depending on which domain the UE is going to be registered on, one of the following sequences will be passed through:
 - I. During registration on CS and after receipt of a LOCATION UPDATING REQUEST from the UE, the USS sends LOCATION UPDATING REJECT to the UE with the cause "PLMN not allowed", followed by RRC CONNECTION RELEASE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS or
 - II. During registration on PS and after receipt of a ATTACH REQUEST from the UE, the USS sends ATTACH REJECT to the UE with cause "PLMN Not Allowed", followed by RRC CONNECTION RELEASE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS or
 - III. During registration on CS/PS and after receipt of a LOCATION UPDATING REQUEST and/or ATTACH REQUEST from the UE, the USS sends LOCATION UPDATING REJECT and/or ATTACH REJECT to the UE with cause "PLMN Not Allowed", followed by RRC CONNECTION RELEASE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS.
- d) The UE is soft powered down.

7.1.2.5 Acceptance criteria

- 1) After step b) the 2G UE shall send LOCATION UPDATING REQUEST to the SS and the 3G terminal shall send
 - I. LOCATION UPDATING REQUEST to the USS during registration on CS or
 - II. ATTACH REQUEST during registration on PS or
 - III. LOCATION UPDATING REQUEST and/or ATTACH REQUEST to the USS during registration on CS/PS.

2) After step d) the USIM shall contain:

EF_{FPLMN} (Forbidden PLMNs)

Logically: PLMN1: 234 001 (MCC MNC)
 PLMN2: 234 002
 PLMN3: 234 003
 PLMN4: 234 004
 PLMN5: 234 005
 PLMN6: 234 006

| | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|----|----|----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 |
| Hex | 32 | 14 | 00 | 32 | 24 | 00 | 32 | 34 | 00 | 32 | 44 | 00 |
| | B13 | B14 | B15 | B16 | B17 | B18 | | | | | | |
| | 32 | 54 | 00 | 32 | 64 | 00 | | | | | | |

or

EF_{FPLMN} (Forbidden PLMNs)

Logically: PLMN1: 234 001 (MCC MNC)
 PLMN2: 234 003
 PLMN3: 234 004
 PLMN4: 234 005
 PLMN5: 234 006
 PLMN6: 234 002

| | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|----|----|----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 |
| Hex | 32 | 14 | 00 | 32 | 34 | 00 | 32 | 44 | 00 | 32 | 54 | 00 |
| | B13 | B14 | B15 | B16 | B17 | B18 | | | | | | |
| | 32 | 64 | 00 | 32 | 24 | 00 | | | | | | |

7.1.3 UE deleting forbidden PLMNs

7.1.3.1 Definition and applicability

In manual PLMN selection mode the UE allows registration attempts to all available PLMNs, including forbidden PLMNs (as indicated by the forbidden PLMN list on the USIM). As a result of a successful registration procedure onto a PLMN which is in the forbidden PLMN list, the forbidden PLMN list is automatically updated by the UE.

The registration attempts initiated by the 3G UE depends on UEs capabilities and can be one of the following:

- I. registration procedures for UEs supporting CS or
- II. registration procedures for UEs supporting PS or
- III. registration procedures for UEs supporting CS/PS

7.1.3.2 Conformance requirement

In case of a 2G terminal:

- 1) In manual PLMN selection mode the UE shall be able to perform a LOCATION UPDATING attempt to a PLMN which is in the forbidden PLMN list.
 - TS 22.011 [6], subclause 3.2.2.2.

- 2) After receipt of LOCATION UPDATING ACCEPT the UE shall delete the forbidden PLMN from the forbidden PLMN list.
 - TS 22.011 [6], subclause 3.2.2.4.

In case of a 3G terminal:

- 1) Depending on which domain the UE will be registered on, one of the following requirements should be fulfilled:
 - I. In manual PLMN selection mode the UE shall be able to perform a LOCATION UPDATING attempt during registration on CS to a PLMN which is in the forbidden PLMN list or
 - II. In manual PLMN selection mode the UE shall be able to perform a ATTACH attempt during registration on PS to a PLMN which is in the forbidden PLMN list or
 - III. In manual PLMN selection mode the UE shall be able to perform a LOCATION UPDATING and/or ATTACH attempt during registration on CS/PS to a PLMN which is in the forbidden PLMN list.
 - TS 22.011 [6], subclause 3.2.2.2.
 - TS 31.102 [4], subclauses 5.1.1 and 5.2.7.
- 2) Depending on which domain the UE is going to be registered on, one of the following requirements should be fulfilled:
 - I. After receipt of LOCATION UPDATING ACCEPT message during registration on CS the UE shall delete the forbidden PLMN from the forbidden PLMN list OR
 - II. after receipt of ATTACH ACCEPT message during registration on PS the UE shall delete the forbidden PLMN from the forbidden PLMN list or
 - III. after receipt of LOCATION UPDATING ACCEPT and/or ATTACH ACCEPT message during registration on CS/PS the UE shall delete the forbidden PLMN from the forbidden PLMN list.
 - TS 22.011 [6], subclause 3.2.2.4.

7.1.3.3 Test purpose

- 1) To verify that the 2G UE is able to perform a LOCATION UPDATING on a forbidden PLMN in manual PLMN selection mode or to verify that the 3G UE is able to perform
 - I. a LOCATION UPDATING REQUEST during registration on CS on a forbidden PLMN in manual PLMN selection mode or
 - II. a ATTACH REQUEST during registration on PS on a forbidden PLMN in manual PLMN selection mode or
 - III. a LOCATION UPDATING REQUEST and/or ATTACH REQUEST during registration on CS/PS on a forbidden PLMN in manual PLMN selection mode.
- 2) To verify that the UE after a successful registration attempt deletes the PLMN in the EF_{FPLMN} on the USIM.

7.1.3.4 Method of test

7.1.3.4.1 Initial conditions

The USS (in case of a Terminal accessing UTRAN)/ SS (in case of Terminal accessing a GERAN) transmits on the BCCH, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 234/005/0001.
- RAI (MCC/MNC/LAC/RAC): 234/005/0001/05 (only for UTRAN cell).

- Access control: unrestricted.

NOTE: In case of a GERAN no packet system information is transmitted

The default UICC is used with the following exception:

EF_{FPLMN} (Forbidden PLMNs)

Logically:

| | |
|--------|-------------------|
| PLMN1: | empty |
| PLMN2: | empty |
| PLMN3: | empty |
| PLMN4: | empty |
| PLMN5: | 234 005 (MCC MNC) |
| PLMN6: | empty |

| | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|----|----|----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 |
| Hex | FF | FF | FF | FF | FF | FF | FF | FF | FF | FF | FF | FF |
| | B13 | B14 | B15 | B16 | B17 | B18 | | | | | | |
| | 32 | 54 | 00 | FF | FF | FF | | | | | | |

The UICC is installed into the Terminal and the UE is set to manual PLMN selection mode.

In case of a Terminal accessing UTRAN "Expected Sequence A" and in case of a Terminal accessing a GERAN "Expected Sequence B" shall be performed.

7.1.3.4.2 Procedure

Expected Sequence A:

- a) The UE is powered on.
- b) PLMN with MCC/MNC of 234/005 is manually selected.
- c) After receipt of a RRC CONNECTION REQUEST from the UE, the USS sends RRC CONNECTION SETUP to the UE, followed by RRC CONNECTION SETUP COMPLETE sent by the UE to the USS.
- d) Depending on which domain the UE is going to be registered on, one of the following sequences will be passed through:
 - I. During registration on CS and after receipt of a LOCATION UPDATING REQUEST from the UE, the USS initiates authentication, starts integrity by using the security procedure and sends LOCATION UPDATING ACCEPT with to the UE:

LAI (MCC/MNC/LAC): 234/005/0001

TMSI: "12345678"

- II. During registration on PS and after receipt of a ATTACH REQUEST from the UE, the USS initiates authentication, starts integrity by using the security procedure and sends ATTACH ACCEPT with to the UE:

RAI (MCC/MNC/LAC): 234/005/0001/05

P-TMSI: "12345678"

P-TMSI signature value "AB1234"

- III. During registration on CS/PS and after receipt of a LOCATION UPDATING REQUEST and/or ATTACH REQUEST from the UE, the USS initiates authentication, starts integrity by using the security procedure and sends LOCATION UPDATING ACCEPT and/or ATTACH ACCEPT with some of the following values to the UE with:

LAI (MCC/MNC/LAC): 234/005/0001

TMSI: "12345678"

RAI (MCC/MNC/LAC): 234/005/0001/05

P-TMSI: "12345678"

P-TMSI signature value "AB1234"

- e) After passing through the authentication procedure and after receipt of
- I. TMSI REALLOCATION COMPLETE during registration on CS from the UE, the USS sends RRC CONNECTION RELEASE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS or
 - II. ATTACH COMPLETE during registration on PS from the UE, the USS sends RRC CONNECTION RELEASE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS or.
 - III. TMSI REALLOCATION COMPLETE and/or ATTACH COMPLETE during registration on CS/PS from the UE, the USS sends RRC CONNECTION RELEASE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS.
- f) The UE is soft powered down.

Expected Sequence B:

- a) The UE is powered on.
- b) PLMN with MCC/MNC of 234/005 is manually selected.
- c) After receipt of a CHANNEL REQUEST from the UE, the SS sends IMMEDIATE ASSIGNMENT to the UE.
- d) After receipt of a LOCATION UPDATING REQUEST from the UE, the SS sends LOCATION UPDATING ACCEPT with:

LAI (MCC/MNC): 234/005

TMSI: "12345678"

to the UE.
- e) After receipt of TMSI REALLOCATION COMPLETE from the UE, the SS sends CHANNEL RELEASE.
- f) The UE is soft powered down.

7.1.3.5 Acceptance criteria

- 1) After step c) the 2G UE shall send LOCATION UPDATING REQUEST to the SS and the 3G terminal shall send
 - I. LOCATION UPDATING REQUEST to the USS during registration on CS or
 - II. ATTACH REQUEST during registration on PS or
 - III. LOCATION UPDATING REQUEST and/or ATTACH REQUEST to the USS during registration on CS/PS.
- 2) After step d) the 2G UE shall respond with TMSI REALLOCATION COMPLETE and the 3G terminal shall respond with
 - I. TMSI REALLOCATION COMPLETE to the USS during registration on CS or
 - II. ATTACH COMPLETE during registration on PS or
 - III. TMSI REALLOCATION COMPLETE and/or ATTACH COMPLETE to the USS during registration on CS/PS.

3) After step f) the USIM shall contain the following values:

EF_{FPLMN} (Forbidden PLMNs)

Logically: PLMN1: empty
 PLMN2: empty
 PLMN3: empty
 PLMN4: empty
 PLMN5: empty
 PLMN6: empty

| | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|----|----|----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 |
| Hex | FF | FF | FF | FF | FF | FF | FF | FF | FF | FF | FF | FF |
| | B13 | B14 | B15 | B16 | B17 | B18 | | | | | | |
| | FF | FF | FF | FF | FF | FF | | | | | | |

For 2G terminals and 3G terminals supporting CS only or CS/PS :

EF_{LOCI} (Location Information)

Logically: LAI-MCC: 234
 LAI-MNC: 005
 TMSI: "12345678"

| | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
| Hex | 12 | 34 | 56 | 78 | 32 | 54 | 00 | xx | xx | xx | 00 |

For UEs supporting PS only or CS/PS :

EF_{PSLOCI} (Location Information)

Logically: RAI-MCC: 234
 RAI-MNC: 005
 P-TMSI: "12345678"

| | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
| Hex | 12 | 34 | 56 | 78 | xx | xx | xx | 32 | 54 | 00 | xx |

| | | | |
|---------|-----|-----|-----|
| Coding: | B12 | B13 | B14 |
| Hex | xx | xx | 00 |

7.2 User controlled PLMN selector handling

7.2.1 UE updating the User controlled PLMN selector list

7.2.1.1 Definition and applicability

The User controlled PLMN selector list gives in priority order the preferred UPLMNs on which the UE shall register. The Radio Access Technology identifier defines the Radio network in which the UE shall register. The list is stored on the USIM in the EF_{PLMNwACT}. Update and deletion of PLMNs may be performed by the subscriber.

7.2.1.2 Conformance requirement

The UE shall correctly replace the selected UPLMN in the User controlled PLMN selector list.

- TS 31.102 [4], subclause 5.3.6.

7.2.1.3 Test purpose

To verify that the UE correctly updates the $EF_{PLMNwACT}$.

7.2.1.4 Method of test

7.2.1.4.1 Initial conditions

No USS/SS is required for this test.

The default UICC is used.

The UICC is installed into the Terminal and the UE is powered on.

7.2.1.4.2 Procedure

- a) The user shall initiate an MMI dependent procedure to change the second UPLMN in the User controlled PLMN selector list to MCC/MNC of 567/02, the ACT identifier shall set to UTRAN only.
- b) The UE is soft powered down.

7.2.1.5 Acceptance criteria

After step b) the USIM shall contain the following values:

$EF_{PLMNwACT}$ (UPLMN Selector)

| | | |
|------------|------------------------|-------------------|
| Logically: | 1 st PLMN: | 244 081 (MCC MNC) |
| | 1 st ACT: | UTRAN |
| | 2 nd PLMN: | 567 02 |
| | 2 nd ACT: | UTRAN |
| | 3 rd PLMN: | 244 082 |
| | 3 rd ACT: | UTRAN |
| | 4 th PLMN: | 244 082 |
| | 4 th ACT: | GSM |
| | 5 th PLMN: | 244 003 |
| | 5 th ACT: | UTRAN |
| | 6 th PLMN: | 244 004 |
| | 6 th ACT: | UTRAN |
| | 7 th PLMN: | 244 005 |
| | 7 th ACT: | UTRAN |
| | 8 th PLMN: | 244 006 |
| | 8 th ACT: | UTRAN |
| | 9 th PLMN: | 244 007 |
| | 9 th ACT: | UTRAN |
| | 10 th PLMN: | 244 008 |
| | 10 th ACT: | UTRAN |
| | 11 th PLMN: | 244 009 |
| | 11 th ACT: | UTRAN |
| | 12 th PLMN: | 244 010 |
| | 12 th ACT: | UTRAN |

| | | | | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | B13 | B14 | B15 |
| Hex | 42 | 14 | 80 | 80 | 00 | 65 | F7 | 20 | 80 | 00 | 42 | 24 | 80 | 80 | 00 |
| | B16 | B17 | B18 | B19 | B20 | B21 | B22 | B23 | B24 | B25 | B26 | B27 | B28 | B29 | B30 |
| | 42 | 24 | 80 | 00 | 80 | 42 | 34 | 00 | 80 | 00 | 42 | 44 | 00 | 80 | 00 |
| | B31 | B32 | B33 | B34 | B35 | B36 | B37 | B38 | B39 | B40 | B41 | B42 | B43 | B44 | B45 |
| | 42 | 54 | 00 | 80 | 00 | 42 | 64 | 00 | 80 | 00 | 42 | 74 | 00 | 80 | 00 |
| | B46 | B47 | B48 | B49 | B50 | B51 | B52 | B53 | B54 | B55 | B56 | B57 | B58 | B59 | B60 |
| | 42 | 84 | 00 | 80 | 00 | 42 | 94 | 00 | 80 | 00 | 42 | 04 | 10 | 80 | 00 |

7.2.2 UE recognising the priority order of the User controlled PLMN selector list with the same access technology.

7.2.2.1 Definition and applicability

The User controlled PLMN selector list gives in priority order the preferred UPLMNs on which the UE shall register. The Radio Access Technology identifier defines the Radio network in which the UE shall register. The list is stored on the USIM in the EF_{PLMNwACT}. Update and deletion of UPLMNs may be performed by the subscriber by the use of the PIN.

The registration attempts initiated by the terminal accessing UTRAN depends on terminal"s capabilities and can be one of the following:

- I. registration procedures for UEs supporting CS or
- II. registration procedures for UEs supporting PS or
- III. registration procedures for UEs supporting CS/PS

7.2.2.2 Conformance requirement

When registering onto a VPLMN the UE shall take into account the priority order of the UPLMNs in the preferred list on the USIM.

- TS 22.011 [6], subclause 3.2.2.

7.2.2.3 Test purpose

To verify that the UPLMN with the higher priority (defined by its position in EF_{PLMNwACT}) takes precedence over the UPLMN with the lower priority when the UE performs a network selection.

7.2.2.4 Method of test

7.2.2.4.1 Initial conditions

The USS (in case of a Terminal accessing UTRAN)/ SS (in case of a Terminal accessing a GERAN) transmits on two BCCHs, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 244/033/0001.
- RAI (MCC/MNC/LAC/RAC): 244/033/0001/05 (only for UTRAN cell).
- Access control: unrestricted.
- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 244/034/0001.

- RAI (MCC/MNC/LAC/RAC): 244/034/0001/05 (only for UTRAN cell).
- Access control: unrestricted.

NOTE: In case of a GERAN no packet system information is transmitted

The default UICC is used with the following exception:

EF_{PLMNWACT} (UPLMN Selector with Access Technology)

Logically:

| | |
|------------------------|-------------------|
| 1 st PLMN: | 244 081 (MCC MNC) |
| 1 st ACT: | UTRAN |
| 2 nd PLMN: | 244 081 |
| 2 nd ACT: | GSM |
| 3 rd PLMN: | 244 082 |
| 3 rd ACT: | UTRAN |
| 3 rd PLMN: | 244 082 |
| 3 rd ACT: | GSM |
| | |
| | |
| 8 th PLMN: | 244 034 |
| 8 th ACT: | GSM |
| 9 th PLMN: | 244 033 |
| 9 th ACT: | GSM |
| 10 th PLMN: | 244 008 |
| 10 th ACT: | UTRAN |
| 11 th PLMN: | 244 034 |
| 11 th ACT: | UTRAN |
| 12 th PLMN: | 244 033 |
| 12 th ACT: | UTRAN |

| | | | | | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-------|-------|-------|-------|-------|-----|-----|-----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | B13 | B14 | B15 | |
| Hex | 42 | 14 | 80 | 80 | 00 | 42 | 14 | 80 | 00 | 80 | 42 | 24 | 80 | 80 | 00 | |
| | | | | | | | | | | | | | | | | |
| | B16 | B17 | B18 | B19 | B20 | | | | | | | | | | | |
| | 42 | 24 | 80 | 00 | 80 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | B36 | B37 | B38 | B39 | B40 | B41 | B42 | B43 | B44 | B45 |
| | | | | | | | 42 | 44 | 30 | 00 | 80 | 42 | 34 | 30 | 00 | 80 |
| | | | | | | | | | | | | | | | | |
| | B46 | B47 | B48 | B49 | B50 | B51 | B52 | B53 | B54 | B55 | B56 | B57 | B58 | B59 | B60 | |
| | 42 | 84 | 00 | 80 | 00 | 42 | 44 | 30 | 80 | 00 | 42 | 34 | 30 | 80 | 00 | |

The UICC is installed into the Terminal and the UE is set to automatic PLMN selection mode.

In case of a Terminal accessing UTRAN "Expected Sequence A" and in case of a Terminal accessing a GERAN "Expected Sequence B" shall be performed.

7.2.2.4.2 Procedure

Expected Sequence A:

- a) The UE is powered on.
- b) After receipt on the cell related to the BCCH transmitting MCC/MNC 244/034 of a RRC CONNECTION REQUEST from the UE, the USS sends RRC CONNECTION SETUP to the UE, followed by RRC CONNECTION SETUP COMPLETE sent by the UE to the USS.
- c) Depending on which domain the UE is going to be registered on, one of the following sequences will be passed through:
 - I. During registration on CS and after receipt of a LOCATION UPDATING REQUEST from the UE, the USS initiates authentication, starts integrity by using the security procedure and sends LOCATION UPDATING ACCEPT to the UE with the following values:

LAI (MCC/MNC/LAC): 244/034/0001

TMSI:"34567890"

- II. During registration on PS and after receipt of a ATTACH REQUEST from the UE, the USS initiates authentication, starts integrity by using the security procedure and sends ATTACH ACCEPT to the UE with the following values :

RAI (MCC/MNC/LAC/RAC) 244/034/0001/05

P-TMSI "34567890"

P-TMSI signature value "AB1234"

- III. During registration on CS/PS and after receipt of a LOCATION UPDATING REQUEST and/or ATTACH REQUEST from the UE, the USS initiates authentication, starts integrity by using the security procedure and sends LOCATION UPDATING ACCEPT and/or ATTACH ACCEPT to the UE with some of the following values :

LAI (MCC/MNC/LAC): 244/034/0001

TMSI:"34567890"

RAI (MCC/MNC/LAC/RAC) 244/034/0001/05

P-TMSI "34567890"

P-TMSI signature value "AB1234"

- d) After passing through the authentication procedure and after receipt of

- I. TMSI REALLOCATION COMPLETE during registration on CS from the UE, the USS sends RRC CONNECTION RELEASE to the UE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS or
- II. ATTACH COMPLETE during registration on PS from the UE, the USS sends RRC CONNECTION RELEASE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS or.
- III. TMSI REALLOCATION COMPLETE and/or ATTACH COMPLETE during registration on CS/PS from the UE, the USS sends RRC CONNECTION RELEASE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS.

- e) The UE is soft powered down.

Expected Sequence B:

- a) The UE is powered on.
- b) After receipt of a CHANNEL REQUEST from the UE, the SS sends IMMEDIATE ASSIGNMENT to the UE.
- c) After receipt of a LOCATION UPDATING REQUEST from the UE, the SS sends LOCATION UPDATING ACCEPT with:

LAI (MCC/MNC): 244/034

TMSI: "34567890"

to the UE

- d) After receipt of a TMSI REALLOCATION COMPLETE from the UE, the SS sends CHANNEL RELEASE to the UE.
- e) The UE is soft powered down.

7.2.2.5 Acceptance criteria

- 1) After step a) the UE accessing a GERAN shall send CHANNEL REQUEST on the cell related to the BCCH transmitting MCC/MNC 244/034 to the SS and the UE accessing UTRAN shall send an RRC CONNECTION REQUEST on the cell related to the BCCH transmitting MCC/MNC 244/034 to the USS.
- 2) After step b) the UE accessing a GERAN shall send LOCATION UPDATING REQUEST to the SS and the UE accessing UTRAN shall send
 - I. LOCATION UPDATING REQUEST to the USS during registration on CS or
 - II. ATTACH REQUEST to the USS during registration on PS or
 - III. LOCATION UPDATING REQUEST and/or ATTACH REQUEST to the USS during registration on CS/PS.
- 3) After step c) the UE accessing a GERAN shall respond with TMSI REALLOCATION COMPLETE and the UE accessing UTRAN shall respond with
 - I. TMSI REALLOCATION COMPLETE to the USS during registration on CS or
 - II. ATTACH COMPLETE during registration on PS or
 - III. TMSI REALLOCATION COMPLETE and/or ATTACH COMPLETE to the USS during registration on CS/PS.
- 4) After step e) the USIM shall contain the following values:

For UEs accessing GERAN and UEs accessing UTRAN and supporting (CS and PS) or (CS only):

EF_{LocI} (Location Information)

Logically: LAI-MCC: 244
 LAI-MNC: 034
 TMSI: "34567890"

| | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
| Hex | 34 | 56 | 78 | 90 | 42 | 44 | 30 | xx | xx | xx | 00 |

For UEs accessing UTRAN and supporting (CS and PS) or (PS only):

EF_{PSLocI} (Location Information)

Logically: RAI-MCC: 244
 RAI-MNC: 034
 P-TMSI: "34567890"

| | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
| Hex | 34 | 56 | 78 | 90 | xx | xx | xx | 42 | 44 | 30 | xx |

| | | | |
|---------|-----|-----|-----|
| Coding: | B12 | B13 | B14 |
| Hex | xx | xx | 00 |

7.2.3 UE recognising the priority order of the User controlled PLMN selector list using an ACT preference.

7.2.3.1 Definition and applicability

The User controlled PLMN selector list gives in priority order the preferred PLMNs of the User on which the UE shall register. The Radio Access Technology identifier defines the Radio network in which the UE shall register. The list is stored on the USIM in the EF_{PLMNwACT}. Update and deletion of User controlled PLMNs may be performed by the subscriber by the use of the PIN.

7.2.3.2 Conformance requirement

When registering onto a VPLMN the UE shall take into account the priority of the ACT identifier in the preferred list on the USIM.

- TS 22.011 [6], subclause 3.2.2;
- TS 31.102 [4], subclauses 4.2.5 and 5.1.2.

7.2.3.3 Test purpose

To verify that the ACT with the higher priority (defined by its position in EF_{PLMNwACT}) takes precedence over the UPLMN with the lower priority when the UE performs a network selection.

7.2.3.4 Method of test

7.2.3.4.1 Initial conditions

For this test both a GSM SS and an UTRAN USS is needed.

The GSM SS transmits on BCCH, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 244/081/0001.
- Access control: unrestricted.

The UMTS USS transmits on BCCH, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 244/082/0001.
- Access control: unrestricted.

The default UICC is used.

The UICC is installed into the Terminal and the UE is set to automatic PLMN selection mode.

7.2.3.4.2 Procedure

- a) The UE is powered on.
- b) After receipt of a CHANNEL REQUEST from the UE on the GSM-cell related to the BCCH transmitting MCC/MNC 244/081, the SS sends IMMEDIATE ASSIGNMENT to the UE.
- c) After receipt of a LOCATION UPDATING REQUEST from the UE, the SS sends LOCATION UPDATING ACCEPT with:
 - LAI (MCC/MNC): 244/081
 - TMSI: "34567890"to the UE.
- d) After receipt of a TMSI REALLOCATION COMPLETE from the UE, the SS sends CHANNEL RELEASE to the UE.
- e) The UE is soft powered down.

7.2.3.5 Acceptance criteria

- 1.) After step a) the UE shall send a CHANNEL REQUEST on the GSM-cell related to the BCCH transmitting MCC/MNC 244/081 to the SS.
- 2) After step b) the UE shall send LOCATION UPDATING REQUEST to the SS.
- 3) After step c) the UE shall respond with TMSI REALLOCATION COMPLETE.
- 4) After step e) the USIM shall contain the following values:

EF_{LocI} (Location Information)

Logically: LAI-MCC: 244
 LAI-MNC: 081
 TMSI: "34567890"

| | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
| Hex | 34 | 56 | 78 | 90 | 42 | 14 | 80 | xx | xx | xx | 00 |

7.2.4 Void

7.3 Operator controlled PLMN selector handling

7.3.1 UE recognising the priority order of the Operator controlled PLMN selector list.

7.3.1.1 Definition and applicability

The Operator controlled PLMN selector list gives in priority order the preferred OPLMNs on which the UE shall register if no network of the User controlled PLMN selector list is available. The Radio Access Technology identifier defines the Radio network in which the UE shall register. The list is stored on the USIM in the EF_{OPLMNwACT}. Update and deletion of OPLMNs shall not be possible by the subscriber by the use of the PIN.

The registration attempts initiated by the UE accessing UTRAN depends on UE"s capabilities and can be one of the following:

- I. registration procedures for UEs supporting CS or
- II. registration procedures for UEs supporting PS or
- III. registration procedures for UEs supporting CS/PS

7.3.1.2 Conformance requirement

When registering onto a VPLMN the UE shall take into account the priority of OPLMNs in the preferred list on the USIM.

- TS 22.011 [6], subclause 3.2.2;
- TS 31.102 [4], subclause 4.2.53.

7.3.1.3 Test purpose

To verify that the OPLMN with the higher priority (defined by its position in EF_{OPLMNwACT}) takes precedence over the OPLMN with the lower priority when the UE performs a network selection.

7.3.1.4 Method of test

7.3.1.4.1 Initial conditions

For this test a USS (in case of a Terminal accessing UTRAN) or a SS (in case of a Terminal accessing a GERAN) is needed.

The USS (in case of a Terminal accessing UTRAN)/ SS (in case of a Terminal accessing a GERAN) transmits on two BCCHs, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 254/011/0001.
- RAI (MCC/MNC/LAC/RAC): 254/011/0001/05 (for UTRAN cell only).
- Access control: unrestricted.
- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 244/012/0001.
- RAI (MCC/MNC/LAC/RAC): 254/012/0001/05 (for UTRAN cell only).
- Access control: unrestricted.

NOTE: In case of a GERAN no packet system information is transmitted.

The default UICC is used with the following exceptions:

EF_{UST} (USIM Service Table)

Logically: Local Phone Book available
 User controlled PLMN selector available
 Fixed dialling numbers available
 Barred dialling numbers available
 The GSM Access available
 The Group Identifier level 1 and level 2 not available
 Service n 33 (Packed Switched Domain) shall be set to '1'
 Enabled Services Table available
 Operator controlled PLMN selector available

| Coding: | B1 | B2 | B3 | B4 | B5 | B6 |
|---------|-----------|-----------|-----------|-----------|-----------|-----------|
| binary | xx1x xx11 | xxxx xxxx | xxxx 1x00 | xxxx x1xx | xxxx xx11 | xxxx xx1x |

The coding of EF_{UST} shall conform with the capabilities of the USIM used.

EF_{OPLMNwACT} (OPLMN Selector)

Logically:

| | |
|-----------------------|-------------------|
| 1 st PLMN: | 254 012 (MCC MNC) |
| 1 st ACT: | UTRAN |
| 2 nd PLMN: | 254 011 |
| 2 nd ACT: | UTRAN |
| 3 rd PLMN: | 254 002 |
| 3 rd ACT: | UTRAN |
| 4 th PLMN: | 254 012 |
| 4 th ACT: | GSM |
| 5 th PLMN: | 254 011 |
| 5 th ACT: | GSM |
| 6 th PLMN: | 254 005 |
| 6 th ACT: | UTRAN |
| 7 th PLMN: | 254 006 |
| 7 th ACT: | UTRAN |
| 8 th PLMN: | 254 007 |

8th ACT: UTRAN

| | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Coding: | B01 | B02 | B03 | B04 | B05 | B06 | B07 | B08 | B09 | B10 |
| Hex | 52 | 24 | 10 | 80 | 00 | 52 | 14 | 10 | 80 | 00 |
| | B11 | B12 | B13 | B14 | B15 | B16 | B17 | B18 | B19 | B20 |
| | 52 | 24 | 00 | 80 | 00 | 52 | 14 | 10 | 00 | 80 |
| | B21 | B22 | B23 | B24 | B25 | B26 | B27 | B28 | B29 | B30 |
| | 52 | 14 | 10 | 00 | 80 | 52 | 54 | 00 | 80 | 00 |
| | B31 | B32 | B33 | B34 | B35 | B36 | B37 | B38 | B39 | B40 |
| | 52 | 64 | 00 | 80 | 00 | 52 | 74 | 00 | 80 | 00 |

The UICC is installed into the Terminal and the UE is set to automatic PLMN selection mode.

In case of a Terminal accessing UTRAN "Expected Sequence A" and in case of a Terminal accessing a GERAN "Expected Sequence B" shall be performed.

7.3.1.4.2 Procedure

Expected Sequence A:

- a) The UE is powered on.
- b) After receipt on the cell related to the BCCH transmitting MCC/MNC 254/012 of a RRC CONNECTION REQUEST from the UE, the USS sends RRC CONNECTION SETUP to the UE, followed by RRC CONNECTION SETUP COMPLETE sent by the UE to the USS.
- c) Depending on which domain the UE is going to be registered on, one of the following requirements should be fulfilled:
 - I. During registration on CS and after receipt of a LOCATION UPDATING REQUEST from the UE, the USS initiates authentication, starts integrity by using the security procedure and sends LOCATION UPDATING ACCEPT to the UE with the following values:

LAI (MCC/MNC/LAC): 254/012/001

TMSI: "34567890"

- II. During registration on PS and after receipt of a ATTACH REQUEST from the UE, the USS initiates authentication, starts integrity by using the security procedure and sends ATTACH ACCEPT to the UE. with following values :

RAI (MCC/MNC/LAC/RAC) 254/012/0001/05

P-TMSI "34567890"

P-TMSI signature value "AB1234"

- III. During registration on CS/PS and after receipt of a LOCATION UPDATING REQUEST and/or ATTACH REQUEST from the UE, the USS initiates authentication, starts integrity by using the security procedure and sends LOCATION UPDATING ACCEPT and/or ATTACH ACCEPT to the UE. with some of the following values :

LAI (MCC/MNC): 254/012/0001

TMSI: "34567890"

RAI (MCC/MNC/LAC/RAC) 254/012/0001/05

P-TMSI "34567890"

P-TMSI signature value "AB1234"

- d) After receipt of a

- I. TMSI REALLOCATION COMPLETE during registration on CS from the UE, the USS sends RRC CONNECTION RELEASE to the UE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS.
- II. ATTACH COMPLETE during registration on PS from the UE, the USS sends RRC CONNECTION RELEASE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS or.
- III. TMSI REALLOCATION COMPLETE and/or ATTACH COMPLETE during registration on CS/PS from the UE, the USS sends RRC CONNECTION RELEASE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS.

e) The UE is soft powered down.

Expected Sequence B:

- a) The UE is powered on.
- b) After receipt of a CHANNEL REQUEST from the UE, the SS sends IMMEDIATE ASSIGNMENT to the UE.
- c) After receipt of a LOCATION UPDATING REQUEST from the UE, the SS sends LOCATION UPDATING ACCEPT with:

LAI (MCC/MNC): 254/012

TMSI: "34567890"

to the UE.

- d) After receipt of a TMSI REALLOCATION COMPLETE from the UE, the SS sends CHANNEL RELEASE to the UE.

e) The UE is soft powered down.

7.3.1.5 Acceptance criteria

- 1) After step a) the UE accessing a GERAN shall send CHANNEL REQUEST on the cell related to the BCCH transmitting MCC/MNC 254/012 to the SS and the UE accessing UTRAN shall send an RRC CONNECTION REQUEST on the cell related to the BCCH transmitting MCC/MNC 254/012 to the USS.
- 2) After step b) the UE accessing a GERAN shall send LOCATION UPDATING REQUEST to the SS and the UE accessing UTRAN shall send
 - I. LOCATION UPDATING REQUEST to the USS during registration on CS or
 - II. ATTACH REQUEST. to the USS during registration on PS or
 - III. LOCATION UPDATING REQUEST and/or ATTACH REQUEST to the USS during registration on CS/PS.
- 3) After step c) the UE accessing GERAN shall respond with TMSI REALLOCATION COMPLETE and the UE accessing UTRAN shall respond with
 - I. TMSI REALLOCATION COMPLETE during registration on CS or
 - II. ATTACH COMPLETE during registration on PS or
 - III. TMSI REALLOCATION COMPLETE and/or ATTACH COMPLETE to the USS during registration on CS/PS.

4) After step e) the USIM shall contain the following values:

For UEs accessing GERAN and UEs accessing UTRAN and supporting (CS and PS) or (CS only):

EF_{LOCI} (Location Information)

Logically: LAI-MCC: 254
LAI-MNC: 012
TMSI: "34567890"

| | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
| Hex | 34 | 56 | 78 | 90 | 52 | 24 | 10 | xx | xx | xx | 00 |

For UEs supporting (CS and PS) or (PS only):

EF_{PSLOCI} (Location Information)

Logically: RAI-MCC: 254
RAI-MNC: 012
P-TMSI: "34567890"

| | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
| Hex | 34 | 56 | 78 | 90 | xx | xx | xx | 52 | 24 | 10 | xx |

| | | | |
|---------|-----|-----|-----|
| Coding: | B12 | B13 | B14 |
| Hex | xx | xx | 00 |

7.3.2 UE recognising the priority order of the User controlled PLMN selector over the Operator controlled PLMN selector list.

7.3.2.1 Definition and applicability

The User controlled PLMN selector list has a higher priority as the OPLMN selector list on which the UE shall register. The Radio Access Technology identifier defines the Radio network in which the UE shall register. The list is stored on the USIM in the EF_{PLMNwACT}.

The registration attempts initiated by the terminal accessing UTRAN depends on terminal's capabilities and can be one of the following:

- I. registration procedures for UEs supporting CS or
- II. registration procedures for UEs supporting PS or
- III. registration procedures for UEs supporting CS/PS

7.3.2.2 Conformance requirement

When registering onto a VPLMN the UE shall take into account the priority of UPLMNs first before the OPLMNs in the preferred list on the USIM.

- TS 22.011 [6], subclause 3.2.2.2;
- TS 31.102 [4], subclauses 4.2.5 and 4.2.53.

7.3.2.3 Test purpose

To verify that the User controlled PLMN with a lower priority (defined by its position in EF_{PLMNwACT}) takes precedence over the OPLMN with a higher priority when the UE performs a network selection.

7.3.2.4 Method of test

7.3.2.4.1 Initial conditions

For this test a USS (in case of a Terminal accessing UTRAN) or a SS (in case of a Terminal accessing a GERAN) is needed.

The USS (in case of a Terminal accessing UTRAN)/ SS (in case of a Terminal accessing a GERAN) transmits on two BCCHs, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 254/001/0001.
- RAI (MCC/MNC/LAC/RAC): 254/001/0001/05 (only for UTRAN cell).- Access control: unrestricted.
- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 244/010/0001.
- RAI (MCC/MNC/LAC/RAC): 244/010/0001/05 (only for UTRAN cell)..
- Access control: unrestricted.

NOTE: In case of a GERAN no packet system information is transmitted

The default UICC is used with the following exception:

EF_{UST} (USIM Service Table)

Logically: Local Phone Book available
 User controlled PLMN selector available
 Fixed dialling numbers available
 Barred dialling numbers available
 The GSM Access available
 The Group Identifier level 1 and level 2 not available
 Service n 33 (Packed Switched Domain) shall be set to 'I'
 Enabled Services Table available
 Operator controlled PLMN selector available

| | | | | | | |
|---------|-----------|-----------|-----------|-----------|-----------|-----------|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 |
| binary | xx1x xx11 | xxxx xxxx | xxxx 1x00 | xxxx x1xx | xxxx xx11 | xxxx xx1x |

The coding of EF_{UST} shall conform with the capabilities of the USIM used.

EF_{PLMNwACT} (UPLMN Selector with Access Technology)

Logically: 1st PLMN: 244 081 (MCC MNC)
 1st ACT: UTRAN
 2nd PLMN: 244 081
 2nd ACT: GSM
 3rd PLMN: 244 082
 3rd ACT: UTRAN
 4th PLMN: 244 082
 4th ACT: GSM
 5th PLMN: 244 003
 5th ACT: UTRAN
 6th PLMN: 244 004
 6th ACT: UTRAN
 7th PLMN: 244 005
 7th ACT: UTRAN
 8th PLMN: 244 006
 8th ACT: UTRAN

9th PLMN: 244 007
 9th ACT: UTRAN
 10th PLMN: 244 008
 10th ACT: UTRAN
 11th PLMN: 244 010
 11th ACT: UTRAN
 12th PLMN: 244 010
 12th ACT: GSM

| | | | | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | B13 | B14 | B15 |
| Hex | 42 | 14 | 80 | 80 | 00 | 42 | 14 | 80 | 00 | 80 | 42 | 24 | 80 | 80 | 00 |
| | B16 | B17 | B18 | B19 | B20 | B21 | B22 | B23 | B24 | B25 | B26 | B27 | B28 | B29 | B30 |
| | 42 | 24 | 80 | 00 | 80 | 42 | 24 | 00 | 80 | 00 | 42 | 44 | 00 | 80 | 00 |
| | B31 | B32 | B33 | B34 | B35 | B36 | B37 | B38 | B39 | B40 | B41 | B42 | B43 | B44 | B45 |
| | 42 | 54 | 00 | 80 | 00 | 42 | 64 | 00 | 80 | 00 | 42 | 74 | 00 | 80 | 00 |
| | B46 | B47 | B48 | B49 | B50 | B51 | B52 | B53 | B54 | B55 | B56 | B57 | B58 | B59 | B60 |
| | 42 | 84 | 00 | 80 | 00 | 42 | 04 | 10 | 80 | 00 | 42 | 04 | 10 | 00 | 80 |

The UICC is installed into the Terminal and the UE is set to automatic PLMN selection mode.

In case of a Terminal accessing UTRAN "Expected Sequence A" and in case of a Terminal accessing a GERAN "Expected Sequence B" shall be performed.

7.3.2.4.2 Procedure

Expected Sequence A:

- a) The UE is powered on.
- b) After receipt of a RRC CONNECTION REQUEST from the UE on the cell related to the BCCH transmitting MCC/MNC 244/010, the USS sends RRC CONNECTION SETUP to the UE, followed by RRC CONNECTION SETUP COMPLETE sent by the UE to the USS.
- c) Depending on which domain the UE is going to be registered on , one of the following requirements should be fulfilled:

- I. During registration on CS and after receipt of a LOCATION UPDATING REQUEST from the UE, the USS initiates authentication, starts integrity by using the security procedure and sends LOCATION UPDATING ACCEPT to the UE with the following values:

LAI (MCC/MNC/LAC): 244/010/0001

TMSI: "34567890"

- II. During registration on PS and after receipt of a ATTACH REQUEST from the UE, the USS initiates authentication, starts integrity by using the security procedure and sends ATTACH ACCEPT with the following values :

RAI (MCC/MNC/LAC/RAC) 244/010/0001/05

P-TMSI "34567890"

P-TMSI signature value "AB1234"

- III. During registration on CS/PS and after receipt of a LOCATION UPDATING REQUEST and/or ATTACH REQUEST from the UE, the USS initiates authentication, starts integrity by using the security procedure and sends LOCATION UPDATING ACCEPT and/or ATTACH ACCEPT with some of the following values :

LAI (MCC/MNC/LAC): 244/010/0001

TMSI: "34567890"

RAI (MCC/MNC/LAC/RAC) 244/010/0001/05

P-TMSI "34567890"

P-TMSI signature value "AB1234"

d) After receipt of a

- I. TMSI REALLOCATION COMPLETE during registration on CS from the UE, the USS sends RRC CONNECTION RELEASE to the UE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS.
- II. ATTACH COMPLETE during registration on PS from the UE, the USS sends RRC CONNECTION RELEASE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS or.
- III. TMSI REALLOCATION COMPLETE and/or ATTACH COMPLETE during registration on CS/PS from the UE, the USS sends RRC CONNECTION RELEASE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS.

e) The UE is soft powered down.

Expected Sequence B:

- a) The UE is powered on.
- b) After receipt of a CHANNEL REQUEST from the UE, the SS sends IMMEDIATE ASSIGNMENT to the UE.
- c) After receipt of a LOCATION UPDATING REQUEST from the UE, the SS sends LOCATION UPDATING ACCEPT with:

LAI (MCC/MNC): 244/010

TMSI: "34567890"

to the UE.

- d) After receipt of a TMSI REALLOCATION COMPLETE from the UE, the SS sends CHANNEL RELEASE to the UE.
- e) The UE is soft powered down.

7.3.2.5 Acceptance criteria

- 1) After step a) the UE accessing a GERAN shall send CHANNEL REQUEST on the cell related to the BCCH transmitting MCC/MNC 244/010 to the SS and the UE accessing UTRAN shall send an RRC CONNECTION REQUEST on the cell related to the BCCH transmitting MCC/MNC 244/010 to the USS.
- 2) After step b) the UE accessing a GERAN shall send LOCATION UPDATING REQUEST to the SS and the UE accessing UTRAN shall send
 - I. LOCATION UPDATING REQUEST to the USS during registration on CS or
 - II. ATTACH REQUEST during registration on PS or
 - III. LOCATION UPDATING REQUEST and/or ATTACH REQUEST to the USS during registration on CS/PS.
- 3) After step c) the UE accessing GERAN shall respond with TMSI REALLOCATION COMPLETE and the UE accessing UTRAN shall respond with
 - I. TMSI REALLOCATION COMPLETE during registration on CS or
 - II. ATTACH COMPLETE during registration on PS or
 - III. TMSI REALLOCATION COMPLETE and/or ATTACH COMPLETE to the USS during registration on CS/PS..
- 4) After step e) the USIM shall contain the following values:

For UEs accessing GERAN and UEs accessing UTRAN and supporting (CS and PS) or (CS only):

EF_{LOCI} (Location Information)

Logically: LAI-MCC: 244
 LAI-MNC: 010
 TMSI: "34567890"

| | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
| | 34 | 56 | 78 | 90 | 42 | 04 | 10 | xx | xx | xx | 00 |

For UEs supporting (CS and PS) or (PS only):

EF_{PSLOCI} (Location Information)

Logically: RAI-MCC: 244
 RAI-MNC: 010
 P-TMSI: "34567890"

| | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
| Hex | 34 | 56 | 78 | 90 | xx | xx | xx | 42 | 04 | 10 | xx |

| | | | |
|---------|-----|-----|-----|
| Coding: | B12 | B13 | B14 |
| Hex | xx | xx | 00 |

7.4 Higher priority PLMN search handling

7.4.1 UE recognising the search period of the Higher priority PLMN

7.4.1.1 Definition and applicability

The Higher priority PLMN list gives in priority order the Higher priority PLMN on which the UE shall register first. The Higher priority PLMN search period gives the time interval in which the UE shall search for a possible Higher priority PLMN registration.

The registration attempts initiated by the terminal accessing UTRAN depends on terminal"s capabilities and can be one of the following:

- I. registration procedures for UEs supporting CS or
- II. registration procedures for UEs supporting PS or
- III. registration procedures for UEs supporting CS/PS

7.4.1.2 Conformance requirement

After registered onto a VPLMN the UE shall take into account the Higher priority PLMN search period timer and the priority order of the Higher priority PLMNs in the preferred list on the USIM.

- TS 22.011 [6], subclauses 3.2.2 and 3.2.2.5.
- TS 24.008 [16], subclause 4.7.5

7.4.1.3 Test purpose

To verify that the Higher priority PLMN timer is read and the Higher priority PLMN takes precedence over the VPLMN in which the UE is currently registered in.

7.4.1.4 Method of test

7.4.1.4.1 Initial conditions

For this test an UTRAN USS (in case of a Terminal accessing UTRAN) or a SS (in case of Terminal accessing a GERAN) is needed.

The USS (in case of a Terminal accessing UTRAN)/ SS (in case of Terminal accessing a GERAN) transmits on BCCH, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 244/082/0001.
- RAI (MCC/MNC/LAC/RAC): 244/082/0001/05 (only for UTRAN cell).
- Access control: unrestricted.

After the registration of UE the USS (in case of a Terminal accessing UTRAN) or a SS (in case of Terminal accessing a GERAN) transmits on a second BCCH, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 244/081/0001.
- RAI (MCC/MNC/LAC/RAC): 244/081/0001/05. (only for UTRAN cell)
- Access control: unrestricted.

NOTE: In case of a GERAN no packet system information is transmitted

The default UICC shall be used with the following exception:

EF_{HPPLMN} (Higher Priority PLMN Search period)

Logically: set to 6minutes

Coding: B1
Hex 01

The UICC shall be installed into the Terminal and the UE shall be set to automatic PLMN selection mode.

In case of a Terminal accessing UTRAN "Expected Sequence A" and in case of a Terminal accessing a GERAN "Expected Sequence B" shall be performed.

7.4.1.4.2 Procedure

Expected sequence A:

- a) The UE shall be powered on.
- b) After receipt of a RRC CONNECTION REQUEST from the UE, the USS shall send RRC CONNECTION SETUP to the UE, followed by RRC CONNECTION SETUP COMPLETE sent by the UE to the USS.
- c) Depending on which domain the UE is going to be registered on, one of the following sequences will be passed through:
 - I. During registration on CS and after receipt of a LOCATION UPDATING REQUEST from the UE, the USS initiates authentication, starts integrity by using the security procedure and sends LOCATION UPDATING ACCEPT to the UE with the following values:

LAI (MCC/MNC/LAC): 244/082/0001

TMSI: "34567890"

- II. During registration on PS and after receipt of a ATTACH REQUEST from the UE, the USS initiates authentication, starts integrity by using the security procedure and sends ATTACH ACCEPT with the following values to the UE:

RAI (MCC/MNC/LAC/RAC): 244/082/0001/05

P-TMSI : "34567890"

P-TMSI signature value: "AB1234"

- III. During registration on CS/PS and after receipt of a LOCATION UPDATING REQUEST and/or ATTACH REQUEST from the UE, the USS initiates authentication, starts integrity by using the security procedure and sends LOCATION UPDATING ACCEPT and/or ATTACH ACCEPT with some of the following values to the UE:

LAI (MCC/MNC/LAC): 244/082/0001

TMSI: "34567890"

RAI (MCC/MNC/LAC/RAC)244/082/0001/05

P-TMSI "34567890"

P-TMSI signature value "AB1234"

- d) Depending on which domain the UE is going to be registered on, one of the following sequences will be passed through:

- I. After receipt of a TMSI REALLOCATION COMPLETE from the UE during registration on CS, the USS sends RRC CONNECTION RELEASE to the UE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS.

- II. After receipt of a ATTACH COMPLETE from the UE during registration on PS, the USS sends RRC CONNECTION RELEASE to the UE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS or.

- III. After receipt of a TMSI REALLOCATION COMPLETE and/or ATTACH COMPLETE from the UE during registration on CS/PS, the USS sends RRC CONNECTION RELEASE to the UE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS.

- e) The USS starts to send on the second BCCH with the MCC/MNC 244/081. An internal timer shall start to run.

- f) After receipt on the cell related to the BCCH transmitting MCC/MNC 244/081 of a RRC CONNECTION REQUEST from the UE, the USS sends RRC CONNECTION SETUP to the UE, followed by RRC CONNECTION SETUP COMPLETE sent by the UE to the USS. The internal timer is stopped.

- g) Depending on which domain the UE is going to be registered on, one of the following sequences will be passed through:

- I. During registration on CS and after receipt of a LOCATION UPDATING REQUEST from the UE, the USS initiates authentication, starts integrity by using the security procedure and sends LOCATION UPDATING ACCEPT to the UE with following values:

LAI (MCC/MNC/LAC): 244/081/0001

TMSI: "12345678"

- II. During registration on PS and after receipt of a ROUTING AREA UPDATE REQUEST from the UE, the USS initiates authentication, starts integrity by using the security procedure and sends ROUTING AREA UPDATE ACCEPT with the following values to the UE:

RAI (MCC/MNC/LAC/RAC): 244/081/0001/05

P-TMSI "12345678"

P-TMSI signature value "AB1234"

III. During registration on CS/PS and after receipt of a LOCATION UPDATING REQUEST and/or ROUTING AREA UPDATE REQUEST from the UE, the USS initiates authentication, starts integrity by using the security procedure and sends LOCATION UPDATING ACCEPT and/or ROUTING AREA UPDATE ACCEPT with some of the following values to the UE:

LAI (MCC/MNC/LAC): 244/081/0001
 TMSI: "12345678"
 RAI (MCC/MNC/LAC/RAC)244/081/0001/05
 P-TMSI "12345678"

P-TMSI signature value "AB1234"

- h) Depending on which domain the UE is going to be registered on, one of the following sequences will be passed through:
- I. After receipt of a TMSI REALLOCATION COMPLETE from the UE during registration on CS, the USS sends RRC CONNECTION RELEASE to the UE followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS or
 - II. After receipt of a ROUTING AREA UPDATE COMPLETE from the UE during registration on PS, the USS sends RRC CONNECTION RELEASE to the UE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS or.
 - III. After receipt of a TMSI REALLOCATION COMPLETE and/or ROUTING AREA UPDATE COMPLETE from the UE during registration on CS/PS, the USS sends RRC CONNECTION RELEASE to the UE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS.
- i) The UE is soft powered down.

Expected sequence B:

- a) The UE shall be powered on.
- b) After receipt of a CHANNEL REQUEST from the UE, the SS shall send IMMEDIATE ASSIGNMENT to the UE.
- c) After receipt of a LOCATION UPDATING REQUEST from the UE, the SS sends LOCATION UPDATING ACCEPT with:

LAI (MCC/MNC): 244/081
 TMSI: "34567890"

 to the UE.
- d) After receipt of a TMSI REALLOCATION COMPLETE from the UE, the SS sends CHANNEL RELEASE to the UE.
- e) The SS starts to send on the second BCCH with the MCC/MNC 244/081. An internal timer shall start to run.
- f) After receipt of a CHANNEL REQUEST from the UE, the SS sends IMMEDIATE ASSIGNMENT to the UE. The internal timer is stopped.
- g) After receipt of a LOCATION UPDATING REQUEST from the UE, the SS sends LOCATION UPDATING ACCEPT with:

LAI (MCC/MNC): 246/081
 TMSI: "12345678"

 to the UE.
- h) After receipt of a TMSI REALLOCATION COMPLETE from the UE, the SS sends CHANNEL RELEASE to the UE.

- i) The UE is soft powered down.

7.4.1.5 Acceptance criteria

- 1) After step e) the UE accessing a GERAN shall send CHANNEL REQUEST on the cell related to the BCCH transmitting MCC/MNC 244/081 to the SS and the UE accessing UTRAN shall send an RRC CONNECTION REQUEST on the cell related to the BCCH transmitting MCC/MNC 246/081 to the USS
- 2) After step e) the UE accessing a GERAN shall send LOCATION UPDATING REQUEST to the SS and the UE accessing UTRAN shall send
 - I. LOCATION UPDATING REQUEST to the USS during registration on CS or
 - II. ROUTING AREA UPDATE REQUEST during registration on PS or
 - III. LOCATION UPDATING REQUEST and/or ROUTING AREA UPDATE REQUEST to the USS during registration on CS/PS.
- 3) After step g) the UE accessing a GERAN shall respond with TMSI REALLOCATION COMPLETE and the UE accessing UTRAN shall respond with
 - I. TMSI REALLOCATION COMPLETE to the USS during registration on CS or
 - II. ROUTING AREA UPDATE COMPLETE during registration on PS or
 - III. TMSI REALLOCATION COMPLETE and/or ROUTING AREA UPDATE COMPLETE to the USS during registration on CS/PS.
- 4) The value of the internal timer shall not exceed 6 minutes.

NOTE: To take the systems processing time into account, the value of the internal timer may allowed to be a guard time of 10 % greater than the required 6 minutes.

- 5) After step i) the USIM shall contain the following values:

For UEs accessing GERAN and UEs accessing UTRAN and supporting (CS and PS) or (CS only):

EF_{LOCI} (Location Information)

Logically: LAI-MCC: 244
 LAI-MNC: 081
 TMSI: "12345678"

| | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
| Hex | 12 | 34 | 56 | 78 | 42 | 14 | 80 | xx | xx | xx | 00 |

For UEs supporting (CS and PS) or (PS only):

EF_{PSLOCI} (Location Information)

Logically: RAI-MCC: 244
 RAI-MNC: 081
 P-TMSI: "12345678"

| | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
| Hex | 12 | 34 | 56 | 78 | xx | xx | xx | 42 | 14 | 80 | xx |

| | | | |
|---------|-----|-----|-----|
| Coding: | B12 | B13 | B14 |
| Hex | xx | xx | 00 |

7.4.2 GSM/UMTS dual mode UEs recognising the search period of the Higher priority PLMN

7.4.2.1 Definition and applicability

The Higher priority PLMN list gives in priority order the Higher priority PLMN on which the UE shall register first. The Radio Access Technology identifier defines the Radio network in which the UE shall register. The list is stored on the USIM in the EF_{HPLMNwACT}. The Higher priority PLMN search period gives the time interval in which the UE shall search for a possible Higher priority PLMN registration.

The registration attempts initiated by the UE depends on UEs capabilities and can be one of the following:

- I. registration procedures for UEs supporting CS or
- II. registration procedures for UEs supporting PS or
- III. registration procedures for UEs supporting CS/PS

To avoid a duplication of tests, this test supersedes the previous test case (7.4.1).

7.4.2.2 Conformance requirement

After registered onto a VPLMN the UE shall take into account the Higher priority PLMN search period timer and the priority order of the Higher priority PLMNs in the preferred list on the USIM including the Access Technology Identifier.

- TS 22.011 [6], subclauses 3.2.2 and 3.2.2.5.

7.4.2.3 Test purpose

To verify that the Higher priority PLMN timer is read and the Higher priority PLMN with the higher priority (defined by its position in EF_{HPLMNwACT}) takes precedence over the VPLMN in which the UE is currently registered in.

7.4.2.4 Method of test

7.4.2.4.1 Initial conditions

For this test both a GSM SS and an UTRAN USS are needed.

The GSM SS transmits on BCCH, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 244/082/0001.
- Access control: unrestricted.

After the registration of UE the GSM SS transmits on a second BCCH, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 244/081/0001.
- Access control: unrestricted.

At the same time as the SS sends on a second BCCH, the UMTS USS transmits on BCCH, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 244/081/0001.
- RAI (MCC/MNC/LAC/RAC): 244/081/0001/05.

- Access control: unrestricted.

The default UICC is used with the following exception:

EF_{HPLMNwACT} (HPLMN selector with Access Technology)

Logically: Set to MCC 244 and MNC 081
Set to UTRAN

| | | | | | |
|---------|----|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 | B5 |
| Hex | 42 | 14 | 80 | 80 | 00 |

EF_{HPPLMN} (Higher Priority HPLMN Search period)

Logically: set to 6minutes

| | |
|---------|----|
| Coding: | B1 |
| Hex | 01 |

EF_{UST} (USIM Service Table)

Logically: Local Phone Book available
User controlled PLMN selector available
Fixed dialling numbers available
Barred dialling numbers available
The GSM Access available
The Group Identifier level 1 and level 2 not available
Service n 33 (Packed Switched Domain) shall be set to '1'
Enabled Services Table available
HPLMN selector with access technology available

| | | | | | | |
|---------|-----------|-----------|-----------|-----------|-----------|-----------|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 |
| binary | xx1x xx11 | xxxx xxxx | xxxx 1x00 | xxxx x1xx | xxxx xx11 | xxxx x1xx |

The UICC is installed into the Terminal and the UE is set to automatic PLMN selection mode.

7.4.2.4.2 Procedure

- The UE is powered on.
- After receipt of a CHANNEL REQUEST from the UE, the SS sends IMMEDIATE ASSIGNMENT to the UE.
- After receipt of a LOCATION UPDATING REQUEST from the UE, the SS sends LOCATION UPDATING ACCEPT with:

| | |
|----------------|------------|
| LAI (MCC/MNC): | 244/082 |
| TMSI: | "34567890" |

 to the UE.
- After receipt of a TMSI REALLOCATION COMPLETE from the UE, the SS sends CHANNEL RELEASE to the UE.
- The SS starts to send on the second BCCH with the MCC/MNC 244/081 and the USS starts to send with the Same MCC/MNC. An internal timer shall start to run.
- After receipt of a RRC CONNECTION REQUEST on the UTRAN-cell related to the BCCH transmitting MCC/MNC 244/081 from the UE, the USS sends RRC CONNECTION SETUP to the UE, followed by RRC CONNECTION SETUP COMPLETE sent by the UE to the USS. The internal timer is stopped.

- g) Depending on which domain the UE is going to be registered on, one of the following sequences will be passed through:
- I. During registration on CS and after receipt of a LOCATION UPDATING REQUEST from the UE, the USS initiates authentication, starts integrity by using the security procedure and sends LOCATION UPDATING ACCEPT with the following values to the UE:
 - LAI (MCC/MNC/LAC): 244/081/0001
 - TMSI: "12345678"
 - II. During registration on PS and after receipt of a ATTACH REQUEST from the UE, the USS initiates authentication, starts integrity by using the security procedure and sends ATTACH ACCEPT with the following values to the UE:
 - RAI (MCC/MNC/LAC/RAC)244/081/0001/05
 - P-TMSI "12345678"
 - P-TMSI signature value "AB1234"
 - III. During registration on CS/PS and after receipt of a LOCATION UPDATING REQUEST and/or ATTACH REQUEST from the UE, the USS initiates authentication, starts integrity by using the security procedure and sends LOCATION UPDATING ACCEPT and/or ATTACH ACCEPT with some of the following values to the UE:
 - LAI (MCC/MNC/LAC): 244/081/0001
 - TMSI: "12345678"
 - RAI (MCC/MNC/LAC/RAC)244/081/0001/05
 - P-TMSI "12345678"
 - P-TMSI signature value "AB1234"
- h) Depending on which domain the UE is going to be registered on, one of the following sequences will be passed through:
- I. After receipt of a TMSI REALLOCATION COMPLETE from the UE during registration on CS, the USS sends RRC CONNECTION RELEASE to the UE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS or
 - II. After receipt of a ATTACH COMPLETE from the UE during registration on PS, the USS sends RRC CONNECTION RELEASE to the UE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS or.
 - III. After receipt of a TMSI REALLOCATION COMPLETE and/or ATTACH COMPLETE from the UE during registration on CS/PS, the USS sends RRC CONNECTION RELEASE to the UE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS.
- i) The UE is soft powered down.

7.4.2.5 Acceptance criteria

- 1) After step e) the UE shall send an RRC CONNECTION REQUEST on the UTRAN-cell related to the BCCH transmitting MCC/MNC 244/081 to the USS.
- 2) After step e) the UE shall send
 - I. LOCATION UPDATING REQUEST to the USS during registration on CS or
 - II. ATTACH REQUEST during registration on PS or
 - III. LOCATION UPDATING REQUEST and/or ATTACH REQUEST to the USS during registration on CS/PS.

3) After step g) the UE shall respond with

- I. TMSI REALLOCATION COMPLETE during registration on CS or
- II. ATTACH COMPLETE during registration on PS or
- III. TMSI REALLOCATION COMPLETE and/or ATTACH COMPLETE to the USS during registration on CS/PS.

4) The value of the internal timer shall not exceed 6 minutes.

NOTE: To take the systems processing time into account, the value of the internal timer may allowed to be a guard time of 10 % greater than the required 6 minutes.

5) After step i) the USIM shall contain the following values:

For UEs supporting (CS and PS) or (CS only):

EF_{LOCI} (Location Information)

Logically: LAI-MCC: 244
LAI-MNC: 081
TMSI: "12345678"

| | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
| Hex | 12 | 34 | 56 | 78 | 42 | 14 | 80 | xx | xx | xx | 00 |

For UEs supporting (CS and PS) or (PS only):

EF_{PSLOCI} (Location Information)

Logically: RAI-MCC: 244
RAI-MNC: 081
P-TMSI: "12345678"

| | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
| Hex | 12 | 34 | 56 | 78 | xx | xx | xx | 42 | 14 | 80 | xx |

| | | | |
|---------|-----|-----|-----|
| Coding: | B12 | B13 | B14 |
| Hex | xx | xx | 00 |

7.5 Void

8 Subscription independent tests

8.1 Phone book procedures

8.1.1 Recognition of a previously changed phonebook

8.1.1.1 Definition and applicability

If the UICC is inserted into a GERAN Rel-4 or earlier terminal, the phonebook may have been altered in this GSM session. If the ADN entry has been changed or deleted, the GSM terminal will not be able to change the appropriate additional phonebook entries (e.g. EF_{ANR} Additional Number). In that case the UICC shall set a flag in the appropriate EF_{PBC} (phonebook Control). If the UICC is inserted in a 3G or GERAN Terminal, the 3G or GERAN Terminal shall recognise the flag and the phonebook shall be synchronised by the Terminal. Once the Terminal recognise the set flag in the EF_{PBC}, the Terminal shall update the Change Counter in the EF_{CC}.

8.1.1.2 Conformance requirement

The 3G or GERAN Terminal shall recognise the set flag in the EF_{PBC} and then synchronise the phonebook. The Terminal shall also update EF_{CC} (Change Counter).

- TS 31.102 [4], subclause 4.4.2.

8.1.1.3 Test purpose

- 1) To verify that the Terminal has recognised that the phonebook has been altered by a GSM Terminal.
- 2) To verify that the Terminal does the synchronising of the changed phonebook entries.
- 3) To verify that the Terminal updates the EF_{PBC} and EF_{CC}.

8.1.1.4 Method of test

8.1.1.4.1 Initial conditions

No USS is needed for this test.

The default UICC is used with the following exception:

EF_{ADN} (Abbreviated Dialling Number)

Logically:

Record 1: Length of alpha identifier: 32 characters;
 Alpha identifier: "ABCDEFGHJKLMNOPQRSTUVWXYZABCDEF";
 Length of BCD number: "03";
 TON and NPI: Telephony and Unknown;
 Dialed number: 123;
 CCI: None;
 Ext1: None.

Record 1:

| | | | | | | | | | | | | | | |
|---------|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | ... | B32 | B33 | B34 | B35 | B36 | B37 | B38 | B39 | ... | B46 |
| Hex | 41 | 42 | 43 | ... | 46 | 03 | 81 | 21 | F3 | FF | FF | FF | ... | FF |

EF_{PBC} (Phonebook Control)

Logically:

Record 1: The ADN Record No. 1 has been hanged by a GSM terminal.
 Related ADN record is not hidden.

| | | |
|---------|----|----|
| Coding: | B1 | B2 |
| Hex | 01 | 00 |

EF_{CC} (Change Counter)

Logically: "000F"

| | | |
|---------|----|----|
| Coding: | B1 | B2 |
| Hex | 00 | 0F |

The UICC is installed into the Terminal

8.1.1.4.2 Procedure

- a) The Terminal is powered on.

- b) The Terminal shall stay powered on until the phonebook synchronisation procedures are finished. If the synchronisation is indicated by the Terminal, the Terminal shall only powered down after this indication is vanished.

8.1.1.5 Acceptance criteria

After step b) the USIM shall contain the following values:

EF_{PBC} (Phonebook Control)

Logically:

Record 1: The entry control information is reset.
 Related ADN record is not hidden.

Coding: B1 B2
Hex 00 00

EF_{CC} (Change Counter)

Logically: The counter is incremented to "0010"

Coding: B1 B2
Hex 00 10

8.1.2 Update of the Phonebook Synchronisation Counter (PSC)

8.1.2.1 Definition and applicability

The phonebook synchronisation Counter is used to unambiguously identify the status of the phonebook. Every time the phonebook is reset/deleted or the UID and/or the CC has run out of range, the PSC shall be regenerated.

The PSC is a part of the phonebook identifier.

8.1.2.2 Conformance requirement

Every time either the UID or the CC is incremented by the Terminal, the value of the content of the appropriate EF shall be tested. If either UID or CC has reached "FF FF", the related EF shall be set to "00 01" and the PSC is incremented.

- TS 31.102 [4], subclause 4.4.2.12.2.

8.1.2.3 Test purpose

- 1) To verify that the Terminal has recognised that the values of UID and CC has changed.
- 2) To verify that the Terminal resets the value of EF_{UID} and EF_{CC}.
- 3) To verify that the Terminal updates EF_{PSC}.

8.1.2.4 Method of test

8.1.2.4.1 Initial conditions

No USS is needed for this test.

The default UICC is used with the following exception:

EF_{UID} (Unique Identifier)

Logically: one record is set to "FF FF"

| | | |
|---------|----|----|
| Coding: | B1 | B2 |
| Hex | FF | FF |

EF_{PUID} (Previous Unique Identifier)

Logically: is set to "FF FF"

| | | |
|---------|----|----|
| Coding: | B1 | B2 |
| Hex | FF | FF |

EF_{CC} (Change Counter)

Logically: set to "FF FF"

| | | |
|---------|----|----|
| Coding: | B1 | B2 |
| Hex | FF | FF |

EF_{PSC} (Phonebook Synchronisation Counter)

Logically: set to "00 00 FF FF"

| | | | | |
|---------|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 |
| Hex | 00 | 00 | FF | FF |

At least one phonebook entry shall be empty and available for creating a new entry (e.g. an appropriate ADN record).

The UICC is installed into the Terminal and the UE is powered on and the correct PIN is entered.

8.1.2.4.2 Procedure

- a) A new phonebook entry shall be created.

NOTE 1: This may be done by storing a new telephone number in an empty ADN record.

- b) The UE shall have given the time to perform the regeneration of the UID records.

NOTE 2: It is assumed that the UE will indicate the time it needs to perform the regeneration by displaying a busy signal to the user.

8.1.2.5 Acceptance criteria

After step b) the USIM shall contain the following values:

The EF_{UID} (Unique Identifier) shall have been regenerated with UID values starting with "00 01". The UID values may be stored in any order, but shall be unique. The entry in EF_{UID} with value FF FF (the maximum value) shall have been replaced by an appropriate value which shall be distinguishable to the maximum value. EF_{PUID} shall contain a UID value (other than FFFF) that is present in EF_{UID}.

EF_{CC} (Change Counter)

Logically: set to "00 01"

| | | |
|---------|----|----|
| Coding: | B1 | B2 |
| Hex | 00 | 01 |

EF_{PSC} (Phonebook Synchronisation Counter)

Logically: set to "00 01 00 00"

| | | | | |
|---------|----|----|----|----|
| Coding: | B1 | B2 | B3 | B4 |
| Hex | 00 | 01 | 00 | 00 |

8.1.3 Phonebook content handling

8.1.3.1 Handling of BCD number/ SSC content extension

8.1.3.1.1 Definition and applicability

The length of BCD number/SSC contents in EF_{ADN} byte gives the number of bytes of the following two data items containing actual BCD number/SSC information. This means that the maximum value is 11, even when the actual ADN/SSC information length is greater than 11. When an ADN/SSC has extension, it is indicated by the extension1 identifier being unequal to 'FF'. The remainder is stored in the EF_{EXT1} with the remaining length of the additional data being coded in the appropriate additional record itself.

8.1.3.1.2 Conformance requirement

The terminal shall support the BCD number/ SSC extension for EF_{ADN} as defined in 3GPP TS 31.102[4], subclauses 4.4.2.3 and 4.4.2.4.

Reference:

- 3GPP TS 31.102[4], subclauses 4.4.2.3 and 4.4.2.4.

8.1.3.1.3 Test purpose

- 1) To verify that the terminal is able to read and update BCD numbers/ SSC content with and without extension correctly in EF_{ADN} and EF_{EXT1}.

8.1.3.1.4 Method of test

8.1.3.1.4.1 Initial conditions

The terminal is connected to the USIM Simulator.

Prior to the test execution the terminal manufacturer shall state the maximum number of BCD digits (excluding TON/NPI), which are supported by the terminal for global phonebook updating.

The default USIM is used with the following exceptions:

Only the global phonebook is present.

The global phonebook shall contain:

EF_{PBR} (Phonebook reference file)

Logically: Only EF_{ADN} and EF_{EXT1} are present in the global phonebook.

EF_{ADN} (Abbreviated dialling numbers)

Logically:

10 records, each record non-empty and unique. Unless otherwise stated, the ADN records shall not use extended BCD numbers/SSC strings.

| | | |
|-----------|-----------------------------|------------------------------|
| Record 1: | Length of alpha identifier: | 32 characters; |
| | Alpha identifier: | "Contact001"; |
| | Length of BCD number: | 11; |
| | TON and NPI: | Telephony and International; |
| | Dialled number: | "00112233445566778899"; |

CCI: 'FF';
Ext1: 01.

Record 1:

| | | | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | ... | B32 | B33 |
| Hex | 43 | 6F | 6E | 74 | 61 | 63 | 74 | 30 | 30 | 31 | FF | ... | FF | 0B |
| | B34 | B35 | B36 | B37 | B38 | B39 | B40 | B41 | B42 | B43 | B44 | B45 | B46 | |
| | 91 | 00 | 11 | 22 | 33 | 44 | 55 | 66 | 77 | 88 | 99 | FF | 01 | |

Record 2: Length of alpha identifier: 32 characters;
Alpha identifier: "Contact002";
Length of BCD number: 11;
TON and NPI: Telephony and International;
Dialled number: "01234567890123456789";
CCI: 'FF';
Ext1: 'FF'.

Record 2:

| | | | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | ... | B32 | B33 |
| Hex | 43 | 6F | 6E | 74 | 61 | 63 | 74 | 30 | 30 | 32 | FF | ... | FF | 0B |
| | B34 | B35 | B36 | B37 | B38 | B39 | B40 | B41 | B42 | B43 | B44 | B45 | B46 | |
| | 91 | 10 | 32 | 54 | 76 | 98 | 10 | 32 | 54 | 76 | 98 | FF | FF | |

Record 3: Length of alpha identifier: 32 characters;
Alpha identifier: "Contact003";
Length of BCD number: 11;
TON and NPI: Telephony and International;
Dialled number: "99887766554433221100";
CCI: 'FF';
Ext1: '02'.

Record 3:

| | | | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | ... | B32 | B33 |
| Hex | 43 | 6F | 6E | 74 | 61 | 63 | 74 | 30 | 30 | 33 | FF | ... | FF | 0B |
| | B34 | B35 | B36 | B37 | B38 | B39 | B40 | B41 | B42 | B43 | B44 | B45 | B46 | |
| | 91 | 99 | 88 | 77 | 66 | 55 | 44 | 33 | 22 | 11 | 00 | FF | 02 | |

Record 4: Length of alpha identifier: 32 characters;
Alpha identifier: "Contact004";
Length of BCD number: 9;
TON and NPI: Telephony and International;
Dialled number: "1212121212121212";
CCI: 'FF';
Ext1: 'FF'.

Record 4:

| | | | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | ... | B32 | B33 |
| Hex | 43 | 6F | 6E | 74 | 61 | 63 | 74 | 30 | 30 | 34 | FF | ... | FF | 09 |
| | B34 | B35 | B36 | B37 | B38 | B39 | B40 | B41 | B42 | B43 | B44 | B45 | B46 | |
| | 91 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | FF | FF | FF | FF | |

Record 7: Length of alpha identifier: 32 characters;
Alpha identifier: "Contact007";
Length of BCD number: 3;

TON and NPI: Telephony and International;
 Dialed number: "678";
 CCI: 'FF';
 Ext1: 'FF'.

Record 7:

| | | | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | ... | B32 | B33 |
| Hex | 43 | 6F | 6E | 74 | 61 | 63 | 74 | 30 | 30 | 37 | FF | ... | FF | 03 |
| | B34 | B35 | B36 | B37 | B38 | B39 | B40 | B41 | B42 | B43 | B44 | B45 | B46 | |
| | 91 | 76 | F8 | FF | FF | FF | FF | FF | FF | FF | FF | FF | FF | |

EF_{EXT1} (Extension 1)

Logically: 4 records

Record 1: Record type: '02'
 Extension data: "01234567890123456789";
 Identifier: 'FF'.

Record 1:

| | | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | B13 |
| Hex | 02 | 0A | 10 | 32 | 54 | 76 | 98 | 10 | 32 | 54 | 76 | 98 | FF |

Record 2: Record type: '02'
 Extension data: "99887766554433221100";
 Identifier: '03'.

Record 2:

| | | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | B13 |
| Hex | 02 | 0A | 99 | 88 | 77 | 66 | 55 | 44 | 33 | 22 | 11 | 00 | 03 |

Record 3: Record type: '02'
 Extension data: "11p12345";
 Identifier: 'FF'.

Record 3:

| | | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | B13 |
| Hex | 02 | 04 | 11 | 1C | 32 | 54 | FF | FF | FF | FF | FF | FF | FF |

Record 4: Record type: '00'
 Extension data: empty;
 Identifier: 'FF'.

Record 4:

| | | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | B13 |
| Hex | 00 | FF | FF | FF | FF | FF | FF | FF | FF | FF | FF | FF | FF |

8.1.3.1.4.2 Procedure

- a) The terminal is switched on and the USIM application shall be activated.

- b) The user shall use an MMI dependent procedure to select the global phonebook.
- c) The user shall change the BCD number of the entry "Contact002" to "22446622446622446600777888999". If the maximum number of BCD digits supported for the global phonebook update is less than in the requested input BCD number string, then the user shall enter the BCD number string as requested, but only up to the maximum number of BCD digits which are supported for updating.
- d) The user shall extend the BCD number of the entry "Contact007" to "01234567890123456789777888999".. If the maximum number of BCD digits supported for the global phonebook update is less than in the requested input BCD number string, then the user shall enter the BCD number string as requested, but only up to the maximum number of BCD digits which are supported for updating.
- e) The user shall delete the phonebook entry "Contact001".
- f) The user shall set the BCD number of the entry "Contact002" to "22446622446600"
- g) The user shall create the new phonebook entry "NewContact" with the BCD number "12345678901234567890123456789012345678901234567890123456789012" .. If the maximum number of BCD digits supported for the global phonebook update is less than in the requested input BCD number string, then the user shall enter the BCD number string as requested, but only up to the maximum number of BCD digits which are supported for updating.
- h) The user shall delete the phonebook entry "Contact003".
- i) The terminal is switched off.

8.1.3.1.5 Acceptance criteria

- 1) After step a) the terminal shall have activated the USIM application.
- 2) After step b) the terminal shall have selected the global phonebook and shall have read EF_{PBR} in the global phonebook.
- 3) After step c) the global phonebook shall contain a record with "22446622446622446600" as BCD number and "04" as extension record identifier. EF_{EXT1} shall contain a record with "Additional data" as record type, the BCD number extension "777888999" and "FF" as identifier to indicate the end of the chain. If the maximum number of BCD digits supported for global phonebook updating is less than in the requested input BCD number, then EF_{ADN} and EF_{EXT1} shall contain the BCD number as entered on the MMI.
- 4) After step d) the terminal shall have taken action to prevent storage of the extended BCD number, e.g. by giving an indication to the user or not allowing to enter the extended number. EF_{EXT1} shall have not been updated and the extension record identifier of the entry "Contact007" shall remain as "FF".
- 5) After step e) records of EF_{ADN} and EF_{EXT1} which were used to store the data for the phonebook entry "Contact001" shall be empty, i.e. the EF_{ADN} record shall be "FF.. FF" and the EF_{EXT1} record shall be "00FF.. FF."
- 6) After step f) the record of EF_{EXT1} which was used to store the BCD number extension "777888999" shall be empty and the record used for storing the entry with the alpha identifier "Contact002" of EF_{ADN} shall contain the BCD number "22446622446600" and the extension record identifier "FF".
- 7) After step g) a record of EF_{ADN} shall contain "NewContact" as alpha identifier, "12345678901234567890" as BCD number and shall use an extension record identifier unequal to "FF".

The EF_{EXT1} record which was indicated in the EF_{ADN} record used in this case shall contain "Additional data" as record type, "12345678901234567890" as BCD number and an extension record identifier unequal to "FF", while the EF_{EXT1} record used to continue the chain inside EF_{EXT1} shall contain "Additional data" as record type, "123456789012" as BCD number and "FF" as extension record identifier.

If the maximum number of BCD digits supported for global phonebook updating is less than the requested input BCD number, then EF_{ADN} and EF_{EXT1} shall contain the BCD number as entered on the MMI.

- 8) After step h) the record of EF_{ADN} which was used to store the data for "Contact003" and the related records of EF_{EXT1} shall be empty.

8.1.4 Phonebook selection

8.1.4.1 Definition and applicability

The UICC may contain a global phonebook, or application specific phonebooks, or both in parallel. When both phonebook types co-exist, they are independent and no data is shared. In this case, it shall be possible for the user to select which phonebook the user would like to access.

8.1.4.2 Conformance requirement

The terminal shall support the global and the application specific phonebooks as defined in 3GPP TS 31.102[4], subclause 4.4.2.

Reference:

- 3GPP TS 31.102[4], subclause 4.4.2.

8.1.4.3 Test purpose

- 1) To verify that the terminal offers a possibility to select which phonebook the user would like to select if both, the global and the local phonebook, co-exist.
- 2) To verify that the data contained in the local phonebook can be read and updated correctly.
- 3) To verify that the data contained in the global phonebook can be read and updated correctly.

8.1.4.4 Method of test

8.1.4.4.1 Initial conditions

The terminal is connected to the USIM Simulator.

The default USIM is used with the following exceptions:

The local and the global phonebook are both present.

The local phonebook shall contain:

EF_{PBR} (Phonebook reference file)

Logically: Only EF_{ADN} and EF_{EXT1} are present in the local phonebook.

EF_{ADN} (Abbreviated dialling numbers)

Logically: 10 records, each record non-empty and unique.

Record 4: Length of alpha identifier: 32 characters;
 Alpha identifier: "Contact004";
 Length of BCD number: "03";
 TON and NPI: Telephony and International;
 Dialed number: 004;
 CCI: 'FF';
 Ext1: 'FF'.

Record 4:

| | | | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | ... | B32 | B33 |
| Hex | 43 | 6F | 6E | 74 | 61 | 63 | 74 | 30 | 30 | 34 | FF | ... | FF | 03 |
| | B34 | B35 | B36 | B37 | B38 | B39 | ... | B46 | | | | | | |
| | 91 | 00 | F4 | FF | FF | FF | ... | FF | | | | | | |

Record 5: Length of alpha identifier: 32 characters;
 Alpha identifier: "Contact005";
 Length of BCD number: "03";
 TON and NPI: Telephony and International;
 Dialed number: 1234;
 CCI: 'FF';
 Ext1: None.

Record 5:

| | | | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | ... | B32 | B33 |
| Hex | 43 | 6F | 6E | 74 | 61 | 63 | 74 | 30 | 30 | 35 | FF | ... | FF | 03 |
| | B34 | B35 | B36 | B37 | B38 | B39 | ... | B46 | | | | | | |
| | 91 | 21 | 43 | FF | FF | FF | ... | FF | | | | | | |

The global phonebook shall contain:

EF_{PBR} (Phonebook reference file)

Logically: Only EF_{ADN} is present in the global phonebook.

EF_{ADN} (Abbreviated dialling numbers)

Logically: 8 records, records 3 and 6 empty, each non-empty record unique.

Record 1: Length of alpha identifier: 32 characters;
 Alpha identifier: "Contact001";
 Length of BCD number: "03";
 TON and NPI: Telephony and International;
 Dialed number: 001;
 CCI: 'FF';
 Ext1: 'FF'.

Record 1:

| | | | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | ... | B32 | B33 |
| Hex | 43 | 6F | 6E | 74 | 61 | 63 | 74 | 30 | 30 | 31 | FF | ... | FF | 03 |
| | B34 | B35 | B36 | B37 | B38 | B39 | ... | B46 | | | | | | |
| | 91 | 00 | F1 | FF | FF | FF | ... | FF | | | | | | |

Record 2: Length of alpha identifier: 32 characters;
 Alpha identifier: "Contact002";
 Length of BCD number: "03";
 TON and NPI: Telephony and International;
 Dialed number: 002;
 CCI: 'FF';
 Ext1: 'FF'.

Record 2:

| | | | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | ... | B32 | B33 |
| Hex | 43 | 6F | 6E | 74 | 61 | 63 | 74 | 30 | 30 | 32 | FF | ... | FF | 03 |
| | B34 | B35 | B36 | B37 | B38 | B39 | ... | B46 | | | | | | |
| | 91 | 00 | F2 | FF | FF | FF | ... | FF | | | | | | |

Record 4: Length of alpha identifier: 32 characters;
 Alpha identifier: "Contact004";
 Length of BCD number: "03";

TON and NPI: Telephony and International;
 Dialed number: 0041;
 CCI: 'FF';
 Ext1: 'FF'.

Record 4:

| | | | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | ... | B32 | B33 |
| Hex | 43 | 6F | 6E | 74 | 61 | 63 | 74 | 30 | 30 | 34 | FF | ... | FF | 03 |
| | B34 | B35 | B36 | B37 | B38 | B39 | ... | B46 | | | | | | |
| | 91 | 00 | 14 | FF | FF | FF | ... | FF | | | | | | |

Record 5: Length of alpha identifier: 32 characters;
 Alpha identifier: "Contact005";
 Length of BCD number: "03";
 TON and NPI: Telephony and International;
 Dialed number: 1234;
 CCI: 'FF';
 Ext1: 'FF'.

Record 5:

| | | | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | ... | B32 | B33 |
| Hex | 43 | 6F | 6E | 74 | 61 | 63 | 74 | 30 | 30 | 35 | FF | ... | FF | 03 |
| | B34 | B35 | B36 | B37 | B38 | B39 | ... | B46 | | | | | | |
| | 91 | 21 | 43 | FF | FF | FF | ... | FF | | | | | | |

Record 7: Length of alpha identifier: 32 characters;
 Alpha identifier: "Contact007";
 Length of BCD number: "03";
 TON and NPI: Telephony and International;
 Dialed number: 007;
 CCI: 'FF';
 Ext1: 'FF'.

Record 7:

| | | | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | ... | B32 | B33 |
| Hex | 43 | 6F | 6E | 74 | 61 | 63 | 74 | 30 | 30 | 37 | FF | ... | FF | 03 |
| | B34 | B35 | B36 | B37 | B38 | B39 | ... | B46 | | | | | | |
| | 91 | 00 | F7 | FF | FF | FF | ... | FF | | | | | | |

Record 8: Length of alpha identifier: 32 characters;
 Alpha identifier: "Contact008";
 Length of BCD number: "03";
 TON and NPI: Telephony and International;
 Dialed number: 008;
 CCI: 'FF';
 Ext1: 'FF'.

Record 8:

| | | | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | ... | B32 | B33 |
| Hex | 43 | 6F | 6E | 74 | 61 | 63 | 74 | 30 | 30 | 38 | FF | ... | FF | 03 |
| | B34 | B35 | B36 | B37 | B38 | B39 | ... | B46 | | | | | | |
| | 91 | 00 | F8 | FF | FF | FF | ... | FF | | | | | | |

8.1.4.4.2 Procedure

- a) The terminal is switched on and the USIM application shall be activated.
- b) The user shall use an MMI dependent procedure to select the global phonebook.
- c) The global phonebook record with the alpha identifier "Contact005" and the associated dialling number shall be read by the user.
- d) The dialling number of the global phonebook record with the alpha identifier "Contact005" shall be set to "+1122330".
- e) A new entry with the values "Contact006" as alpha identifier and "+9876543210" as associated dialling number shall be added to the global phonebook.
- f) The user shall use an MMI dependent procedure to select the local phonebook.
- g) The local phonebook record with the alpha identifier "Contact005" and the associated dialling number shall be read by the user.
- h) The dialling number of the local phonebook record with the alpha identifier "Contact005" shall be set to "+11223345".
 - i) The user shall try to add a new entry with the values "Contact007" as alpha identifier and "+007" as associated dialling number to the local phonebook.
- j) The user shall delete the entry "Contact004" from the local phonebook.
- k) The user shall add a new entry with the values "Contact007" as alpha identifier and "+007" as associated dialling number to the local phonebook.
- l) The user shall use an MMI dependent procedure to select the global phonebook.
- m) The user shall delete the entry "Contact007" from the global phonebook.
- n) The terminal is switched off.

8.1.4.5 Acceptance criteria

- 1) After step a) the terminal shall have activated the USIM application, shall have read the status of the local Phonebook in EF_{UST}.
- 2) After step b) the terminal shall have selected the global phonebook and shall have read EF_{PBR} in the global phonebook.
- 3) After step c) the terminal shall have read the global phonebook record which is used to store the entry "Contact005" and shall have presented the alpha identifier "Contact005" and the dialling number "+1234" to the user.
- 4) After step d) EF_{ADN} in the global phonebook shall contain a record with the alpha identifier "Contact005" with the new dialling number "+1122330" and the terminal shall have given an indication to the user that the phonebook update has been performed successfully.
- 5) After step e) a new record shall have been added to EF_{ADN} in the global phonebook with the alpha identifier "Contact006" and the dialling number string "+9876543210".
- 6) After step f) the terminal shall have selected the local phonebook and shall have read EF_{PBR} in the local phonebook.
- 7) After step g) the terminal shall have read the local phonebook record which is used to store the entry "Contact005" and shall have presented the alpha identifier "Contact005" and the dialling number "+1234" to the user.
- 8) After step h) EF_{ADN} in the local phonebook shall contain a record with the alpha identifier "Contact005" and with new dialling number "+11223345" and the terminal shall have given an indication to the user that the phonebook update has been performed successfully.

- 9) After step i) the terminal shall have given an indication that update of the local phonebook can't be performed. EF_{ADN} shall have not been updated.
- 10) After step j) the local phonebook record which was used to store the entry "Contact004" shall be empty and the terminal shall have indicated that the deletion of the phonebook entry was performed successfully.
- 11) After step k) a new record shall have been added to EF_{ADN} in the local phonebook with the alpha identifier "Contact007" and the dialling number string "+007"
- 12) After step l) the terminal shall have selected the global phonebook and shall have read EF_{PBR} in the global phonebook.
- 13) After step m) the global phonebook record which was used to store the entry "Contact007" shall be empty and the terminal shall have indicated that the deletion of the phonebook entry was performed successfully.

8.1.5 Local Phonebook handling

8.1.5.1 Definition and applicability

The UICC may contain a global phonebook, or application specific phonebooks, or both in parallel.

8.1.5.2 Conformance requirement

The terminal shall support the local phonebook as defined in 3GPP TS 31.102[4], subclause 4.4.2.

Reference:

- 3GPP TS 31.102[4], subclause 4.4.2.

8.1.5.3 Test purpose

- 1) To verify that the terminal supports the local phonebook without existence of the global phonebook.
- 2) To verify that the data contained in the local phonebook can be read and updated correctly.

8.1.5.4 Method of test

8.1.5.4.1 Initial conditions

The terminal is connected to the USIM Simulator.

The default USIM is used with the following exceptions:

The local phonebook is present, the global phonebook is not present.

The local phonebook shall contain:

EF_{PBR} (Phonebook reference file)

Logically: Only EF_{ADN} and EF_{EXT1} are present in the local phonebook.

EF_{ADN} (Abbreviated dialling numbers)

Logically: 10 records, each record non-empty and unique.

| | | |
|-----------|-----------------------------|------------------------------|
| Record 4: | Length of alpha identifier: | 32 characters; |
| | Alpha identifier: | "Contact004"; |
| | Length of BCD number: | "03"; |
| | TON and NPI: | Telephony and International; |
| | Dialled number: | 004; |
| | CCI: | 'FF'; |

Ext1: 'FF'.

Record 4:

| | | | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | ... | B32 | B33 |
| Hex | 43 | 6F | 6E | 74 | 61 | 63 | 74 | 30 | 30 | 34 | FF | ... | FF | 03 |
| | B34 | B35 | B36 | B37 | B38 | B39 | ... | B46 | | | | | | |
| | 91 | 00 | F4 | FF | FF | FF | ... | FF | | | | | | |

Record 5: Length of alpha identifier: 32 characters;
 Alpha identifier: "Contact005";
 Length of BCD number: "03";
 TON and NPI: Telephony and International;
 Dialed number: 1234;
 CCI: 'FF';
 Ext1: 'FF'.

Record 5:

| | | | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | ... | B32 | B33 |
| Hex | 43 | 6F | 6E | 74 | 61 | 63 | 74 | 30 | 30 | 35 | FF | ... | FF | 03 |
| | B34 | B35 | B36 | B37 | B38 | B39 | ... | B46 | | | | | | |
| | 91 | 21 | 43 | FF | FF | FF | ... | FF | | | | | | |

8.1.5.4.2 Procedure

- The terminal is switched on and the USIM application shall be activated.
- The user shall use an MMI dependent procedure to select the phonebook on the USIM (local phonebook).
- The local phonebook record with the alpha identifier "Contact005" and the associated dialling number shall be read by the user.
- The dialling number of the local phonebook record with the alpha identifier "Contact005" shall be set to "+11223345" and the alpha identifier shall be changed to "Contact8901234567890123456789012".
- The user shall try to add a new entry with the values "Contact007" as alpha identifier and "+007" as associated dialling number to the local phonebook.
- The user shall delete the entry "Contact004" from the local phonebook.
- The user shall add a new entry with the values "Contact007" as alpha identifier and "+007" as associated dialling number to the local phonebook.
- The terminal is switched off.

8.1.5.5 Acceptance criteria

- After step a) the terminal shall have activated the USIM application, shall have read the status of the local Phonebook in EF_{UST}.
- After step b) the terminal shall have selected the local phonebook and shall have read EF_{PBR} in the local phonebook.
- After step c) the terminal shall have read the local phonebook record which is used to store the entry "Contact005" and shall have presented the alpha identifier "Contact005" and the dialling number "+1234" to the user.
- After step d) EF_{ADN} in the local phonebook shall contain a record with the new alpha identifier "Contact8901234567890123456789012" and the dialling number "+11223345" and the terminal shall have given an indication to the user that the phonebook update has been performed successfully.

- 5) After step e) the terminal shall have given an indication that update of the local phonebook can't be performed. EF_{ADN} shall have not been updated.
- 6) After step f) the local phonebook record which was used to store the entry "Contact004" in the local phonebook shall be empty and the terminal shall have indicated that the deletion of the phonebook entry was performed successfully.
- 7) After step g) a new record shall have been added to EF_{ADN} in the local phonebook with the alpha identifier "Contact007" and the dialling number string "+007"

8.2 Short message handling report

8.2.1 Correct storage of a SM on the USIM

8.2.1.1 Definition and applicability

Once a SMS is received by the UE, the Terminal shall store the SM on the USIM, if this is indicated by the class 2 of the SMS (USIM specific SM). For this it is assumed, that at least one relevant SMS field are available on the USIM and they are indicated as empty. If all SMS data field are full and furthermore all memory capacity reserved for SMS inside the ME is filled up to maximum and a SM was rejected, then this shall be indicated in the SMS Status file.

8.2.1.2 Conformance requirement

The received class 2 SMS shall be stored on the USIM in EF_{SMS}. The status of a received SMS, which has not been read yet, shall be set to "3" (SMS to be read). If the terminal notifies the network that the terminal has been unable to accept a short message because its memory capacity has been exceeded, then the ME shall set the Memory Capacity Exceeded Notification Flag in the EF_{SMSS}.

- TS 23.038 [3], clause 4.
- TS 23.040 [13], subclause 10.1, operation 6;
- TS 24.011, subclauses 8.2.2, 8.2.3 and 8.2.5.4, Table 8.4 (part 2)
- TS 31.102 [4], subclauses 4.2.25 and 4.2.28.

8.2.1.3 Test purpose

- 1) To verify that the Terminal stored correctly the class 2 SMS on the USIM.
- 2) To verify that the Terminal sets the status of a received, and not yet read SMS to "3" (SMS to be read).
- 3) To verify that the Terminal sets the memory full flag in EF_{SMSS} if the terminal notifies the network that the terminal has been unable to accept a short message because its memory capacity has been exceeded.

8.2.1.4 Method of test

8.2.1.4.1 Initial conditions

The default UICC is used with the following exception:

EF_{UST} (USIM Service Table)

Logically:

- Local Phone Book available
- User controlled PLMN selector available
- Fixed dialling numbers available
- Barred dialling numbers available
- The GSM Access available
- The Group Identifier level 1 and level 2 not available
- SMS available

SMS Status available
 Service n 33 (Packed Switched Domain) shall be set to '1'
 Enabled Services Table available

| | | | | | |
|---------|-----------|-----------|-----------|-----------|-----------|
| Coding: | B1 | B2 | B3 | B4 | B5 |
| binary | xx1x xx11 | xxxx X11x | xxxx 1x00 | xxxx x1xx | xxxx xx11 |

The coding of EF_{UST} shall conform with the capabilities of the USIM used.

EF_{SMS} (Short Message Service)

At least 10 records.

Record 1 shall be empty.

Logically: Status byte set to empty.

Record 1:

| | | | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|------|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | ... | B176 |
| Hex | 00 | FF | FF | FF | FF | FF | FF | FF | FF | FF | FF | FF | ... | FF |

All other Record shall be full.

Logically: Status byte set to SMS read.

The text body of the record shall be filled with any appropriate text.

Records:

| | | | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|------|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | ... | B176 |
| Hex | 01 | xx | xx | xx | xx | xx | xx | xx | xx | xx | xx | xx | ... | xx |

NOTE: "xx" shall be the appropriate text using the SMS default 7-bit coded alphabet as defined in 3G TS 23.038 [3] which represents the received SMS.

EF_{SMSS} (SMS Status)

Logically: Last used TP-MR not defined.
 Memory capacity available (flag unset b1="1").

| | | |
|---------|----|----|
| Coding: | B1 | B2 |
| Hex | FF | FF |

The USS (in case of a Terminal accessing UTRAN) /SS (in case of a Terminal accessing a GERAN) transmits on the BCCH, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 246/081/0001.
- Access control: unrestricted.

The USS/ SS transmits the short messages with the following parameters:

Logically:

Class 2 SM:TS-Service Centre Address:

| | |
|--------------------------------|-------------------------------|
| Bit 8: | 1 |
| Type-Of-Number: | International number |
| Numbering-Plan-Identification: | ISDN/telephony numbering plan |
| Address value: | 112233445566 |

SMS TPDU:

TP-Message-Type-Indicator: SMS-DELIVER (in the direction SC to MS)
 TP-More-Messages-to-Send: No more messages are waiting for the MS in this SC
 TP-Reply-Path: TP-Reply-Path parameter is not set in this SMS-DELIVER
 TP-User-Data-Header-Indicator: The TP-UD field contains only the short message
 TP-Status-Report-Indication: A status report shall be returned to the SME
 Bits 4-3: 00

TP-Originating-Address:

Bit 8: 1
 Type-Of-Number: International number
 Numbering-Plan-Identification: ISDN/telephony numbering plan
 Address value: 012344556677

TP-Protocol-Identifier: No interworking, but SME-to-SME protocol

TP-Data-Coding-Scheme:

Bits 8-7: General Data Coding
 Bit 6: Text is uncompressed
 Bit 5: Bits 2-1 have a message class meaning
 Bits 4-3: GSM 7 bit default alphabet
 Bits 2-1: Class 2: (U)SIM specific message

TP-Service-Centre-Time-Stamp: 02-03-04 09:13:06 GMT + 1

TP-User-Data-Length: 160

TP-User-Data:

"Once a SMS is received by the UE, the Terminal shall store the SMS on the USIM, if this is indicated by the class 2 of the SMS (USIM specific SMS). For this..."

Class 1 SM:

The same content as for the Class 2 SMS except :

SMS TPDU:

TP-More-Messages-to-Send: More messages are waiting for the MS in this SC
 TP-Data-Coding-Scheme:
 Bits 2-1: Class 1: default meaning: ME-specific
 TP-Service-Centre-Time-Stamp: Always set to current time of the system simulator

User Equipment:

The UE is in MM-state "idle, updated". If there is ME storage capacity available the storage for SMS inside the ME shall be able to allow for at least one more mobile terminated (e.g. Class 1) SM.

8.2.1.4.2 Procedure

- a) After the UE is set to idle mode, the defined class 2 SM defined in 8.2.1.4.1 with 160 characters shall be sent to the UE.

- b) After the UE has indicated that a SM was received, the SM shall not be read.
- c) The USS starts sending Class 1 SMSs as defined in 8.2.1.4.1 until the UE sends an RP-ERROR message with cause 'Memory capacity exceeded'.
- d) The UE is powered off.

8.2.1.5 Acceptance criteria

- 1) After step b) the record of the EF_{SMS} which was empty, shall contain the following values:

Logically: Status byte set to SMS to be read
 The text of the received SMS shall be present in the record.

Record 1:

Logically:

Status:

RFU bits 8-6: 000

Status: Used space, message received by UE from network, message to be read

TS-Service Centre Address:

Bit 8: 1

Type-Of-Number: International number

Numbering-Plan-Identification: ISDN/telephony numbering plan

Address value: 112233445566

SMS TPDU:

TP-Message-Type-Indicator: SMS-DELIVER (in the direction SC to UE)

TP-More-Messages-to-Send: No more messages are waiting for the UE in this SC

TP-Reply-Path: TP-Reply-Path parameter is not set in this SMS-DELIVER

TP-User-Data-Header-Indicator: The TP-UD field contains only the short message

TP-Status-Report-Indication: A status report shall be returned to the SME

Bits 4-3: 00

TP-Originating-Address:

Bit 8: 1

Type-Of-Number: International number

Numbering-Plan-Identification: ISDN/telephony numbering plan

Address value: 012344556677

TP-Protocol-Identifier: No interworking, but SME-to-SME protocol

TP-Data-Coding-Scheme:

Bits 8-7: General Data Coding

Bit 6: Text is uncompressed

Bit 5: Bits 2-1 have a message class meaning

Bits 4-3: GSM 7 bit default alphabet

Bits 2-1: Class 2: (U)SIM specific message

TP-Service-Centre-Time-Stamp: 02-03-04 09:13:06 GMT + 1

TP-User-Data-Length: 160

TP-User-Data:

"Once a SMS is received by the UE, the Terminal shall store the SMS on the USIM, if this is indicated by the class 2 of the SMS (USIM specific SMS). For this ..."

Coding:

| | | | | | | | | | | | | | | | | |
|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Hex | 03 | 07 | 91 | 11 | 22 | 33 | 44 | 55 | 66 | 24 | 0C | 91 | 10 | 32 | 44 | 55 |
| | 66 | 77 | 00 | 12 | 20 | 30 | 40 | 90 | 31 | 60 | 40 | A0 | 4F | F7 | B8 | 0C |
| | 0A | 83 | A6 | CD | 29 | 28 | 3D | 07 | C9 | CB | E3 | 72 | DA | 5E | 26 | 83 |
| | C4 | 79 | 10 | 1D | 5D | 06 | 55 | 8B | 2C | 10 | 1D | 5D | 06 | 51 | CB | F2 |
| | 76 | DA | 1D | 66 | 83 | E6 | E8 | 30 | 9B | 0D | 9A | D3 | DF | F2 | 32 | 88 |
| | 8E | 2E | 83 | A6 | CD | 29 | E8 | ED | 06 | D1 | D1 | 65 | 50 | 75 | 9A | 6C |
| | B2 | 40 | 69 | 33 | 88 | 8E | 4E | CF | 41 | E9 | 39 | 28 | ED | 26 | A7 | C7 |
| | 61 | 7A | 99 | 0C | 12 | E7 | 41 | 74 | 74 | 19 | 34 | 66 | 87 | E7 | 73 | 90 |
| | 0C | F4 | 36 | 83 | E8 | E8 | 32 | 68 | DA | 9C | 82 | 50 | D5 | 69 | B2 | 09 |
| | 9A | C3 | CB | E3 | B4 | 39 | 3D | 06 | 4D | 9B | D3 | 94 | 0B | 64 | 7C | CB |
| | 41 | 74 | 74 | 7A | 0E | 72 | B9 | 5C | | | | | | | | |

2) After step d) the Memory Capacity Exceeded Notification Flag in the EF_{SMSS} shall be set to exceeded.

EF_{SMSS} (SMS Status)

Logically: Last used TP-MR shall be set to any appropriate value.
Memory capacity exceeded (flag set b1="0").

| | | |
|---------|----|----|
| Coding: | B1 | B2 |
| Hex | xx | FE |

8.2.2 Correct reading of a SM on the USIM

8.2.2.1 Definition and applicability

A SM which is stored but not yet read, is indicated as Status "3" (SMS to be read) on EF_{SMS}. The Terminal may indicate the user this status. After the SMS is read by the user, the status of the SMS shall be changed to "1" (SMS read).

8.2.2.2 Conformance requirement

A received SM was stored on the USIM in EF_{SMS}. At the time the SMS is read by the user, the status of a received SMS, shall be changed to "1" (SMS read).

- TS 23.038 [3], clause 4.
- TS 23.040 [13];
- TS 31.102 [4], subclauses 4.2.25 and 4.2.28.

8.2.2.3 Test purpose

- 1) To verify that the Terminal read correctly the SMS on the USIM.
- 2) To verify that the Terminal changes the status of a read SMS to "1" (SMS read).

8.2.2.4 Method of test

8.2.2.4.1 Initial conditions

The default UICC is used with the following exception:

EF_{UST} (USIM Service Table)

Logically: Local Phone Book available
 User controlled PLMN selector available
 Fixed dialling numbers available
 Barred dialling numbers available
 The GSM Access available
 The Group Identifier level 1 and level 2 not available
 SMS available
 SMS Status available
 Service n 33 (Packed Switched Domain) shall be set to '1'
 Enabled Services Table available

| | | | | | |
|---------|-----------|-----------|-----------|-----------|-----------|
| Coding: | B1 | B2 | B3 | B4 | B5 |
| binary | xx1x xx11 | xxxx X11x | xxxx 1x00 | xxxx x1xx | xxxx xx11 |

The coding of EF_{UST} shall conform with the capabilities of the USIM used.

EF_{SMS} (SMS Status)

Logically: Last used TP-MR not set.
 Memory capacity available (flag unset b1="1").

| | | |
|---------|----|----|
| Coding: | B1 | B2 |
| Hex | FF | FF |

EF_{SMS} (Short Message Service)

Logically: Status byte set to SMS to be read.
 A chosen test is written in the text body of the EF_{SMS}.

Record 1:

| | | | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|------|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | ... | B176 |
| Hex | 03 | xx | xx | xx | xx | xx | xx | xx | xx | xx | xx | xx | ... | xx |

NOTE: "xx" shall be the appropriate text using the SMS default 7-bit coded alphabet as defined in 3G TS 23.038 [3] which represents the stored SMS.

At least 9 records.

Logically: Status byte set to empty
 no text is written (Remainder Bytes set to "FF").

Record:

| | | | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|------|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | ... | B176 |
| Hex | 00 | FF | FF | FF | FF | FF | FF | FF | FF | FF | FF | FF | ... | FF |

A USS (in case of a Terminal accessing UTRAN) or a SS (in case of a Terminal accessing GERAN) is only needed to bring the UE into a defined idle mode. The USS/SS transmits on the BCCH:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 246/081/0001.
- Access control: unrestricted.

User Equipment:

The UE is in MM-state "idle, updated".

8.2.2.4.2 Procedure

- a) After the UE has brought in idle state, the SMS shall be read.
- b) The UE is powered off.

8.2.2.5 Acceptance criteria

- 1) After a) the correct text of the SMS shall be read from the UE display.
- 2) After step b) the EF_{SMS} record 1 shall contains the following values:

Logically: Status byte set to SMS read.
The entire content of the SMS shall be unchanged.

Record 1:

| | | | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|------|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | ... | B176 |
| Hex | 01 | xx | xx | Xx | xx | xx | xx | xx | xx | xx | xx | xx | ... | xx |

NOTE: "xx" shall be the appropriate text using the SMS default 7-bit coded alphabet as defined in TS 23.038 [3] which represents the stored SMS.

8.3 MMS related tests

8.3.1 UE recognising the priority order of MMS Issuer Connectivity Parameters

8.3.1.1 Definition and applicability

An MMS User Agent shall use the MMS related information stored in the USIM, if present, unless otherwise specified by the user. Some of these sets of MMS connectivity parameters are preset by the issuer of the USIM with the first supported set being the default. This information is used to connect to the network for purpose of accessing the MMS Relay/Server.

The MMS connectivity information on the USIM includes preferences for the selection of Interface to Core Network and Bearer parameters. If these are stored on the USIM the MMS-capable UE shall automatically select the Interface to Core Network and Bearer parameters based on their order of precedence defined on the USIM unless otherwise specified by the user.

MMS user preferences information, which is stored on the USIM, shall be used by an MMS User Agent for user assistance in preparation of terminal-originated MMs (e.g. default values for parameters that are often used).

8.3.1.2 Conformance requirement

The Terminal's MMS User Agent shall use the MMS connectivity parameters stored first in the supported parameter sets of EF_{MMSICP} as default parameters to connect to the network for MMS purposes (i.e. sending an User generated MM).

- TS 31.102 [4], subclauses 4.2.69 and 5.3.30;
- TS 23.140 [23], subclause 7.1.14 and Annex F.

MMS user preferences information, which is stored on the USIM, shall be used by an MMS User Agent for user assistance in preparation of terminal-originated MMs.

- TS 31.102 [4], subclauses 4.2.70 and 5.3.31;
- TS 23.140 [23], subclause 7.1.14 and Annex F.

8.3.1.3 Test purpose

- 1) To verify that the Terminal's MMS User Agent uses the MMS connectivity parameter stored on the USIM to connect to the network for MMS purposes.
- 2) To verify that the Terminal's MMS User Agent uses the first stored set of supported parameters in EF_{MMSICP} as default.
- 3) To verify that the Terminal's MMS User Agent uses the MMS user preference information stored on the USIM for user assistance in preparation of terminal-originated MMs.

8.3.1.4 Method of test

8.3.1.4.1 Initial conditions

Four MMS Relays/Servers are available:

MMS Relay/Server 1:

- MMS Connectivity Parameters

MMS implementation information: "WAP"

MMS Relay/Server

MMS Relay/Server information: "http://mms-operator1.com"

Interface to Core Network and Bearer

Bearer: "GSM-CSD"
 Address: "+496998625"
 Type of address: "E164"
 Speed: "Autobauding"
 Call type: "ANALOG_MODEM"
 Authentication type: "PAP"
 Authentication id: "B2B_OTSI"
 Authentication pw: "B2B_password1"

Gateway

Address: "170.187.51.3"
 Type of address: "IPv4"
 Port : "9201"
 Service: "CO-WSP"
 Authentication type: "HTTP BASIC"
 Authentication id: "gateway_user1"
 Authentication pw: "gateway_password1"

MMS Relay/Server 2:

- MMS Connectivity Parameters

MMS implementation information: "WAP"

MMS Relay/Server

MMS Relay/Server information: "<http://mms-operator1.com>"

Interface to Core Network and Bearer

Bearer: "GSM-CSD"

Address: "+496998626"

Type of address: "E164"

Speed: "Autobauding"

Call type: "ANALOG_MODEM"

Authentication type: "PAP"

Authentication id: "B2C_OT52"

Authentication pw: "B2C_password2"

Gateway

Address: "170.187.51.3"

Type of address: "IPv4"

Port : "9201"

Service: "CO-WSP"

Authentication type: "HTTP BASIC"

Authentication id: "gateway_user1"

Authentication pw: "gateway_password1"

MMS Relay/Server 3:

- MMS Connectivity Parameters

MMS implementation information: "WAP"

MMS Relay/Server

MMS Relay/Server information: "<http://mms-operator1.com>"

Interface to Core Network and Bearer

Bearer: "GSM-GPRS"

Address: "wap.B2B-operator1.com"

Type of address: "APN"

Call type: "ANALOG_MODEM"

Delivery of erroneous SDU: "No"

Residual Bit Error Rate: " $1 \cdot 10^{-5}$ "

SDU-Error-Ratio: " $1 \cdot 10^{-6}$ "

Traffic-class: "Interactive class"

Maximum bit rate for downlink: "8 kbps"

Authentication type: "PAP"

Authentication id: "B2B_OT51"

Authentication pw: "B2B_password1"

Gateway

Address: "170.187.51.3"

Type of address: "IPv4"

Port : "9201"

Service: "CO-WSP"

Authentication type: "HTTP BASIC"

Authentication id: "gateway_user1"

Authentication pw: "gateway_password1"

MMS Relay/Server 4:

- MMS Connectivity Parameters

MMS implementation information: "WAP"
MMS Relay/Server
MMS Relay/Server information: "http://mms-operator1.com"
Interface to Core Network and Bearer
Bearer: "GSM-GPRS"
Address: "wap.B2C-operator1.com"
Type of address: "APN"
Call type: "ANALOG_MODEM"
Delivery of erroneous SDU: "No"
Residual Bit Error Rate: "1*10⁻⁵"
SDU-Error-Ratio: "1*10⁻⁶"
Traffic-class: "Interactive class"
Maximum bit rate for downlink: "8 kbps"
Authentication type: "PAP"
Authentication id: "B2C_OT52"
Authentication pw: "B2C_password2"
Gateway
Address: "170.187.51.3"
Type of address: "IPv4"
Port : "9201"
Service: "CO-WSP"
Authentication type: "HTTP BASIC"
Authentication id: "gateway_user1"
Authentication pw: "gateway_password1"

The default UICC is used with the following exceptions:

EF_{UST} (USIM Service Table)

Logically: Local Phone Book available
User controlled PLMN selector available
Fixed dialling numbers available
Barred dialling numbers available
The GSM Access available
The Group Identifier level 1 and level 2 not available
SMS available
SMS Status available
Service no. 33 (Packed Switched Domain) shall be set to '1'
Service no. 52 Multimedia Messaging Service available
Service no. 55 MMS User Connectivity Parameters not available

| | | | | | | | |
|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 |
| Binary | xx1x xx11 | x11x xxxx | xxxx 1x00 | xxxx x1xx | xxxx xxx1 | xxxx xxxx | x0xx 1xxx |

EF_{MMSN}

Logically:
MMS Status: Free space
MMS Implementation : "00"
MMS Notification: "FF FF ... FF" (251 bytes)
Extension file record number: "FF"

| | | | | | | | | |
|---------|----|----|----|----|----|-----|------|------|
| Coding: | B1 | B2 | B3 | B4 | B5 | ... | B254 | B255 |
| | 00 | 00 | 00 | FF | FF | | FF | FF |

EF_{MMSICP}

Logically:

MMS Connectivity Parameters

MMS Implementation

MMS Implementation Information : "WAP"

MMS Relay/Server

MMS Relay/Server Address "http://mms-operator1.com"

1st Interface to Core Network and Bearer

Bearer: "GSM-CSD"
 Address: "+496998625"
 Type of address: "E164"
 Speed: "Autobauding"
 Call type: "ANALOG_MODEM"
 Authentication type: "PAP"
 Authentication id: "B2B_OTS1"
 Authentication pw: "B2B_password1"

2nd Interface to Core Network and Bearer

Bearer: "GSM-CSD"
 Address: "+496998626"
 Type of address: "E164"
 Speed: "Autobauding"
 Call type: "ANALOG_MODEM"
 Authentication type: "PAP"
 Authentication id: "B2C_OTS2"
 Authentication pw: "B2C_password2"

3rd Interface to Core Network and Bearer

Bearer: "GSM-GPRS"
 Address: "wap.B2B-operator1.com"
 Type of address: "APN"
 Call type: "ANALOG_MODEM"
 Delivery of erroneous SDU: "No"
 Residual Bit Error Rate: "1*10⁻⁵"
 SDU-Error-Ratio: "1*10⁻⁶"
 Traffic-class: "Interactive class"
 Maximum bit rate for downlink: "8 kbps"
 Authentication type: "PAP"
 Authentication id: "B2B_OTS1"
 Authentication pw: "B2B_password1"

4th Interface to Core Network and Bearer

Bearer: "GSM-GPRS"
 Address: "wap.B2C-operator1.com"
 Type of address: "APN"
 Call type: "ANALOG_MODEM"
 Delivery of erroneous SDU: "No"
 Residual Bit Error Rate: "1*10⁻⁵"
 SDU-Error-Ratio: "1*10⁻⁶"
 Traffic-class: "Interactive class"
 Maximum bit rate for downlink: "8 kbps"
 Authentication type: "PAP"
 Authentication id: "B2C_OTS2"
 Authentication pw: "B2C_password2"

Gateway:

Address: "170.187.51.3"
 Type of address: "IPv4"
 Port : "9201"
 Service: "CO-WSP"
 Authentication type: "HTTP BASIC"
 Authentication id: "gateway_user1"
 Authentication pw: "gateway_password1"

| | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|
| Coding: | AB | 82 | 01 | 47 | 80 | 01 | 01 | 81 | 18 | 68 | 74 | 74 |
| | 70 | 3A | 2F | 2F | 6D | 6D | 73 | 2E | 6F | 70 | 65 | 72 |
| | 61 | 74 | 6F | 72 | 31 | 2E | 63 | 6F | 6D | 82 | 2F | 10 |
| | AA | 08 | 2B | 34 | 39 | 36 | 39 | 39 | 38 | 36 | 32 | 35 |
| | 00 | 09 | 87 | 25 | C5 | 0A | 90 | 0C | 9A | 0D | 42 | 32 |
| | 42 | 11 | 4F | 54 | 53 | 31 | 00 | 0E | 42 | 32 | 42 | 11 |
| | 70 | 61 | 73 | 73 | 77 | 6F | 72 | 64 | 31 | 00 | 82 | 2F |
| | 10 | AA | 08 | 2B | 34 | 39 | 36 | 39 | 39 | 38 | 36 | 32 |
| | 36 | 00 | 09 | 87 | 25 | C5 | 0A | 90 | 0C | 9A | 0D | 42 |
| | 32 | 43 | 11 | 4F | 54 | 53 | 32 | 00 | 0E | 42 | 32 | 43 |
| | 11 | 70 | 61 | 73 | 73 | 77 | 6F | 72 | 64 | 32 | 00 | 82 |
| | 43 | 10 | AB | 08 | 03 | 77 | 61 | 70 | 0D | 42 | 32 | 42 |
| | 2D | 6F | 70 | 65 | 72 | 61 | 74 | 6F | 72 | 31 | 03 | 63 |
| | 6F | 6D | 00 | 09 | 89 | 0A | 90 | 31 | 03 | 37 | 70 | 38 |
| | 06 | 33 | 60 | 36 | 08 | 0C | 9A | 0D | 42 | 32 | 42 | 11 |
| | 4F | 54 | 53 | 31 | 00 | 0E | 42 | 32 | 42 | 11 | 70 | 61 |
| | 73 | 73 | 77 | 6F | 72 | 64 | 31 | 00 | 82 | 43 | 10 | AB |
| | 08 | 03 | 77 | 61 | 70 | 0D | 42 | 32 | 43 | 2D | 6F | 70 |
| | 65 | 72 | 61 | 74 | 6F | 72 | 31 | 03 | 63 | 6F | 6D | 00 |
| | 09 | 89 | 0A | 90 | 31 | 03 | 37 | 70 | 38 | 06 | 33 | 60 |
| | 36 | 08 | 0C | 9A | 0D | 42 | 32 | 43 | 11 | 4F | 54 | 53 |
| | 32 | 00 | 0E | 42 | 32 | 43 | 11 | 70 | 61 | 73 | 73 | 77 |
| | 6F | 72 | 64 | 32 | 00 | 83 | 43 | 20 | 31 | 37 | 30 | 2E |
| | 31 | 38 | 37 | 2E | 35 | 31 | 2E | 33 | 00 | 21 | 85 | 23 |
| | 39 | 32 | 30 | 31 | 00 | 24 | CB | 19 | 9C | 1A | 67 | 61 |
| | 74 | 65 | 77 | 61 | 79 | 11 | 75 | 73 | 65 | 72 | 31 | 00 |
| | 1B | 67 | 61 | 74 | 65 | 77 | 61 | 79 | 11 | 70 | 61 | 73 |
| | 73 | 77 | 6F | 72 | 64 | 31 | 00 | | | | | |

EF_{MMSUP}

Logically:

MMS Implementation

MMS implementation information: "WAP"

MMS User Preference Profile Name: "Greeting cards"

MMS User Information Preference Information

Visibility: "hide"

Delivery report: "yes"

Read-reply: "yes"

Priority: "normal"

Delivery-Time:

Value (absolute): "1-Jan-2003, 12:00:00 AM GMT"

Expiry:

Value (relative): 1104537600 seconds

| | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|
| Coding: | 80 | 01 | 01 | 81 | 0E | 47 | 72 | 65 | 65 | 74 | 69 | 6E |
| | 67 | 20 | 63 | 61 | 72 | 64 | 73 | 82 | 19 | 14 | 80 | 06 |
| | 80 | 10 | 80 | 0F | 81 | 07 | 07 | 80 | 05 | 00 | 3E | 12 |
| | 2F | 80 | 08 | 06 | 81 | 04 | 41 | D5 | E8 | 00 | | |

The UICC is installed into the Terminal and the user has indicated the data stored in EF_{MMSICP} as default.

8.3.1.4.2 Procedure

- The Terminal is powered on and the PIN shall be entered.
- When the Terminal is in idle mode the user shall generate an MM using the MMS User Agent on the Terminal with the default MMS connectivity settings provided by the card issuer and the MMS user preference information stored in the card and send it to "+0123456789".

8.3.1.5 Acceptance criteria

- 1) After step b) the Terminal shall have read the set of supported MMS connectivity parameters stored first in EF_{MMSICP} .
- 2) After step b) the Terminal shall have sent the MM to "+0123456789" using the MMS connectivity parameters stored first in the supported parameter sets in EF_{MMSICP} .
- 3) After step b) the Terminal shall have sent the MM to "+0123456789" using the MMS user preference information stored in EF_{MMSUP} .

8.3.2 UE recognising the priority order of MMS User Connectivity Parameters

8.3.2.1 Definition and applicability

An MMS User Agent shall use the MMS related information stored in the USIM, if present, unless otherwise specified by the user. The MMS connectivity parameters determined by the user, with the first supported set being the default, shall be used to connect to the network for purpose of accessing the MMS Relay/Server.

The MMS connectivity information on the USIM includes preferences for the selection of Interface to Core Network and Bearer parameters. If these are stored on the USIM the MMS-capable UE shall automatically select the Interface to Core Network and Bearer parameters based on their order of precedence defined on the USIM unless otherwise specified by the user.

MMS user preferences information, which is stored on the USIM, shall be used by an MMS User Agent for user assistance in preparation of terminal-originated MMs (e.g. default values for parameters that are often used).

8.3.2.2 Conformance requirement

When using the MMS User Connectivity Parameters to connect to the network for MMS purposes (i.e. sending an User generated MM), the Terminal's MMS User Agent shall use the MMS User Connectivity Parameters with the highest priority (as defined by its position in EF_{MMSUCP}) unless otherwise specified by the user.

- TS 31.102 [4], subclauses 4.2.71 and 5.3.32;
- TS 23.140 [23], subclause 7.1.14 and Annex F.

MMS user preferences information, which is stored on the USIM, shall be used by an MMS User Agent for user assistance in preparation of terminal-originated MMs.

- TS 31.102 [4], subclauses 4.2.70 and 5.3.31;
- TS 23.140 [23], subclause 7.1.14 and Annex F.

8.3.2.3 Test purpose

- 1) To verify that the Terminal's MMS User Agent uses the MMS connectivity parameter stored on the USIM to connect to the network for MMS purposes.
- 2) To verify that when using the MMS User Connectivity Parameters to connect to the network for MMS purposes the Terminal's MMS User Agent uses the set of supported parameters in EF_{MMSUCP} with the highest priority (as defined by its position in EF_{MMSUCP}).
- 3) To verify that the Terminal's MMS User Agent uses the MMS user preference information stored on the USIM for user assistance in preparation of terminal-originated MMs.

8.3.2.4 Method of test

8.3.2.4.1 Initial conditions

Four MMS Relays/Servers are available:

MMS Relay/Server 1:

- MMS Connectivity Parameters

| | |
|--------------------------------------|---|
| MMS implementation information: | "WAP" |
| MMS Relay/Server | |
| MMS Relay/Server information: | "http:// mms-operator2.com " |
| Interface to Core Network and Bearer | |
| Bearer: | "GSM-CSD" |
| Address: | "+495251699" |
| Type of address: | "E164" |
| Speed: | "Autobauding" |
| Call type: | "ANALOG_MODEM" |
| Authentication type: | "PAP" |
| Authentication id: | "UDO_OTSI1" |
| Authentication pw: | "Udo_password1" |
| Gateway | |
| Address: | "170.187.51.4" |
| Type of address: | "IPv4" |
| Port : | "9203" |
| Service: | "CO-WSP" |
| Authentication type: | "HTTP BASIC" |
| Authentication id: | "gateway_user7" |
| Authentication pw: | "gateway_password7" |

MMS Relay/Server 2:

- MMS Connectivity Parameters

| | |
|--------------------------------------|---|
| MMS implementation information: | "WAP" |
| MMS Relay/Server | |
| MMS Relay/Server information: | "http:// mms-operator2.com " |
| Interface to Core Network and Bearer | |
| Bearer: | "GSM-CSD" |
| Address: | "+495251700" |
| Type of address: | "E164" |
| Speed: | "Autobauding" |
| Call type: | "ANALOG_MODEM" |
| Authentication type: | "PAP" |
| Authentication id: | "UDO_OTSI2" |
| Authentication pw: | "Udo_password2" |
| Gateway | |
| Address: | "170.187.51.4" |
| Type of address: | "IPv4" |
| Port : | "9203" |
| Service: | "CO-WSP" |
| Authentication type: | "HTTP BASIC" |
| Authentication id: | "gateway_user7" |
| Authentication pw: | "gateway_password7" |

MMS Relay/Server 3:

- MMS Connectivity Parameters

MMS implementation information: "WAP"

MMS Relay/Server

MMS Relay/Server information: "http://mms-operator2.com"

Interface to Core Network and Bearer

Bearer: "GSM-GPRS"

Address: "wap.B2B-operator2.com"

Type of address: "APN"

Call type: "ANALOG_MODEM"

Delivery of erroneous SDU: "No"

Residual Bit Error Rate: "1*10⁻⁵"

SDU-Error-Ratio: "1*10⁻⁶"

Traffic-class: "Interactive class"

Maximum bit rate for downlink: "8 kbps"

Authentication type: "PAP"

Authentication id: "UDO_OTSI1"

Authentication pw: "Udo_password1"

Gateway

Address: "170.187.51.4"

Type of address: "IPv4"

Port : "9203"

Service: "CO-WSP"

Authentication type: "HTTP BASIC"

Authentication id: "gateway_user7"

Authentication pw: "gateway_password7"

MMS Relay/Server 4:

- MMS Connectivity Parameters

MMS implementation information: "WAP"

MMS Relay/Server

MMS Relay/Server information: "http://mms-operator2.com"

Interface to Core Network and Bearer

Bearer: "GSM-GPRS"

Address: "wap.B2C-operator2.com"

Type of address: "APN"

Call type: "ANALOG_MODEM"

Delivery of erroneous SDU: "No"

Residual Bit Error Rate: "1*10⁻⁵"

SDU-Error-Ratio: "1*10⁻⁶"

Traffic-class: "Interactive class"

Maximum bit rate for downlink: "8 kbps"

Authentication type: "PAP"

Authentication id: "UDO_OTSI2"

Authentication pw: "Udo_password2"

Gateway

Address: "170.187.51.4"

Type of address: "IPv4"

Port : "9203"

Service: "CO-WSP"

Authentication type: "HTTP BASIC"

Authentication id: "gateway_user7"

Authentication pw: "gateway_password7"

The default UICC is used with the following exceptions:

EF_{UST} (USIM Service Table)

Logically: Local Phone Book available
 User controlled PLMN selector available
 Fixed dialling numbers available
 Barred dialling numbers available

The GSM Access available
 The Group Identifier level 1 and level 2 not available
 SMS available
 SMS Status available
 Service no. 33 (Packed Switched Domain) shall be set to '1'
 Service no. 52 Multimedia Messaging Service available
 Service no. 55 MMS User Connectivity Parameters available

| | | | | | | | |
|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 |
| Binary | xx1x xx11 | x11x xxxx | xxxx 1x00 | xxxx x1xx | xxxx xxx1 | xxxx xxxx | x1xx 1xxx |

EF_{MMSN}

Logically:

MMS Status: Free space
 MMS Implementation : "00"
 MMS Notification: "FF FF ... FF" (251 bytes)
 Extension file record number: "FF"

| | | | | | | | | |
|---------|----|----|----|----|----|-----|------|------|
| Coding: | B1 | B2 | B3 | B4 | B5 | ... | B254 | B255 |
| | 00 | 00 | 00 | FF | FF | | FF | FF |

EF_{MMSICP}

Logically: Empty

| | | | | |
|---------|----|----|-----|-----|
| Coding: | B1 | B2 | ... | Bxx |
| | FF | FF | | FF |

EF_{MMSUP}

Logically:

MMS Implementation
 MMS implementation information: "WAP"
 MMS User Preference Profile Name: "Greeting cards"
 MMS User Information Preference Information
 Visibility: "hide"
 Delivery report: "yes"
 Read-reply: "yes"
 Priority: "normal"
 Delivery-Time:
 Value (absolute): "1-Jan-2003, 12:00:00 AM GMT"
 Expiry:
 Value (relative): 1104537600 seconds

| | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|
| Coding: | 80 | 01 | 01 | 81 | 0E | 47 | 72 | 65 | 65 | 74 | 69 | 6E |
| | 67 | 20 | 63 | 61 | 72 | 64 | 73 | 82 | 19 | 14 | 80 | 06 |
| | 80 | 10 | 80 | 0F | 81 | 07 | 07 | 80 | 05 | 00 | 3E | 12 |
| | 2F | 80 | 08 | 06 | 81 | 04 | 41 | D5 | E8 | 00 | | |

EF_{MMSUCP}

Logically:

MMS Connectivity Parameters

MMS Implementation

MMS Implementation Information : "WAP"

MMS Relay/Server

MMS Relay/Server Address "<http://mms-operator2.com>"1st Interface to Core Network and Bearer

Bearer: "GSM-CSD"
 Address: "+495251699"
 Type of address: "E164"
 Speed: "Autobauding"
 Call type: "ANALOG_MODEM"
 Authentication type: "PAP"
 Authentication id: "UDO_OTS1"
 Authentication pw: "Udo_password1"

2nd Interface to Core Network and Bearer

Bearer: "GSM-CSD"
 Address: "+495251700"
 Type of address: "E164"
 Speed: "Autobauding"
 Call type: "ANALOG_MODEM"
 Authentication type: "PAP"
 Authentication id: "UDO_OTS2"
 Authentication pw: "Udo_password2"

3rd Interface to Core Network and Bearer

Bearer: "GSM-GPRS"
 Address: "wap.B2B-operator2.com"
 Type of address: "APN"
 Call type: "ANALOG_MODEM"
 Delivery of erroneous SDU: "No"
 Residual Bit Error Rate: "1*10⁻⁵"
 SDU-Error-Ratio: "1*10⁻⁶"
 Traffic-class: "Interactive class"
 Maximum bit rate for downlink: "8 kbps"
 Authentication type: "PAP"
 Authentication id: "UDO_OTS1"
 Authentication pw: "Udo_password1"

4th Interface to Core Network and Bearer

Bearer: "GSM-GPRS"
 Address: "wap.B2C-operator2.com"
 Type of address: "APN"
 Call type: "ANALOG_MODEM"
 Delivery of erroneous SDU: "No"
 Residual Bit Error Rate: "1*10⁻⁵"
 SDU-Error-Ratio: "1*10⁻⁶"
 Traffic-class: "Interactive class"
 Maximum bit rate for downlink: "8 kbps"
 Authentication type: "PAP"
 Authentication id: "UDO_OTS2"
 Authentication pw: "Udo_password2"

Gateway:

Address: "170.187.51.4"
 Type of address: "IPv4"
 Port : "9203"
 Service: "CO-WSP"
 Authentication type: "HTTP BASIC"
 Authentication id: "gateway_user7"
 Authentication pw: "gateway_password7"

| | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|
| Coding: | AB | 82 | 01 | 47 | 80 | 01 | 01 | 81 | 18 | 68 | 74 | 74 |
| | 70 | 3A | 2F | 2F | 6D | 6D | 73 | 2E | 6F | 70 | 65 | 72 |
| | 61 | 74 | 6F | 72 | 32 | 2E | 63 | 6F | 6D | 82 | 2F | 10 |
| | AA | 08 | 2B | 34 | 39 | 35 | 32 | 35 | 31 | 36 | 39 | 39 |
| | 00 | 09 | 87 | 25 | C5 | 0A | 90 | 0C | 9A | 0D | 55 | 44 |
| | 4F | 11 | 4F | 54 | 53 | 31 | 00 | 0E | 55 | 64 | 6F | 11 |
| | 70 | 61 | 73 | 73 | 77 | 6F | 72 | 64 | 31 | 00 | 82 | 2F |
| | 10 | AA | 08 | 2B | 34 | 39 | 35 | 32 | 35 | 31 | 37 | 30 |
| | 30 | 00 | 09 | 87 | 25 | C5 | 0A | 90 | 0C | 9A | 0D | 55 |
| | 44 | 4F | 11 | 4F | 54 | 53 | 32 | 00 | 0E | 55 | 64 | 6F |
| | 11 | 70 | 61 | 73 | 73 | 77 | 6F | 72 | 64 | 32 | 00 | 82 |
| | 43 | 10 | AB | 08 | 03 | 77 | 61 | 70 | 0D | 42 | 32 | 42 |
| | 2D | 6F | 70 | 65 | 72 | 61 | 74 | 6F | 72 | 32 | 03 | 63 |
| | 6F | 6D | 00 | 09 | 89 | 0A | 90 | 31 | 03 | 37 | 70 | 38 |
| | 06 | 33 | 60 | 36 | 08 | 0C | 9A | 0D | 55 | 44 | 4F | 11 |
| | 4F | 54 | 53 | 31 | 00 | 0E | 55 | 64 | 6F | 11 | 70 | 61 |
| | 73 | 73 | 77 | 6F | 72 | 64 | 31 | 00 | 82 | 43 | 10 | AB |
| | 08 | 03 | 77 | 61 | 70 | 0D | 42 | 32 | 43 | 2D | 6F | 70 |
| | 65 | 72 | 61 | 74 | 6F | 72 | 32 | 03 | 63 | 6F | 6D | 00 |
| | 09 | 89 | 0A | 90 | 31 | 03 | 37 | 70 | 38 | 06 | 33 | 60 |
| | 36 | 08 | 0C | 9A | 0D | 55 | 44 | 4F | 11 | 4F | 54 | 53 |
| | 32 | 00 | 0E | 55 | 64 | 6F | 11 | 70 | 61 | 73 | 73 | 77 |
| | 6F | 72 | 64 | 32 | 00 | 83 | 3B | 20 | 31 | 37 | 30 | 2E |
| | 31 | 38 | 37 | 2E | 35 | 31 | 2E | 34 | 00 | 21 | 85 | 23 |
| | 39 | 32 | 30 | 31 | 00 | 24 | CB | 19 | 9C | 1A | 67 | 61 |
| | 74 | 65 | 77 | 61 | 79 | 11 | 75 | 73 | 65 | 72 | 37 | 00 |
| | 1B | 67 | 61 | 74 | 65 | 77 | 61 | 79 | 11 | 70 | 61 | 73 |
| | 73 | 77 | 6F | 72 | 64 | 37 | 00 | | | | | |

The UICC is installed into the Terminal and the user has indicated the data stored in EF_{MMSUCP} as default.

8.3.2.4.2 Procedure

- The Terminal is powered on and the PIN shall be entered.
- When the Terminal is in idle mode the user shall generate an MM using the MMS User Agent on the Terminal with the default MMS User Connectivity Parameters and the MMS user preference information stored in the card and send it to "+0123456789".

8.3.2.5 Acceptance criteria

- After step b) the Terminal shall have read the first supported set of MMS connectivity parameters stored in EF_{MMSUCP}.
- After step b) the Terminal shall have sent the MM to "+0123456789" using the MMS User Connectivity Parameter set with the highest priority (as defined by its position in EF_{MMSUCP}), which can be used to access an available MMS Relay/Server.
- After step b) the Terminal shall have sent the MM to "+0123456789" using the MMS user preference information stored in EF_{MMSUCP}.

8.3.3 UE recognising the priority order of MMS Issuer Connectivity Parameters over the MMS User Connectivity Parameters

8.3.3.1 Definition and applicability

An MMS User Agent shall use the MMS related information stored in the USIM, if present, unless otherwise specified by the user. This information comprises MMS connectivity information, MMS user preferences and MMS notifications.

MMS user preferences information, which is stored on the USIM, shall be used by an MMS User Agent for user assistance in preparation of terminal-originated MMs (e.g. default values for parameters that are often used).

8.3.3.2 Conformance requirement

MMS connectivity information, on the USIM includes a number of sets of MMS connectivity parameters. Some of these sets of MMS connectivity parameters are preset by the issuer of the USIM with the first set being the default. Such default preset MMS connectivity parameter set shall be selected unless otherwise specified by the user.

- TS 31.102 [4], subclauses 4.2.69, 4.7.71, 5.3.30 and 5.3.32;
- TS 23.140 [23], subclause 7.1.14 and Annex F

8.3.3.3 Test purpose

- 1) To verify that the Terminal's MMS User Agent uses the MMS connectivity parameter stored on the USIM to connect to the network for MMS purposes.
- 2) To verify that a MMS Issuer Connectivity Parameter set with lower priority (as defined by its position in EF_{MMSICP}) takes precedence over a MMS User Connectivity Parameter set with a higher priority.

8.3.3.4 Method of test

8.3.3.4.1 Initial conditions

Four MMS Relays/Servers are available:

MMS Relay/Server 1:

| | |
|--------------------------------------|---|
| - MMS Connectivity Parameters | |
| MMS implementation information: | "WAP" |
| MMS Relay/Server | |
| MMS Relay/Server information: | " http://mms-operator3.com " |
| Interface to Core Network and Bearer | |
| Bearer: | "GSM-CSD" |
| Address: | "+495251699" |
| Type of address: | "E164" |
| Speed: | "Autobauding" |
| Call type: | "ANALOG_MODEM" |
| Authentication type: | "PAP" |
| Authentication id: | "UDO_OTSI1" |
| Authentication pw: | "Udo_password1" |
| Gateway | |
| Address: | "170.187.51.5" |
| Type of address: | "IPv4" |
| Port : | "9201" |
| Service: | "CO-WSP" |
| Authentication type: | "HTTP BASIC" |
| Authentication id: | "gateway_user9" |
| Authentication pw: | "gateway_password9" |

MMS Relay/Server 2:

| | |
|--------------------------------------|---|
| - MMS Connectivity Parameters | |
| MMS implementation information: | "WAP" |
| MMS Relay/Server | |
| MMS Relay/Server information: | "http:// mms-operator3.com " |
| Interface to Core Network and Bearer | |
| Bearer: | "GSM-GPRS" |
| Address: | "wap.B2P-operator3.com" |
| Type of address: | "APN" |
| Call type: | "ANALOG_MODEM" |
| Delivery of erroneous SDU: | "No" |
| Residual Bit Error Rate: | "1*10 ⁻⁵ " |
| SDU-Error-Ratio: | "1*10 ⁻⁶ " |
| Traffic-class: | "Interactive class" |
| Maximum bit rate for downlink: | "8 kbps" |
| Authentication type: | "PAP" |
| Authentication id: | "UDO_OTSI1" |
| Authentication pw: | "Udo_password1" |
| Gateway | |
| Address: | "170.187.51.5" |
| Type of address: | "IPv4" |
| Port : | "9201" |
| Service: | "CO-WSP" |
| Authentication type: | "HTTP BASIC" |
| Authentication id: | "gateway_user9" |
| Authentication pw: | "gateway_password9" |

MMS Relay/Server 3:

| | |
|--------------------------------------|---|
| - MMS Connectivity Parameters | |
| MMS implementation information: | "WAP" |
| MMS Relay/Server | |
| MMS Relay/Server information: | "http:// mms-operator3.com " |
| Interface to Core Network and Bearer | |
| Bearer: | "GSM-CSD" |
| Address: | "+496998626" |
| Type of address: | "E164" |
| Speed: | "Autobauding" |
| Call type: | "ANALOG_MODEM" |
| Authentication type: | "PAP" |
| Authentication id: | "B2C_OTSI2" |
| Authentication pw: | "B2C_password2" |
| Gateway | |
| Address: | "170.187.51.5" |
| Type of address: | "IPv4" |
| Port : | "9201" |
| Service: | "CO-WSP" |
| Authentication type: | "HTTP BASIC" |
| Authentication id: | "gateway_user9" |
| Authentication pw: | "gateway_password9" |

MMS Relay/Server 4:

- MMS Connectivity Parameters

MMS implementation information: "WAP"
MMS Relay/Server
MMS Relay/Server information: "http://mms-operator3.com"
Interface to Core Network and Bearer
Bearer: "GSM-GPRS"
Address: "wap.B2C-operator3.com"
Type of address: "APN"
Call type: "ANALOG_MODEM"
Delivery of erroneous SDU: "No"
Residual Bit Error Rate: "1*10⁻⁵"
SDU-Error-Ratio: "1*10⁻⁶"
Traffic-class: "Interactive class"
Maximum bit rate for downlink: "8 kbps"
Authentication type: "PAP"
Authentication id: "B2C_OT52"
Authentication pw: "B2C_password2"
Gateway
Address: "170.187.51.5"
Type of address: "IPv4"
Port : "9201"
Service: "CO-WSP"
Authentication type: "HTTP BASIC"
Authentication id: "gateway_user9"
Authentication pw: "gateway_password9"

The default UICC is used with the following exceptions:

EF_{UST} (USIM Service Table)

Logically: Local Phone Book available
User controlled PLMN selector available
Fixed dialling numbers available
Barred dialling numbers available
The GSM Access available
The Group Identifier level 1 and level 2 not available
SMS available
SMS Status available
Service no. 33 (Packed Switched Domain) shall be set to '1'
Service no. 52 Multimedia Messaging Service available
Service no. 55 MMS User Connectivity Parameters available

| | | | | | | | |
|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 |
| Binary | xx1x xx11 | x11x xxxx | xxxx 1x00 | xxxx x1xx | xxxx xxx1 | xxxx xxxx | x1xx 1xxx |

EF_{MMSN}

Logically:
MMS Status: Free space
MMS Implementation : "00"
MMS Notification: "FF FF ... FF" (251 bytes)
Extension file record number: "FF"

| | | | | | | | | |
|---------|----|----|----|----|----|-----|------|------|
| Coding: | B1 | B2 | B3 | B4 | B5 | ... | B254 | B255 |
| | 00 | 00 | 00 | FF | FF | | FF | FF |

EF_{MMSICP}

Logically:

MMS Connectivity Parameters

MMS Implementation

MMS Implementation Information : "WAP"

MMS Relay/Server

MMS Relay/Server Address "http://mms-operator3.com"

1st Interface to Core Network and Bearer

Bearer: "GSM-CSD"
 Address: "+496998625"
 Type of address: "E164"
 Speed: "Autobauding"
 Call type: "ANALOG_MODEM"
 Authentication type: "PAP"
 Authentication id: "B2B_OTS1"
 Authentication pw: "B2B_password1"

2nd Interface to Core Network and Bearer

Bearer: "GSM-CSD"
 Address: "+496998626"
 Type of address: "E164"
 Speed: "Autobauding"
 Call type: "ANALOG_MODEM"
 Authentication type: "PAP"
 Authentication id: "B2C_OTS2"
 Authentication pw: "B2C_password2"

3rd Interface to Core Network and Bearer

Bearer: "GSM-GPRS"
 Address: "wap.B2B-operator3.com"
 Type of address: "APN"
 Call type: "ANALOG_MODEM"
 Delivery of erroneous SDU: "No"
 Residual Bit Error Rate: "1*10⁻⁵"
 SDU-Error-Ratio: "1*10⁻⁶"
 Traffic-class: "Interactive class"
 Maximum bit rate for downlink: "8 kbps"
 Authentication type: "PAP"
 Authentication id: "B2B_OTS1"
 Authentication pw: "B2B_password1"

4th Interface to Core Network and Bearer

Bearer: "GSM-GPRS"
 Address: "wap.B2C-operator3.com"
 Type of address: "APN"
 Call type: "ANALOG_MODEM"
 Delivery of erroneous SDU: "No"
 Residual Bit Error Rate: "1*10⁻⁵"
 SDU-Error-Ratio: "1*10⁻⁶"
 Traffic-class: "Interactive class"
 Maximum bit rate for downlink: "8 kbps"
 Authentication type: "PAP"
 Authentication id: "B2C_OTS2"
 Authentication pw: "B2C_password2"

Gateway:

Address: "170.187.51.5"
 Type of address: "IPv4"
 Port : "9201"
 Service: "CO-WSP"
 Authentication type: "HTTP BASIC"
 Authentication id: "gateway_user9"
 Authentication pw: "gateway_password9"

| | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|
| Coding: | AB | 82 | 01 | 47 | 80 | 01 | 01 | 81 | 18 | 68 | 74 | 74 |
| | 70 | 3A | 2F | 2F | 6D | 6D | 73 | 2E | 6F | 70 | 65 | 72 |
| | 61 | 74 | 6F | 72 | 33 | 2E | 63 | 6F | 6D | 82 | 2F | 10 |
| | AA | 08 | 2B | 34 | 39 | 36 | 39 | 39 | 38 | 36 | 32 | 35 |
| | 00 | 09 | 87 | 25 | C5 | 0A | 90 | 0C | 9A | 0D | 42 | 32 |
| | 42 | 11 | 4F | 54 | 53 | 31 | 00 | 0E | 42 | 32 | 42 | 11 |
| | 70 | 61 | 73 | 73 | 77 | 6F | 72 | 64 | 31 | 00 | 82 | 2F |
| | 10 | AA | 08 | 2B | 34 | 39 | 36 | 39 | 39 | 38 | 36 | 32 |
| | 36 | 00 | 09 | 87 | 25 | C5 | 0A | 90 | 0C | 9A | 0D | 42 |
| | 32 | 43 | 11 | 4F | 54 | 53 | 32 | 00 | 0E | 42 | 32 | 43 |
| | 11 | 70 | 61 | 73 | 73 | 77 | 6F | 72 | 64 | 32 | 00 | 82 |
| | 43 | 10 | AB | 08 | 03 | 77 | 61 | 70 | 0D | 42 | 32 | 42 |
| | 2D | 6F | 70 | 65 | 72 | 61 | 74 | 6F | 72 | 33 | 03 | 63 |
| | 6F | 6D | 00 | 09 | 89 | 0A | 90 | 31 | 03 | 37 | 70 | 38 |
| | 06 | 33 | 60 | 36 | 08 | 0C | 9A | 0D | 42 | 32 | 42 | 11 |
| | 4F | 54 | 53 | 31 | 00 | 0E | 42 | 32 | 42 | 11 | 70 | 61 |
| | 73 | 73 | 77 | 6F | 72 | 64 | 31 | 00 | 82 | 43 | 10 | AB |
| | 08 | 03 | 77 | 61 | 70 | 0D | 42 | 32 | 43 | 2D | 6F | 70 |
| | 65 | 72 | 61 | 74 | 6F | 72 | 33 | 03 | 63 | 6F | 6D | 00 |
| | 09 | 89 | 0A | 90 | 31 | 03 | 37 | 70 | 38 | 06 | 33 | 60 |
| | 36 | 08 | 0C | 9A | 0D | 42 | 32 | 43 | 11 | 4F | 54 | 53 |
| | 32 | 00 | 0E | 42 | 32 | 43 | 11 | 70 | 61 | 73 | 73 | 77 |
| | 6F | 72 | 64 | 32 | 00 | 83 | 3B | 20 | 31 | 37 | 30 | 2E |
| | 31 | 38 | 37 | 2E | 35 | 31 | 2E | 35 | 00 | 21 | 85 | 23 |
| | 39 | 32 | 30 | 31 | 00 | 24 | CB | 19 | 9C | 1A | 67 | 61 |
| | 74 | 65 | 77 | 61 | 79 | 11 | 75 | 73 | 65 | 72 | 39 | 00 |
| | 1B | 67 | 61 | 74 | 65 | 77 | 61 | 79 | 11 | 70 | 61 | 73 |
| | 73 | 77 | 6F | 72 | 64 | 39 | 00 | | | | | |

EF_{MMSUP}

Logically:

MMS Implementation

| | |
|---|-------------------------------|
| MMS implementation information: | "WAP" |
| MMS User Preference Profile Name: | "Greeting cards" |
| MMS User Information Preference Information | |
| Visibility: | "hide" |
| Delivery report: | "yes" |
| Read-reply: | "yes" |
| Priority: | "normal" |
| Delivery-Time: | |
| Value (absolute): | "1-Jan-2003, 12:00:00 AM GMT" |
| Expiry: | |
| Value (relative): | 1104537600 seconds |

| | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|
| Coding: | 80 | 01 | 01 | 81 | 0E | 47 | 72 | 65 | 65 | 74 | 69 | 6E |
| | 67 | 20 | 63 | 61 | 72 | 64 | 73 | 82 | 19 | 14 | 80 | 06 |
| | 80 | 10 | 80 | 0F | 81 | 07 | 07 | 80 | 05 | 00 | 3E | 12 |
| | 2F | 80 | 08 | 06 | 81 | 04 | 41 | D5 | E8 | 00 | | |

EF_{MMSUCP}

Logically:

MMS Connectivity Parameters

MMS Implementation

MMS Implementation Information : "WAP"

MMS Relay/Server

MMS Relay/Server Address "<http://mms-operator3.com>"1st Interface to Core Network and Bearer

Bearer: "GSM-CSD"
 Address: "+495251699"
 Type of address: "E164"
 Speed: "Autobauding"
 Call type: "ANALOG_MODEM"
 Authentication type: "PAP"
 Authentication id: "UDO_OTS1"
 Authentication pw: "Udo_password1"

2nd Interface to Core Network and Bearer

Bearer: "GSM-CSD"
 Address: "+495251700"
 Type of address: "E164"
 Speed: "Autobauding"
 Call type: "ANALOG_MODEM"
 Authentication type: "PAP"
 Authentication id: "UDO_OTS2"
 Authentication pw: "Udo_password2"

3rd Interface to Core Network and Bearer

Bearer: "GSM-GPRS"
 Address: "wap.B2P-operator3.com"
 Type of address: "APN"
 Call type: "ANALOG_MODEM"
 Delivery of erroneous SDU: "No"
 Residual Bit Error Rate: "1*10⁻⁵"
 SDU-Error-Ratio: "1*10⁻⁶"
 Traffic-class: "Interactive class"
 Maximum bit rate for downlink: "8 kbps"
 Authentication type: "PAP"
 Authentication id: "UDO_OTS1"
 Authentication pw: "Udo_password1"

4th Interface to Core Network and Bearer

Bearer: "GSM-GPRS"
 Address: "wap.B2C-operator3.com"
 Type of address: "APN"
 Call type: "ANALOG_MODEM"
 Delivery of erroneous SDU: "No"
 Residual Bit Error Rate: "1*10⁻⁵"
 SDU-Error-Ratio: "1*10⁻⁶"
 Traffic-class: "Interactive class"
 Maximum bit rate for downlink: "8 kbps"
 Authentication type: "PAP"
 Authentication id: "UDO_OTS2"
 Authentication pw: "Udo_password2"

Gateway:

Address: "170.187.51.5"
 Type of address: "IPv4"
 Port : "9201"
 Service: "CO-WSP"
 Authentication type: "HTTP BASIC"
 Authentication id: "gateway_user9"
 Authentication pw: "gateway_password9"

| | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|
| Coding: | AB | 82 | 01 | 47 | 80 | 01 | 01 | 81 | 18 | 68 | 74 | 74 |
| | 70 | 3A | 2F | 2F | 6D | 6D | 73 | 2D | 6F | 70 | 65 | 72 |
| | 61 | 74 | 6F | 72 | 33 | 2E | 63 | 6F | 6D | 82 | 2F | 10 |
| | AA | 08 | 2B | 34 | 39 | 35 | 32 | 35 | 31 | 36 | 39 | 39 |
| | 00 | 09 | 87 | 25 | C5 | 0A | 90 | 0C | 9A | 0D | 55 | 44 |
| | 4F | 11 | 4F | 54 | 53 | 31 | 00 | 0E | 55 | 64 | 6F | 11 |
| | 70 | 61 | 73 | 73 | 77 | 6F | 72 | 64 | 31 | 00 | 82 | 2F |
| | 10 | AA | 08 | 2B | 34 | 39 | 35 | 32 | 35 | 31 | 37 | 30 |
| | 30 | 00 | 09 | 87 | 25 | C5 | 0A | 90 | 0C | 9A | 0D | 55 |
| | 44 | 4F | 11 | 4F | 54 | 53 | 32 | 00 | 0E | 55 | 64 | 6F |
| | 11 | 70 | 61 | 73 | 73 | 77 | 6F | 72 | 64 | 32 | 00 | 82 |
| | 43 | 10 | AB | 08 | 03 | 77 | 61 | 70 | 0D | 42 | 32 | 50 |
| | 2D | 6F | 70 | 65 | 72 | 61 | 74 | 6F | 72 | 33 | 03 | 63 |
| | 6F | 6D | 00 | 09 | 89 | 0A | 90 | 31 | 03 | 37 | 70 | 38 |
| | 06 | 33 | 60 | 36 | 08 | 0C | 9A | 0D | 55 | 44 | 4F | 11 |
| | 4F | 54 | 53 | 31 | 00 | 0E | 55 | 64 | 6F | 11 | 70 | 61 |
| | 73 | 73 | 77 | 6F | 72 | 64 | 31 | 00 | 82 | 43 | 10 | AB |
| | 08 | 03 | 77 | 61 | 70 | 0D | 42 | 32 | 43 | 2D | 6F | 70 |
| | 65 | 72 | 61 | 74 | 6F | 72 | 33 | 03 | 63 | 6F | 6D | 00 |
| | 09 | 89 | 0A | 90 | 31 | 03 | 37 | 70 | 38 | 06 | 33 | 60 |
| | 36 | 08 | 0C | 9A | 0D | 55 | 44 | 4F | 11 | 4F | 54 | 53 |
| | 32 | 00 | 0E | 55 | 64 | 6F | 11 | 70 | 61 | 73 | 73 | 77 |
| | 6F | 72 | 64 | 32 | 00 | 83 | 3C | 20 | 31 | 37 | 30 | 2E |
| | 31 | 38 | 37 | 2E | 35 | 31 | 2E | 35 | 00 | 21 | 85 | 23 |
| | 39 | 32 | 30 | 31 | 00 | 24 | CB | 19 | 9C | 1A | 67 | 61 |
| | 74 | 65 | 77 | 61 | 79 | 11 | 75 | 73 | 65 | 72 | 39 | 00 |
| | 1B | 67 | 61 | 74 | 65 | 77 | 61 | 79 | 11 | 70 | 61 | 73 |
| | 73 | 77 | 6F | 72 | 64 | 39 | 00 | | | | | |

The UICC is installed into the Terminal and the user hasn't specified a default MMS connectivity parameter set.

8.3.3.4.2 Procedure

- a) The Terminal is powered on and the PIN shall be entered.
- b) When the Terminal is in idle mode the user shall generate an MM using the MMS User Agent on the Terminal with the default MMS connectivity parameter set and send it to "+0123456789". If no MMS Relay/Server is available for this parameter set, the next MMS connectivity parameter set offered by the MMS User Agent shall be used to send the MM.

8.3.3.5 Acceptance criteria

After step b) the Terminal shall have sent the MM to "+0123456789" using the first supported MMS connectivity parameter set, which can be used to access an available MMS Relay/Server and is stored in EF_{MMSICP}.

8.3.4 Usage of MMS notification

8.3.4.1 Definition and applicability

An MMS User Agent shall use the MMS related information stored in the USIM, if present, unless otherwise specified by the user. This information comprises MMS connectivity information, MMS user preferences and MMS notifications. MMS notifications should be stored on the USIM together with an associated status by a MMS User Agent according to TS 23.140 [23].

8.3.4.2 Conformance requirement

A Terminal supporting MMS notification storage on the USIM shall store MMS notifications together with an associated status on the USIM.

- TS 31.102 [4], subclauses 4.2.67 and 5.3.29;
- TS 23.140 [23], subclauses 7.1.12, 7.1.14, 8.1.4 and Annex F.

8.3.4.3 Test purpose

To verify that the Terminal stores and updates MMS notifications with the associated status on the USIM correctly.

8.3.4.4 Method of test

8.3.4.4.1 Initial conditions

Two MMS Relays/Servers are available:

MMS Relay/Server 1:

MMS Connectivity Parameters

| | |
|--------------------------------------|---|
| MMS implementation information: | "WAP" |
| MMS Relay/Server | |
| MMS Relay/Server information: | " http://mms-operator1.com " |
| Interface to Core Network and Bearer | |
| Bearer: | "GSM-CSD" |
| Address: | "+496998625" |
| Type of address: | "E164" |
| Speed: | "Autobauding" |
| Call type: | "ANALOG_MODEM" |
| Authentication type: | "PAP" |
| Authentication id: | "B2B_OTSI1" |
| Authentication pw: | "B2B_password1" |
| Gateway | |
| Address: | "170.187.51.3" |
| Type of address: | "IPv4" |
| Port: | "9201" |
| Service: | "CO-WSP" |
| Authentication type: | "HTTP BASIC" |
| Authentication id: | "gateway_user1" |
| Authentication pw: | "gateway_password1" |

MMS Relay/Server 2:

- MMS Connectivity Parameters

MMS implementation information: "WAP"
MMS Relay/Server
MMS Relay/Server information: "http://mms-operator1.com"
Interface to Core Network and Bearer
Bearer: "GSM-GPRS"
Address: "wap.B2B-operator1.com"
Type of address: "APN"
Call type: "ANALOG_MODEM"
Delivery of erroneous SDU: "No"
Residual Bit Error Rate: "1*10⁻⁵"
SDU-Error-Ratio: "1*10⁻⁶"
Traffic-class: "Interactive class"
Maximum bit rate for downlink: "8 kbps"
Authentication type: "PAP"
Authentication id: "B2B_OTSI1"
Authentication pw: "B2B_password1"
Gateway
Address: "170.187.51.3"
Type of address: "IPv4"
Port: "9201"
Service: "CO-WSP"
Authentication type: "HTTP BASIC"
Authentication id: "gateway_user1"
Authentication pw: "gateway_password1"

The default UICC is used with the following exceptions:

EF_{UST} (USIM Service Table)

Logically: Local Phone Book available
User controlled PLMN selector available
Fixed dialling numbers available
Barred dialling numbers available
The GSM Access available
The Group Identifier level 1 and level 2 not available
SMS available
SMS Status available
Service no. 33 (Packed Switched Domain) shall be set to '1'
Service no. 52 Multimedia Messaging Service available
Service no. 53 Extension 8 available
Service no. 55 MMS User Connectivity Parameters not available

| | | | | | | | |
|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 |
| Binary | xx1x xx11 | x11x xxxx | xxxx 1x00 | xxxx x1xx | xxxx xxx1 | xxxx xxxx | x0x1 1xxx |

EF_{MMSN}

Logically:
MMS Status: Free space
MMS Implementation : "00"
MMS Notification: "FF FF ... FF" (251 bytes)
Extension file record number: "FF"

| | | | | | | | | |
|---------|----|----|----|----|----|-----|------|------|
| Coding: | B1 | B2 | B3 | B4 | B5 | ... | B254 | B255 |
| | 00 | 00 | 00 | FF | FF | | FF | FF |

EF_{MMSUP}

Logically:

MMS Implementation

MMS implementation information: "WAP"
 MMS User Preference Profile Name: "Greeting cards"
 MMS User Information Preference Information
 Visibility: "hide"
 Delivery report: "yes"
 Read-reply: "yes"
 Priority: "normal"
 Delivery-Time:
 Value (absolute): "1-Jan-2003, 12:00:00 AM GMT"
 Expiry:
 Value (relative): 1104537600 seconds

| | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|
| Coding: | 80 | 01 | 01 | 81 | 0E | 47 | 72 | 65 | 65 | 74 | 69 | 6E |
| | 67 | 20 | 63 | 61 | 72 | 64 | 73 | 82 | 19 | 14 | 80 | 06 |
| | 80 | 10 | 80 | 0F | 81 | 07 | 07 | 80 | 05 | 00 | 3E | 12 |
| | 2F | 80 | 08 | 06 | 81 | 04 | 41 | D5 | E8 | 00 | | |

EF_{MMSICP}

Logically:

MMS Connectivity Parameters

MMS Implementation
 MMS Implementation Information : "WAP"
 MMS Relay/Server
 MMS Relay/Server Address "<http://mms-operator1.com>"
 1st Interface to Core Network and Bearer
 Bearer: "GSM-CSD"
 Address: "+496998625"
 Type of address: "E164"
 Speed: "Autobauding"
 Call type: "ANALOG_MODEM"
 Authentication type: "PAP"
 Authentication id: "B2B_OTSI1"
 Authentication pw: "B2B_password1"
 2nd Interface to Core Network and Bearer
 Bearer: "GSM-CSD"
 Address: "+496998626"
 Type of address: "E164"
 Speed: "Autobauding"
 Call type: "ANALOG_MODEM"
 Authentication type: "PAP"
 Authentication id: "B2C_OTSI2"
 Authentication pw: "B2C_password2"
 3rd Interface to Core Network and Bearer
 Bearer: "GSM-GPRS"
 Address: "wap.B2B-operator1.com"
 Type of address: "APN"
 Call type: "ANALOG_MODEM"
 Delivery of erroneous SDU: "No"
 Residual Bit Error Rate: "1*10⁻⁵"

SDU-Error-Ratio: "1*10⁻⁶"
 Traffic-class: "Interactive class"
 Maximum bit rate for downlink: "8 kbps"
 Authentication type: "PAP"
 Authentication id: "B2B_OTSI1"
 Authentication pw: "B2B_password1"
 4th Interface to Core Network and Bearer
 Bearer: "GSM-GPRS"
 Address: "wap.B2C-operator1.com"
 Type of address: "APN"
 Call type: "ANALOG_MODEM"
 Delivery of erroneous SDU: "No"
 Residual Bit Error Rate: "1*10⁻⁵"
 SDU-Error-Ratio: "1*10⁻⁶"
 Traffic-class: "Interactive class"
 Maximum bit rate for downlink: "8 kbps"
 Authentication type: "PAP"
 Authentication id: "B2C_OTSI2"
 Authentication pw: "B2C_password2"
 Gateway:
 Address: "170.187.51.3"
 Type of address: "IPv4"
 Port: "9201"
 Service: "CO-WSP"
 Authentication type: "HTTP BASIC"
 Authentication id: "gateway_user1"
 Authentication pw: "gateway_password1"

| | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|
| Coding: | AB | 82 | 01 | 47 | 80 | 01 | 01 | 81 | 18 | 68 | 74 | 74 |
| | 70 | 3A | 2F | 2F | 6D | 6D | 73 | 2E | 6F | 70 | 65 | 72 |
| | 61 | 74 | 6F | 72 | 31 | 2E | 63 | 6F | 6D | 82 | 2F | 10 |
| | AA | 08 | 2B | 34 | 39 | 36 | 39 | 39 | 38 | 36 | 32 | 35 |
| | 00 | 09 | 87 | 25 | C5 | 0A | 90 | 0C | 9A | 0D | 42 | 32 |
| | 42 | 11 | 4F | 54 | 53 | 31 | 00 | 0E | 42 | 32 | 42 | 11 |
| | 70 | 61 | 73 | 73 | 77 | 6F | 72 | 64 | 31 | 00 | 82 | 2F |
| | 10 | AA | 08 | 2B | 34 | 39 | 36 | 39 | 39 | 38 | 36 | 32 |
| | 36 | 00 | 09 | 87 | 25 | C5 | 0A | 90 | 0C | 9A | 0D | 42 |
| | 32 | 43 | 11 | 4F | 54 | 53 | 32 | 00 | 0E | 42 | 32 | 43 |
| | 11 | 70 | 61 | 73 | 73 | 77 | 6F | 72 | 64 | 32 | 00 | 82 |
| | 43 | 10 | AB | 08 | 03 | 77 | 61 | 70 | 0D | 42 | 32 | 42 |
| | 2D | 6F | 70 | 65 | 72 | 61 | 74 | 6F | 72 | 31 | 03 | 63 |
| | 6F | 6D | 00 | 09 | 89 | 0A | 90 | 31 | 03 | 37 | 70 | 38 |
| | 06 | 33 | 60 | 36 | 08 | 0C | 9A | 0D | 42 | 32 | 42 | 11 |
| | 4F | 54 | 53 | 31 | 00 | 0E | 42 | 32 | 42 | 11 | 70 | 61 |
| | 73 | 73 | 77 | 6F | 72 | 64 | 31 | 00 | 82 | 43 | 10 | AB |
| | 08 | 03 | 77 | 61 | 70 | 0D | 42 | 32 | 43 | 2D | 6F | 70 |
| | 65 | 72 | 61 | 74 | 6F | 72 | 31 | 03 | 63 | 6F | 6D | 00 |
| | 09 | 89 | 0A | 90 | 31 | 03 | 37 | 70 | 38 | 06 | 33 | 60 |
| | 36 | 08 | 0C | 9A | 0D | 42 | 32 | 43 | 11 | 4F | 54 | 53 |
| | 32 | 00 | 0E | 42 | 32 | 43 | 11 | 70 | 61 | 73 | 73 | 77 |
| | 6F | 72 | 64 | 32 | 00 | 83 | 3C | 20 | 31 | 37 | 30 | 2E |
| | 31 | 38 | 37 | 2E | 35 | 31 | 2E | 33 | 00 | 21 | 85 | 23 |
| | 39 | 32 | 30 | 31 | 00 | 24 | CB | 19 | 9C | 1A | 67 | 61 |
| | 74 | 65 | 77 | 61 | 79 | 11 | 75 | 73 | 65 | 72 | 31 | 00 |
| | 1B | 67 | 61 | 74 | 65 | 77 | 61 | 79 | 11 | 70 | 61 | 73 |
| | 73 | 77 | 6F | 72 | 64 | 31 | 00 | | | | | |

EF_{EXT8}

Logically:

At least 10 records.

Record 1 to 10: Free space with 253 bytes for extension data

Record 1:

| | | | | | | | |
|---------|----|----|----|----|-----|-----|------|
| Coding: | B1 | B2 | B3 | B4 | ... | ... | B255 |
| Hex | 00 | FF | FF | FF | | | FF |

The UICC is installed into the Terminal and the user hasn't specified a default MMS connectivity parameter set.

8.3.4.4.2 Procedure

- a) The terminal is powered on and the PIN shall be entered.
- b) When the terminal is in idle mode a MM shall be sent to the terminal via the MMS Relay/Server 1 or 2, dependent on the bearer supported by the terminal. This MMS Relay/Server shall then generate a notification to the Terminal's MMS User Agent. With the MM notification the MMS User Agent shall receive a message reference that can be used for retrieving the MM from this MMS Relay/Server.

The MM shall result in a MMS notification with the following predefined values:

| | |
|-------------------------|--|
| X-Mms Message Type: | "m-notification-ind" (0x82) |
| X-Mms-Transaction-ID: | "01" |
| X-Mms-MMS-Version: | "1.0" |
| From: | not present (hidden) |
| Subject: | "MM for you" |
| X-Mms-Content-Location: | "http://mms-operator1/MMBox/ID-007-12345678" |

- c) The user shall read the MMS notification stored on the USIM.
- d) The user shall retrieve the MM stored on the MMS Relay/Server used in step b).
- e) The user shall forward the MM to "+0123456789" using the default MMS Issuer Connectivity Parameters stored on the USIM.
- f) A MM shall be sent to the terminal via the same MMS Relay/Server as in step b). This MMS Relay/Server shall then generate a notification to the Terminal's MMS User Agent. With the MM notification the MMS User Agent shall receive a message reference that can be used for retrieving the MM from this MMS Relay/Server.

The MM shall result in a MMS notification with the following predefined values:

| | |
|-------------------------|--|
| X-Mms Message Type: | "m-notification-ind" (0x82) |
| X-Mms-Transaction-ID: | "02" |
| X-Mms-MMS-Version: | "1.0" |
| From: | "+0987123654" |
| Subject: | "Urgent MM" |
| X-Mms-Content-Location: | "http://mms-operator1/MMBox/ID-007-02468024" |

- g) The user shall read the MMS notification stored on the USIM.
- h) The user shall reject the MM stored on the MMS Relay/Server used in step b).

8.3.4.5 Acceptance criteria

- 1) After step b) the MMS User Agent on the terminal shall have stored the MMS notification on the USIM with the values defined in step b) of 8.4.4.2, the associated status shall have been set to "Used space, notification not read, MM not retrieved" and the MMS User Agent shall indicate to the user that a MMS notification has been received.

- 2) After step c) the status of the MMS notification stored on the USIM shall have been set to "used space, notification read, MM not retrieved".
- 3) After step d) the MMS user agent shall have retrieved the MM from the MMS Relay/Server 1 and the status of the MMS notification stored on the USIM shall have either been set to "used space, notification read, MM retrieved" or the MMS notification shall have been deleted and the associated shall have been set to "Free space".
- 4) After step e) the terminal shall have read the set of MMS Issuer Connectivity Parameters stored first in EF_{MMSICP} and shall have forward the MM to "+0123456789" using the MMS Relay/Server 1. The MMS notification shall have either been set to "used space, notification read, MM forwarded" or the MMS notification shall have been deleted and the associated shall have been set to "Free space".
- 5) After step f) the MMS User Agent on the terminal shall have stored the MMS notification on the USIM with the values defined in step f) of 8.4.4.4.2, the associated status shall have been set to "Used space, notification not read, MM not retrieved" and the MMS User Agent shall indicate to the user that a MMS notification has been received.
- 6) After step g) the status of the MMS notification stored on the USIM shall have been set to "used space, notification read, MM not retrieved".
- 7) After step h) the MMS user agent shall have not retrieved the MM from the MMS Relay/Server 1 and the status of the MMS notification stored on the USIM shall have either been set to "used space, notification read, MM rejected" or the MMS notification shall have been deleted and the associated shall have been set to "Free space".

8.4 UICC presence detection

8.4.1 Definition and applicability

To ensure that the UICC has not been removed during a card session, the Terminal sends in case of inactivity on the UICC-Terminal interface, at frequent intervals, a STATUS command during each call.

This procedure shall be used in addition to a mechanical or other devices used to detect the removal of a UICC.

8.4.2 Conformance requirement

A STATUS command shall be issued within all 30 second periods of inactivity on the UICC-Terminal interface during a call. Inactivity in this case is defined as starting at the end of the last communication or the last issued STATUS command. If no response data is received to this STATUS command, then the call shall be terminated as soon as possible but at least within 5s after the STATUS command has been sent. If the DF indicated in response to a STATUS command is not the same as that which was indicated in the previous response, or accessed by the previous command, then the call shall be terminated as soon as possible but at least within 5 seconds after the response data has been received.

- TS 31.102 [4], subclauses 5.1.9
- TS 102 221 [5], clause 14.5.2.

8.4.3 Test purpose

- 1) To verify that there are no periods of inactivity on the UICC-Terminal interface greater than 30 seconds during a call.
- 2) To verify that the terminal terminates a call within 5 s at the latest after having received an invalid response to the STATUS command.

8.4.4 Method of test

8.4.4.1 Initial conditions

The terminal shall be connected to the UICC simulator. All elementary files shall be coded as default.

8.4.4.2 Procedure

- a) A call shall be set up using the generic call setup.
- b) The UICC simulator shall monitor the time of periods of inactivity on the UICC-Terminal interface.
- c) After 3 minutes, the call shall be cleared.
- d) A call shall be set up using the generic call setup.
- e) After one minute after the call was successfully set up, the UICC simulator shall respond to a STATUS command with the response data of the MF.

8.4.5 Acceptance criteria

- 1) During step b), the time of periods of inactivity on the UICC-Terminal interface shall not be longer than 30 seconds.
- 2) After step e), the Terminal shall terminate the call within 5 s at the latest after having received the wrong response to the STATUS command.

9 USIM service handling

9.1 Access Point Name Control List handling

9.1.1 Access Point Name Control List handling for terminals supporting ACL

9.1.1.1 Definition and applicability

This EF_{ACL} contains the list of allowed APNs (Access Point Names). When the APN Control List service is enabled, the ME shall check that the entire APN of any PDP context is listed in EF_{ACL} before requesting this PDP context activation from the network. If the APN is not present in EF_{ACL} , the ME shall not request the corresponding PDP context activation from the network.

9.1.1.2 Conformance requirement

The terminal shall support the APN Control List service as defined in 3GPP TS 31.102[4], subclauses 5.1.1.2 and 5.3.14.

Reference:

- 3GPP TS 31.102[4], subclauses 4.2.8, 4.2.48, 5.1.1.2 and 5.3.14;
- 3GPP TS 23.060[25], subclause 9.2.

9.1.1.3 Test purpose

- 1) To verify that the terminal takes into account the status of the APN Control List service as indicated in EF_{UST} and EF_{EST} .

- 2) To verify that the terminal checks that the entire APN of any PDP context is listed in EF_{ACL} before requesting this PDP context activation from the network if the ACL service is enabled.
- 3) To verify that the terminal does not request the corresponding PDP context activation from the network if the ACL service is enabled and the APN is not present in EF_{ACL}.

9.1.1.4 Method of test

9.1.1.4.1 Initial conditions

The terminal is connected to the USIM Simulator and the (U)SS.

The default USIM is used with the following exceptions:

The APN Control List (ACL) shall be allocated and activated in the USIM Service Table and enabled in the Enabled Service Table.

EF_{ACL} shall be present with the following values:

EF_{ACL} (Access Point Control List)

Logically: Number of available bytes: 64
 Number of APNs: 3
 1st APN: test.test
 2nd APN: 3gpp.test
 3rd APN: 2gpp.test

| | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Byte: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 |
| Coding: | 03 | DD | 0A | 04 | 74 | 65 | 73 | 74 | 04 | 74 | 65 | 73 |
| | B13 | B14 | B15 | B16 | B17 | B18 | B19 | B20 | B21 | B22 | B23 | B24 |
| | 74 | DD | 0A | 04 | 33 | 67 | 70 | 70 | 04 | 74 | 65 | 73 |
| | B25 | B26 | B27 | B28 | B29 | B30 | B31 | B32 | B33 | B34 | B35 | B36 |
| | 74 | DD | 0A | 04 | 32 | 67 | 70 | 70 | 04 | 74 | 65 | 73 |
| | B37 | B38 | ... | B64 | | | | | | | | |
| | 74 | FF | ... | FF | | | | | | | | |

9.1.1.4.2 Procedure

- a) The terminal is switched on and the USIM application shall be activated.
- b) The user shall request a PDP context activation to "1gpp.test".
- c) The user shall request a PDP context activation to "3gpp.test".
- d) The user shall deactivate the PDP context.
- e) The user shall disable the APN Control List service. When prompted to enter PIN2, the user shall present the correct PIN2 value.
- f) The user shall request a PDP context activation to "1gpp.test".
- g) The user shall deactivate the PDP context and shall switch the terminal off and then switch on again.

- h) The user shall enable the APN Control List service. When prompted to enter PIN2, the user shall present the correct PIN2 value.
- i) The user shall request a PDP context activation to "lppp.net".
- j) The terminal is switched off and on.
- k) The user shall add the APN "lppp.net" to the APN Control List. When prompted to enter PIN2, the user shall present the correct PIN2 value.
- l) The user shall request a PDP context activation to "lppp.net".
- m) The user shall deactivate the PDP context and switch off the terminal.

9.1.1.5 Acceptance criteria

- 1) After step a) the terminal shall have activated the USIM application, shall have read the status of the ACL service in EF_{UST} and EF_{EST} and be in updated idle mode on the (U)SS.
- 2) The terminal shall have not requested a PDP context activation in step b).
- 3) After step c) the PDP context shall have been activated.
- 4) After step d) the PDP context shall have been deactivated.
- 5) After step e) the APN Control List service shall have been set to disabled in EF_{EST}.
- 6) After step f) the PDP context shall have been activated.
- 7) After step g) the PDP context shall have been deactivated.
- 8) After step h) the APN Control List service shall have been set to enabled in EF_{EST}.
- 9) The terminal shall not have requested a PDP context activation in step i).
- 10) After step k) the APN "lppp.net" shall have been added to the APN Control List in EF_{ACL}.
- 11) After step l) the PDP context shall have been activated.

9.1.2 Network provided APN handling for terminals supporting ACL

9.1.2.1 Definition and applicability

This EF_{ACL} contains the list of allowed APNs (Access Point Names). When the APN Control List service is enabled, the ME shall check that the entire APN of any PDP context is listed in EF_{ACL} before requesting this PDP context activation from the network. If the APN is not present in EF_{ACL}, the ME shall not request the corresponding PDP context activation from the network.

In the case that the APN Control List is enabled and no APN is indicated in the PDP context request, indicating that a network provided APN is to be used, then the ME shall only request the PDP context activation if "network provided APN" is contained within EF_{ACL}.

9.1.2.2 Conformance requirement

The terminal shall support the APN Control List service as defined in 3GPP TS 31.102[4], subclauses 5.1.1.2 and 5.3.14.

Reference:

- 3GPP TS 31.102[4], subclauses 4.2.8, 4.2.48, 5.1.1.2 and 5.3.14;
- 3GPP TS 23.060[25], subclause 9.2.

9.1.2.3 Test purpose

- 1) To verify that if ACL is enabled and if no APN is indicated in the PDP context the terminal request the PDP context activation only if "network provided APN" is contained within EF_{ACL}.
- 2) To verify that the user is able to set an APN in EF_{ACL} entry to the value "network provided APN".
- 3) To verify that the minimum set of APN entries in EF_{ACL} is ensured when the user deletes APN entries.

9.1.2.4 Method of test

9.1.2.4.1 Initial conditions

The terminal is connected to the USIM Simulator and the (U)SS.

The default USIM is used with the following exceptions:

The APN Control List (ACL) shall be allocated and activated in the USIM Service Table and enabled in the Enabled Service Table.

EF_{ACL} shall be present with the following values:

EF_{ACL} (Access Point Control List)

Logically: Number of available bytes: 64
 Number of APNs: 3
 1st APN: test.test
 2nd APN: 3gpp.test
 3rd APN: 2gpp.test

| | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Byte: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 |
| Coding: | 03 | DD | 0A | 04 | 74 | 65 | 73 | 74 | 04 | 74 | 65 | 73 |
| | B13 | B14 | B15 | B16 | B17 | B18 | B19 | B20 | B21 | B22 | B23 | B24 |
| | 74 | DD | 0A | 04 | 33 | 67 | 70 | 70 | 04 | 74 | 65 | 73 |
| | B25 | B26 | B27 | B28 | B29 | B30 | B31 | B32 | B33 | B34 | B35 | B36 |
| | 74 | DD | 0A | 04 | 32 | 67 | 70 | 70 | 04 | 74 | 65 | 73 |
| | B37 | B38 | ... | B64 | | | | | | | | |
| | 74 | FF | ... | FF | | | | | | | | |

9.1.2.4.2 Procedure

- a) The terminal is switched on and the USIM application shall be activated.
- b) The user shall add "network provided APN" to the APN Control List in EF_{ACL} by using an MMI dependent option in the terminal. When prompted to enter PIN2, the user shall present the correct PIN2 value.
- c) The user shall request a PDP context activation to "3gpp.test".
- d) The user shall deactivate the PDP context.

- e) The user shall request a PDP context activation without indicating an APN.
- f) The user shall deactivate the PDP context.
- g) The user shall delete "network provided APN" from the APN Control List in EF_{ACL} by using an MMI dependent option in the terminal. When prompted to enter PIN2, the user shall present the correct PIN2 value.
- h) The user shall request a PDP context activation to "3gpp.test".
- i) The user shall deactivate the PDP context.
- j) The user shall request a PDP context activation without indicating an APN.
- k) The user shall try to delete all APNs from the APN Control List in EF_{ACL} by using an MMI dependent option in the terminal. When the terminal indicates that at least one APN entry shall remain, the user shall set this entry to "network provided APN". When prompted to enter PIN2, the user shall present the correct PIN2 value.
- l) The user shall switch off the terminal.

9.1.2.5 Acceptance criteria

- 1) After step a) the terminal shall have activated the USIM application, shall have read the status of the ACL service in EF_{UST} and EF_{EST} and be in updated idle mode on the (U)SS.
- 2) After step b) EF_{ACL} shall contain an entry for "network provided APN".
- 3) After step c) the PDP context shall have been activated.
- 4) After step d) the PDP context shall have been deactivated.
- 5) After step e) the PDP context shall have been activated.
- 6) After step f) the PDP context shall have been deactivated.
- 7) After step g) EF_{ACL} shall not contain an entry for "network provided APN".
- 8) After step h) the PDP context shall have been activated.
- 9) After step i) the PDP context shall have been deactivated.
- 10) The terminal shall have not requested a PDP context activation in step j).
- 11) After step k) EF_{ACL} shall contain one APN entry with the value "network provided APN" and the corresponding number of APNs in EF_{ACL} shall be 1.

9.1.3 Access Point Name Control List handling for terminals not supporting ACL

9.1.3.1 Definition and applicability

This EF_{ACL} contains the list of allowed APNs (Access Point Names). When the APN Control List service is enabled, the ME shall check that the entire APN of any PDP context is listed in EF_{ACL} before requesting this PDP context activation from the network. If the APN is not present in EF_{ACL}, the ME shall not request the corresponding PDP context activation from the network.

If ACL is enabled, an ME which does not support ACL shall not send any APN to the network.

9.1.3.2 Conformance requirement

An ME which does not support ACL shall not send any APN to the network if ACL is enabled.

Reference:

- 3GPP TS 31.102[4], 5.1.1.2.

9.1.3.3 Test purpose

To verify that if ACL is enabled, an ME which does not support ACL, does not send any APN to the network to request a PDP context activation.

9.1.3.4.1 Initial conditions

The terminal is connected to the USIM Simulator and the (U)SS.

The default USIM is used with the following exceptions:

The APN Control List (ACL) shall be allocated and activated in the USIM Service Table and enabled in the Enabled Service Table.

EF_{ACL} shall be present with the following values:

EF_{ACL} (Access Point Control List)

Logically: Number of available bytes: 64
 Number of APNs: 3
 1st APN: test.test
 2nd APN: 3gpp.test
 3rd APN: 2gpp.test

| | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Byte: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 |
| Coding: | 03 | DD | 0A | 04 | 74 | 65 | 73 | 74 | 04 | 74 | 65 | 73 |
| | B13 | B14 | B15 | B16 | B17 | B18 | B19 | B20 | B21 | B22 | B23 | B24 |
| | 74 | DD | 0A | 04 | 33 | 67 | 70 | 70 | 04 | 74 | 65 | 73 |
| | B25 | B26 | B27 | B28 | B29 | B30 | B31 | B32 | B33 | B34 | B35 | B36 |
| | 74 | DD | 0A | 04 | 32 | 67 | 70 | 70 | 04 | 74 | 65 | 73 |
| | B37 | B38 | ... | B64 | | | | | | | | |
| | 74 | FF | ... | FF | | | | | | | | |

9.1.3.4.2 Procedure

- The terminal is switched on and the USIM application shall be activated.
- The user shall request a PDP context activation to "3gpp.test".
- The terminal shall be switched off.

9.1.3.5 Acceptance criteria

- After step a) the terminal shall have activated the USIM application, shall have read the status of the ACL service in EF_{UST} and EF_{EST} and be in updated idle mode on the (U)SS.
- The terminal shall not have sent any APN to the network in step b).

9.2 Service Dialling Numbers handling

9.2.1 Definition and applicability

The Service Dialling Numbers feature allows for the storage of numbers related to services offered by the network operator/service provider in the SIM/USIM (e.g. customer care). The user can use these telephone numbers to make outgoing calls, but the access for updating of the numbers shall be under the control of the operator.

9.2.2 Conformance requirement

The terminal shall support the Service Dialling Numbers service as defined in 3GPP TS 31.102[4], subclauses 4.2.8 and 4.2.29.

Reference:

- 3GPP TS 31.102[4], subclauses 4.2.8, 4.2.29 and 4.2.31;
- 3GPP TS 22.101[11], subclause A.23.

9.2.3 Test purpose

- 1) To verify that the terminal takes into account the status of the Service Dialling Numbers service as indicated in EF_{UST} .
- 2) To verify that the user can use the Service Dialling Numbers to make outgoing calls.
- 3) To verify that the terminal is able to handle SDNs with an extended dialling number string.
- 4) To verify that the terminal is able to handle an empty alpha identifier in EF_{SDN} .
- 5) To verify that the terminal is able to handle an alpha identifier of maximum length in EF_{SDN} .

9.2.4 Method of test

9.2.4.1 Initial conditions

The terminal is connected to the USIM Simulator and the (U)SS.

The default USIM is used with the following exceptions:

The Service Dialling Numbers (SDN) shall be allocated and activated in the USIM Service Table.

EF_{SDN} shall be present with the following values:

EF_{SDN} (Service Dialling Numbers)

Logically:

6 records, 1 record shall be empty. Unless otherwise stated, the SDN records shall not use extended BCD numbers/SSC strings. Access to update EF_{SDN} shall be granted by usage of ADM1 only.

| | | |
|-----------|-----------------------------|--|
| Record 1: | Length of alpha identifier: | 241 characters; |
| | Alpha identifier: | "Hotline001122334455667788ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789"; |
| | Length of BCD number: | 5; |
| | TON and NPI: | Telephony and International; |
| | Dialled number: | "22223333"; |

CCP: 'FF';
Ext3: 'FF'.

Record 1:

| | | | | | | | | | | | | |
|---------|------|------|------|------|------|------|------|------|------|------|------|------|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | ... |
| Hex | 48 | 6F | 74 | 6C | 69 | 6E | 65 | 30 | 30 | 31 | ... | ... |
| | B241 | B242 | B243 | B244 | B245 | B246 | B247 | B248 | B249 | B250 | B251 | B252 |
| | 39 | 05 | 91 | 22 | 22 | 33 | 33 | FF | FF | FF | FF | FF |
| | B253 | B254 | B255 | | | | | | | | | |
| | FF | FF | FF | | | | | | | | | |

Record 2: Length of alpha identifier: 241 characters;
Alpha identifier: "Hotline002";
Length of BCD number: 5;
TON and NPI: Telephony and International;
Dialled number: "44554455";
CCI2: 'FF';
Ext3: 'FF'.

Record 2:

| | | | | | | | | | | | | |
|---------|------|------|------|------|------|------|------|------|------|------|------|------|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | ... |
| Hex | 48 | 6F | 74 | 6C | 69 | 6E | 65 | 30 | 30 | 32 | FF | ... |
| | B241 | B242 | B243 | B244 | B245 | B246 | B247 | B248 | B249 | B250 | B251 | B252 |
| | FF | 05 | 91 | 44 | 55 | 44 | 55 | FF | FF | FF | FF | FF |
| | B253 | B254 | B255 | | | | | | | | | |
| | FF | FF | FF | | | | | | | | | |

Record 3: Length of alpha identifier: 241 characters;
Alpha identifier: "Hotline003";
Length of BCD number: 11;
TON and NPI: Telephony and International;
Dialled number: "01234567890123456789";
CCI2: 'FF';
Ext3: "01".

Record 3:

| | | | | | | | | | | | | |
|---------|------|------|------|------|------|------|------|------|------|------|------|------|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | ... |
| Hex | 48 | 6F | 74 | 6C | 69 | 6E | 65 | 30 | 30 | 33 | FF | ... |
| | B241 | B242 | B243 | B244 | B245 | B246 | B247 | B248 | B249 | B250 | B251 | B252 |
| | FF | 0B | 91 | 10 | 32 | 54 | 76 | 98 | 10 | 32 | 54 | 76 |
| | B253 | B254 | B255 | | | | | | | | | |
| | 98 | FF | 01 | | | | | | | | | |

Record 4: Length of alpha identifier: 241 characters;
Alpha identifier: empty;
Length of BCD number: 03;
TON and NPI: Telephony and International;
Dialled number: "007";
CCI2: 'FF';
Ext3: 'FF'.

Record 4:

| | | | | | | | | | | | | |
|---------|------|------|------|------|------|------|------|------|------|------|------|------|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | ... |
| Hex | FF | FF | FF | FF | FF | FF | FF | FF | FF | FF | FF | ... |
| | B241 | B242 | B243 | B244 | B245 | B246 | B247 | B248 | B249 | B250 | B251 | B252 |
| | FF | 03 | 91 | 00 | F7 | FF | FF | FF | FF | FF | FF | FF |
| | B253 | B254 | B255 | | | | | | | | | |
| | FF | FF | FF | | | | | | | | | |

Record 5: Length of alpha identifier: 241 characters;
 Alpha identifier: empty;
 Length of BCD number: 3;
 TON and NPI: Telephony and International;
 Dialed number: "008";
 CCI2: 'FF';
 Ext3: 'FF'.

Record 5:

| | | | | | | | | | | | | |
|---------|------|------|------|------|------|------|------|------|------|------|------|------|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | ... |
| Hex | FF | FF | FF | FF | FF | FF | FF | FF | FF | FF | FF | ... |
| | B241 | B242 | B243 | B244 | B245 | B246 | B247 | B248 | B249 | B250 | B251 | B252 |
| | FF | 03 | 91 | 00 | F8 | FF | FF | FF | FF | FF | FF | FF |
| | B253 | B254 | B255 | | | | | | | | | |
| | FF | FF | FF | | | | | | | | | |

EF_{EXT3} (Extension 3)

Logically: 5 records, 4 records empty. Access to update EF_{EXT3} shall be granted by usage of ADM1 only.

Record 1: Record type: '02'
 Extension data: "012345";
 Identifier: 'FF'.

Record 1:

| | | | | | | | | | | | | | |
|---------|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|
| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | B13 |
| Hex | 02 | 03 | 10 | 32 | 54 | FF | FF | FF | FF | FF | FF | FF | FF |

9.2.4.2 Procedure

- The terminal is switched on and the USIM application shall be activated.
- The user shall use an MMI dependent procedure to set up a call to the dialling number associated with the alpha identifier
 "Hotline001122334455667788ABCDEFGHIJKLMN0PQRSTUVWXYZ0123456789abcdefghijklmnopqrstuvwxyz0123456789ABCDEFGHIJKLMN0PQRSTUVWXYZ0123456789abcdefghijklmnopqrstuvwxyz0123456789ABCDEFGHIJKLMN0PQRSTUVWXYZ0123456789abcdefghijklmnopqrstuvwxyz0123456789" in record 1 of EF_{SDN}.
- The user shall end the call.
- The user shall use an MMI dependent procedure to set up a call to the dialling number associated with the "Hotline003" in record 3 of EF_{SDN}.
- The user shall end the call.
- The user shall use an MMI dependent procedure to select and to set up a call to the dialling number "+007" stored in record 4 of EF_{SDN}.

g) The user shall end the call and switch the terminal off.

9.2.5 Acceptance criteria

- 1) After step a) the terminal shall have activated the USIM application and shall have read the status of the SDN service in EF_{UST}.
- 2) After step b) the terminal shall have read record 1 of EF_{SDN} and a call to "+22223333" shall have been established.
- 3) After step c) the call shall have been terminated.
- 4) After step d) the terminal shall have read record 3 of EF_{SDN} and record 1 of EF_{EXT1} and a call to "+01234567890123456789012345" shall have been established.
- 5) After step e) the call shall have been terminated.
- 6) After step f) the terminal shall have read record 4 of EF_{SDN} and a call to "+007" shall have been established.

Annex A (informative): Change history

The table below indicates all change requests that have been incorporated into the present document since it was upgraded to Release 6.

| TSG # / Date | TSG Doc | 2 nd level doc | CR | Re v | Cat | Subject/Comment | New |
|--------------|-----------|---------------------------|------|------|-----|--|-------|
| CT-28 | CP-050139 | C6-050394 | 068 | | B | Introduction of BCD number/ SSC content extension tests | 6.0.0 |
| CT-28 | CP-050139 | C6-050396 | 072 | | B | Introduction of ACL tests | 6.0.0 |
| CT-28 | CP-050139 | C6-050436 | 073 | | B | Introduction of SDN tests | 6.0.0 |
| CT-28 | CP-050139 | C6-050452 | 074 | | B | Introduction of phonebook selection/ local phonebook handling test | 6.0.0 |
| CT-29 | CP-050325 | C6-050658 | 080 | | A | Incorrect PUK2 value used in TC 6.1.6 | 6.1.0 |
| | | C6-050711 | 088 | | A | Incorrect value used for EF SMS in TC 8.2.2 | 6.1.0 |
| | CP-050331 | C6-050654 | 076 | | A | Incorrect MCC value used in TC 7.4.1 | 6.1.0 |
| | CP-050336 | C6-050706 | 083 | | F | Clarification of BCD number/ SSC content extension tests | 6.1.0 |
| | | C6-050700 | 081 | | F | Numbering and minor corrections | 6.1.0 |
| CT-30 | CP-050494 | C6-050853 | 090 | | F | CR to create combined R99 – Rel-6 version | 6.2.0 |
| CT-31 | CP-060020 | C6-060178 | 095 | | F | Essential correction of TC 7.2.1 | 6.3.0 |
| | | | | | | Update of Change History by TB Officer | 6.3.1 |
| CT-32 | CP-060285 | C6-060224 | 0096 | | F | Essential correction of acceptance criteria in 6.1.3.5 and 6.1.4.5 | 6.4.0 |
| | CP-060286 | C6-060231 | 0097 | | F | Essential corrections on ACL TC 9.1.1 | |
| CT-33 | CP-060507 | C6-060517 | 0098 | 1 | F | Essential corrections on Applicability table | 6.5.0 |
| CT-34 | CP-060543 | C6-060792 | 0099 | 1 | F | Essential corrections to 8.1.2 | 6.6.0 |
| | | C6-060 | 0100 | 1 | F | Essential correction of EF PLMNwACT coding | |

History

| Document history | | |
|-------------------------|----------------|-------------|
| V6.0.0 | June 2005 | Publication |
| V6.1.0 | October 2005 | Publication |
| V6.2.0 | December 2005 | Publication |
| V6.3.1 | April 2006 | Publication |
| V6.4.0 | May 2006 | Publication |
| V6.5.0 | September 2006 | Publication |
| V6.6.0 | November 2006 | Publication |