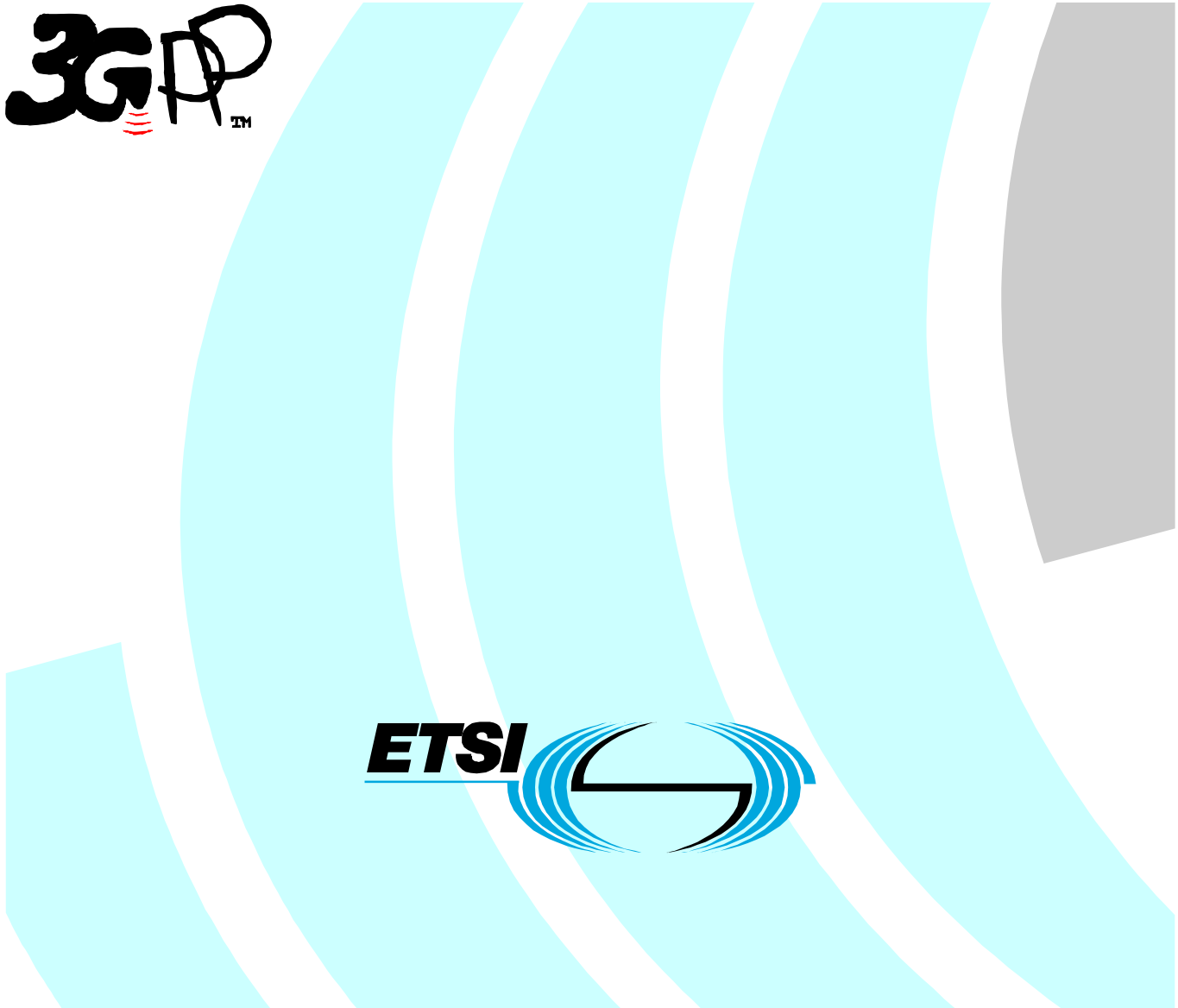
# ETSI TS 131 121 V3.8.0 (2004-03)

*Technical Specification*

**Universal Mobile Telecommunications System (UMTS);**
**UICC-terminal interface;**
**Universal Subscriber Identity Module (USIM)**
**application test specification**
**(3GPP TS 31.121 version 3.8.0 Release 1999)**



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# Foreword

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# Contents

# Foreword

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# 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 (Universal IC Card)-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:

- 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 applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document.*

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

[2] ISO/IEC 7816-6 (1996): "Identification cards - Integrated circuit(s) cards with contacts - Part 6: Interindustry data elements".

[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] GSM 04.18: "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"

# 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

**ID-1 UICC:** UICC having the format of an ID-1 card (see ISO/IEC 7816-1)

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

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

**plug-in UICC:** second format of UICC

**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 UMTS services to users, either alone or in conjunction with a UICC

**User Equipment (UE):** terminal with one or several UMTS Subscriber Identity Module(s) (USIM)

**USIM session:** 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:

| | |
|---|---|
| 3G | 3rd Generation |
| 3GPP | 3rd 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 / Configuration Identifier |
| CCM | Current Call Meter |
| CK | Cipher key |
| 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 |
| MMI | Man Machine Interface |
| MNC | Mobile Network Code |
| 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 |
| RPLMN | last Registered PLMN |
| RRC | Radio Resource Control |
| 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 specifies 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 Data Objects in the present document is according to ISO/IEC 7816-6 [2].

## 3.5 Generic procedures for UTRAN

If a test case contains the statement "This test applies to Terminals accessing UTRAN", the procedures defined in 3GPP TS 24.008 [16], subclause 7.2 shall be the basis for all performed procedures during the test. The procedures in subclause 7.2 describe the default behaviour of a conformant UE regarding the specified protocols to be used for UTRAN and the required procedures from the NAS.

# 4 Default Values

All Test defined in the subsequent clauses applies to Terminal using both type of currently specified UICC (ID-1 UICC or Plug-in UICC) in TS 102 221 clause 4 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 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'

| Coding: | B1 | B2 | B3 | B4 | B5 |
|---|---|---|---|---|---|
| binary | xx1x xx11 | xxxx xxxx | xxxx 1x00 | xxxx x1xx | xxxx xxx1 |

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.

| | | |
|---|---|---|
| Record 1 to 10: | Length of alpha identifier: | 32 characters; |
| | Alpha identifier: | "ABCDEFGHIJKLMNOPQRSTUVWXYZABCDEF"; |
| | 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 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: | 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: | 244 009 |
| | 11th ACT: | UTRAN |
| | 12th PLMN: | 244 010 |
| | 12th 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:

| | |
|---|---|
| 1st PLMN: | 254 001 (MCC MNC) |
| 1st ACT: | UTRAN |
| 2nd PLMN: | 254 001 |
| 2nd ACT: | GSM |
| 3rd PLMN: | 254 002 |
| 3rd ACT: | UTRAN |
| 4th PLMN: | 254 003 |
| 4th 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 $EF_{RPLMNACT}$ (RPLMN Last used Access Technology)

Logically: No information about the last used ACT available.

| Coding: | B1 | B2 |
|---|---|---|
| Hex | 00 | 00 |

### 4.1.1.14 PIN

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

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

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

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. 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 |

## 4.2 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'.

| Coding: | B1 | B2 | B3 | B4 | B5 |
|---|---|---|---|---|---|
| binary | xx1x xx11 | xxxx xxxx | xxxx 1x00 | xxxx x1xx | xxxx xxx1 |

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;
- Dialled number: +1357924680;
- CCI: None;
- Ext2: None.

Coding for record 1:

| | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | B13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hex | 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;
- Dialled number: 24680;
- CCI: None;
- Ext2: None.

Coding for record 2:

| | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | B13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hex | 46 | 44 | 4E | 32 | 32 | 32 | 04 | 81 | 42 | 86 | F0 | FF | FF |

| | B14 | B15 | B16 | B17 | B18 | B19 | B20 |
|---|---|---|---|---|---|---|---|
| | FF | FF | FF | FF | FF | FF | FF |

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

Coding for record 3:

| | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | B13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hex | 46 | 44 | 4E | 33 | 33 | 33 | 0B | 91 | 21 | 43 | 65 | 87 | 09 |

| | B14 | B15 | B16 | B17 | B18 | B19 | B20 |
|---|---|---|---|---|---|---|---|
| | 21 | 43 | 65 | 87 | 09 | FF | 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: RFU.

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

#### 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. Some EFs (like the GSM Access files) may necessary for some tests and apply only to those test cases.

## 4.3 Definition of BDN UICC

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

### 4.3.1 Values of the EF's (BDN UICC)

#### 4.3.1.1 $EF_{UST}$ (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'.

| Coding: | B1 | B2 | B3 | B4 | B5 |
|---|---|---|---|---|---|
| binary | xx1x xx11 | xxxx xxxx | xxxx 1x00 | xxxx x1xx | xxxx xxx1 |

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

#### 4.3.1.2 $EF_{EST}$ (Enable Service Table)

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

| Coding: | B1 |
|---|---|
| binary | 0000 0010 |

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

#### 4.3.1.3 $EF_{BDN}$ (Barred Dialling Numbers)

Logically:
Record 1: Length of alpha identifier: 6 characters;
Alpha identifier: "BDN111";
Length of BCD number: "06";
TON and NPI: Telephony and International;
Dialled number: +1357924680;
CCI: None;
Ext2: None.

Coding for record 1:

| | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | B13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hex | 42 | 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: | "BDN222"; |
| Length of BCD number: | "03"; |
| TON and NPI: | Telephony and Unknown; |
| Dialled number: | 122; |
| CCI: | None; |
| Ext2: | None. |

Coding for record 2:

| | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | B13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hex | 42 | 44 | 4E | 32 | 32 | 32 | 04 | 81 | 21 | F2 | FF | FF | FF |

| | B14 | B15 | B16 | B17 | B18 | B19 | B20 |
|---|---|---|---|---|---|---|---|
| | FF | FF | FF | FF | FF | FF | FF |

Record 3:

| | |
|---|---|
| Length of alpha identifier: | 6 characters; |
| Alpha identifier: | "BDN333"; |
| Length of BCD number: | "03"; |
| TON and NPI: | Telephony and Unknown; |
| Dialled number: | 112; |
| CCI: | None; |
| Ext2: | None. |

Coding for record 3:

| | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | B13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hex | 42 | 44 | 4E | 33 | 33 | 33 | 03 | 81 | 11 | F2 | FF | FF | FF |

| | B14 | B15 | B16 | B17 | B18 | B19 | B20 |
|---|---|---|---|---|---|---|---|
| | FF | FF | FF | FF | FF | FF | FF |

#### 4.3.1.4 $EF_{ECC}$ (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 |

#### 4.3.1.5 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. Some EFs (like the GSM Access files) may necessary for some tests and apply only to those test cases.

# 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. The IMSI is stored in the USIM and read during the UICC-Terminal initialisation procedure.

This test applies to Terminals accessing UTRAN.

#### 5.1.1.2 Conformance requirement

After successful completion of the RRC Connection Establishment procedure the UE shall send PAGING RESPONSE containing the IMSI of the USIM which is less than the maximum length.

Reference:

- TS 31.102, subclauses 5.1.1 and 5.2.2;
- TS 24.008, subclause 10.5.1.4;
- TS 102 221, 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 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.

##### 5.1.1.4.2 Procedure

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.

#### 5.1.1.5 Acceptance criteria

After step b) the UE shall send PAGING RESPONSE to the USS 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 can be consistence of a 2 digit MNC. The IMSI is stored in the USIM and read during the UICC-Terminal initialisation procedure.

This test applies to Terminals accessing UTRAN.

#### 5.1.2.2 Conformance requirement

After successful completion of the RRC Connection Establishment procedure the UE shall send PAGING RESPONSE containing the IMSI of the USIM.

Reference:

- TS 31.102, subclause 4.2.18;
- TS 24.008, 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 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:

**$EF_{IMSI}$ (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.

#### 5.1.2.4.2 Procedure

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.

### 5.1.2.5 Acceptance criteria

After step b) the UE shall send PAGING RESPONSE to the USS 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. 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, 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.

This test applies to Terminals accessing UTRAN.

### 5.1.3.2 Conformance requirement

After successful completion of the RRC Connection Establishment procedure the UE shall send PAGING RESPONSE containing the 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 bits (8 digits) when used inside the PAGING TYPE 1 message.

Reference:

- TS 31.102, subclauses 5.1.1 and 5.2.2;
- TS 24.008, subclause 10.5.1.4.
- TS 25.331, 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 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: "2143"

| 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.

#### 5.1.3.4.2 Procedure

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.

### 5.1.3.5 Acceptance criteria

After step b) the UE shall send PAGING RESPONSE to the USS 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. 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, 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.This test applies to Terminals accessing UTRAN.

### 5.1.4.2 Conformance requirement

After successful completion of the RRC Connection Establishment procedure 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 bits (8 digits) when used inside the PAGING TYPE 1 message.

Reference:

- TS 31.102, subclauses 5.1.1 and 5.2.2;
- TS 24.008, subclause 10.5.1.4.
- TS 25.331, 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 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.

#### 5.1.4.4.2 Procedure

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.

### 5.1.4.5 Acceptance criteria

1) After step a) the UE shall not respond to the PAGING TYPE 1.

2) After step c) the UE shall send PAGING RESPONSE to the USS 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. They are read from the USIM during the USIM-Terminal initialisation procedure. Within the authentication procedure the network sends a key set identifier 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 call termination and/or at a 3G session termination.

This test applies to Terminals accessing UTRAN.

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 the UE shall send PAGING RESPONSE containing the correct IMSI stored in the USIM.

Reference:

- TS 31.102, subclauses 5.1.1 and 5.2.2;

- TS 24.008, 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, subclauses 5.1.2, 5.2.5 and 5.2.6;
- TS 21.111 subclause 10.1.
- TS 24.008 subclause 4.3.2.4.

3) After call termination the Terminal shall have updated $EF_{LOCI}$.

Reference:

- TS 102 221, 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 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 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: 246081111111111

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

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

#### 5.1.5.4.2 Procedure

a) The USS sends PAGING TYPE 1 to the UE using the IMSI "2460813579".

b) The USS sends PAGING TYPE 1 to the UE using the IMSI 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 AUTHENTICATION REQUEST to the UE containing Key Set Identifier KSI (ciphering key sequence number) set to binary 010.

e) 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".

f) Within 5 s after receipt of TMSI REALLOCATION COMPLETE from the UE, the USS sends RRC CONNECTION RELEASE to the UE.

g) 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..

2) After step c) the UE shall send PAGING RESPONSE to the USS containing the IMSI stored in the USIM.

3) After step e) the UE shall send TMSI REALLOCATION COMPLETE to the USS.

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 |

**$EF_{Keys}$ (Ciphering and Integrity Keys)**

| | | |
|---|---|---|
| Logically: | Key Set Identifier KSI: | 02 |
| | Ciphering 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 |

## 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 Equipment 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.

This test applies to Terminals accessing UTRAN.

### 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, 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, the UE may make call attempts. Otherwise call 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, 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 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 $EF_{LOCI}$, the UE may perform a location update. This shall be accepted by the USS.

#### 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)

RACH: As defined in GSM 04.18 subclause 10.5.2.29.

NOTE: GSM 04.18 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 5-1

#### 5.2.1.4.3 Procedure

a) Using the MMI or EMMI a normal call set-up is attempted.

b) Using the MMI or EMMI an emergency call set-up is attempted.

c) 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 5-1**

| | USIM IMSI | | Network RACH | Informative: Cell Barred for: | BCCH/ LAI | Test Results Normal Call | Test Results Emergency Call |
|---|---|---|---|---|---|---|---|
| | | Access Class | Octet 3<br>Octet 4 | Emergency Call<br>Normal Call | MCC<br>MNC | | |
| Test (a) | No UICC in Terminal | N/A | 0000 0100<br>0000 0000 | Yes<br>No | 234<br>001 | No | No |
| Test (b) | No UICC in Terminal | N/A | 0000 0000<br>0000 0000 | No<br>No | 234<br>001 | No | Yes |
| Test (c) | "2460813579" | 0 | 0000 0100<br>0000 0001 | Yes<br>No, except for ACC | 246<br>081 | No | No |
| | "2460813579" | 1 | 0000 0100<br>0000 0010 | Yes<br>No, except for ACC | 246<br>081 | No | No |
| | "2460813579" | 2 | 0000 0100<br>0000 0100 | Yes<br>No, except for ACC | 246<br>081 | No | No |
| | "2460813579" | 3 | 0000 0100<br>0000 1000 | Yes<br>No, except for ACC | 246<br>081 | No | No |
| | "2460813579" | 4 | 0000 0100<br>0001 0000 | Yes<br>No, except for ACC | 246<br>081 | No | No |
| | "2460813579" | 5 | 0000 0100<br>0010 0000 | Yes<br>No, except for ACC | 246<br>081 | No | No |
| | "2460813579" | 6 | 0000 0100<br>0100 0000 | Yes<br>No, except for ACC | 246<br>081 | No | No |
| | "2460813579" | 7 | 0000 0100<br>1000 0000 | Yes<br>No, except for ACC | 246<br>081 | No | No |
| | "2460813579" | 8 | 0000 0101<br>0000 0000 | Yes<br>No, except for ACC | 246<br>081 | No | No |
| | "2460813579" | 9 | 0000 0110<br>0000 0000 | Yes<br>No, except for ACC | 246<br>081 | No | No |

**Table 5-1 (continued)**

| USIM | | | Network | | | Test Results | |
|---|---|---|---|---|---|---|---|
| | IMSI | | RACH | Informative: Cell Barred for: | BCCH/ LAI | Normal Call | Emergency Call |
| | | Access Class | Octet 3<br>Octet 4 | Emergency Call<br>Normal Call | MCC<br>MNC | | |
| Test (d) | "2460813579" | 0 | 0000 0000<br>0000 0001 | No<br>None, except for ACC | 246<br>081 | No | Yes |
| | "2460813579" | 1 | 0000 0000<br>0000 0010 | No<br>None, except for ACC | 246<br>081 | No | Yes |
| | "2460813579" | 2 | 0000 0000<br>0000 0100 | No<br>None, except for ACC | 246<br>081 | No | Yes |
| | "2460813579" | 3 | 0000 0000<br>0000 1000 | No<br>None, except for ACC | 246<br>081 | No | Yes |
| | "2460813579" | 4 | 0000 0000<br>0001 0000 | No<br>None, except for ACC | 246<br>081 | No | Yes |
| | "2460813579" | 5 | 0000 0000<br>0010 0000 | No<br>None, except for ACC | 246<br>081 | No | Yes |
| | "2460813579" | 6 | 0000 0000<br>0100 0000 | No<br>None, except for ACC | 246<br>081 | No | Yes |
| | "2460813579" | 7 | 0000 0000<br>1000 0000 | No<br>None, except for ACC | 246<br>081 | No | Yes |
| | "2460813579" | 8 | 0000 0001<br>0000 0000 | No<br>None, except for ACC | 246<br>081 | No | Yes |
| | "2460813579" | 9 | 0000 0010<br>0000 0000 | No<br>None, except for ACC | 246<br>081 | No | Yes |

**Table 5-1 (continued)**

| USIM | | | Network | | | Test Results | |
|---|---|---|---|---|---|---|---|
| | IMSI | | RACH | Informative: Cell Barred for: | BCCH/ LAI | Normal Call | Emergency Call |
| | | Access Class | Octet 3<br>Octet 4 | Emergency Call<br>Normal Call | MCC<br>MNC | | |
| Test (e) | "2460813579" | 0 | 1111 1011<br>1111 1110 | No<br>All, except ACC on USIM | 246<br>081 | Yes | Yes |
| | "2460813579" | 1 | 1111 1011<br>1111 1101 | No<br>All, except ACC on USIM | 246<br>081 | Yes | Yes |
| | "2460813579" | 2 | 1111 1011<br>1111 1011 | No<br>All, except ACC on USIM | 246<br>081 | Yes | Yes |
| | "2460813579" | 3 | 1111 1011<br>1111 0111 | No<br>All, except ACC on USIM | 246<br>081 | Yes | Yes |
| | "2460813579" | 4 | 1111 1011<br>1110 1111 | No<br>All, except ACC on USIM | 246<br>081 | Yes | Yes |
| | "2460813579" | 5 | 1101 1011<br>1101 1111 | No<br>All, except ACC on USIM | 246<br>081 | Yes | Yes |
| | "2460813579" | 6 | 1111 1011<br>1011 1111 | No<br>All, except ACC on USIM | 246<br>081 | Yes | Yes |
| | "2406813579" | 7 | 1111 1011<br>0111 1111 | No<br>All, except ACC on USIM | 246<br>081 | Yes | Yes |
| | "2460813579" | 8 | 1111 1010<br>1111 1111 | No<br>All, except ACC on USIM | 246<br>081 | Yes | Yes |
| | "2460813579" | 9 | 1111 1001<br>1111 1111 | No<br>All, except ACC on USIM | 246<br>081 | Yes | Yes |

**Table 5-1 (continued)**

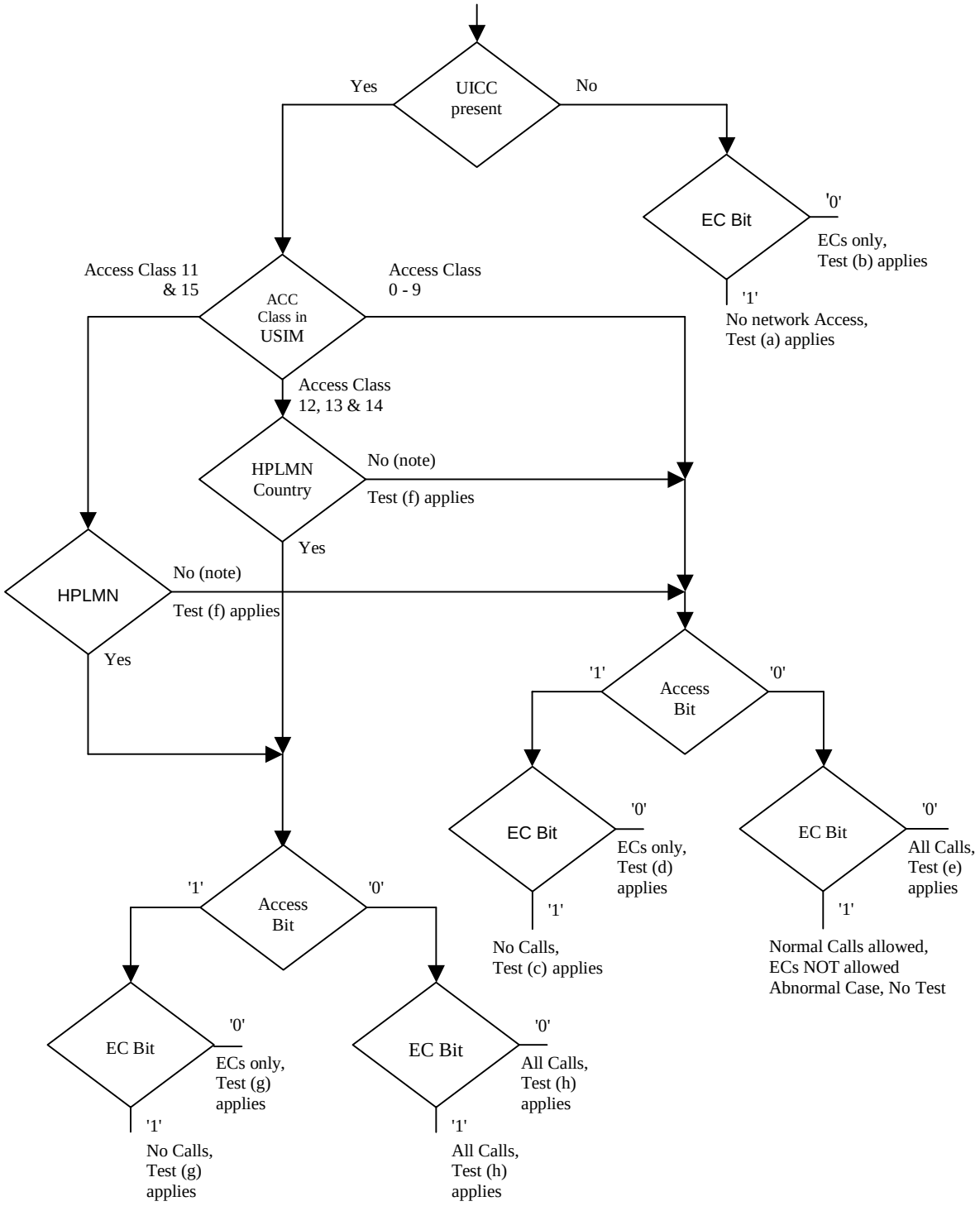
| | USIM | | Network | | | Test Results | |
|---|---|---|---|---|---|---|---|
| | IMSI | | RACH | Informative: Cell Barred for: | BCCH/ LAI | Normal Call | Emergency Call |
| | | Access Class | Octet 3<br>Octet 4 | Emergency Call<br>Normal Call | MCC<br>MNC | | |
| Test (f) | "24608135x9" | 11 & x | 0000 0111<br>1111 1111 | Yes<br>All, except ACC greater then 11 | 246<br>082 | No | No |
| | " | 11 & x | 0000 0011<br>1111 1111 | No<br>All, except ACC greater then 11 | 246<br>082 | No | Yes |
| | " | 11 & x | 0000 0000<br>0000 0000 | No<br>None | 246<br>082 | Yes | Yes |
| | "24608135x9" | 12 & x | 0000 0111<br>1111 1111 | Yes<br>All, except ACC greater then 11 | 244<br>001 | No | No |
| | " | 12 & x | 0000 0011<br>1111 1111 | No<br>All, except ACC greater then 11 | 244<br>001 | No | Yes |
| | " | 12 & x | 0000 0000<br>0000 0000 | No<br>None | 244<br>001 | Yes | Yes |
| | "24608135x9" | 13 & x | 0000 0111<br>1111 1111 | Yes<br>All, except ACC greater then 11 | 244<br>001 | No | No |
| | " | 13 & x | 0000 0011<br>1111 1111 | No<br>All, except ACC greater then 11 | 244<br>001 | No | Yes |
| | " | 13 & x | 0000 0000<br>0000 0000 | No<br>None | 244<br>001 | Yes | Yes |
| | "24608135x9" | 14 & x | 0000 0111<br>1111 1111 | Yes<br>All, except ACC greater then 11 | 244<br>001 | No | No |
| | " | 14 & x | 0000 0011<br>1111 1111 | No<br>All, except ACC greater then 11 | 244<br>001 | No | Yes |
| | " | 14 & x | 0000 0000<br>0000 0000 | No<br>None | 244<br>001 | Yes | Yes |
| | "24608135x9" | 15 & x | 0000 0111<br>1111 1111 | Yes<br>All, except ACC greater then 11 | 246<br>082 | No | No |
| | " | 15 & x | 0000 0011<br>1111 1111 | No<br>All, except ACC greater then 11 | 246<br>082 | No | Yes |
| | "<br>Set "x" to an arbitrary value in the range 0 to 9 | 15 & x | 0000 0000<br>0000 0000 | No<br>None | 246<br>082 | Yes | Yes |

**Table 5-1 (continued)**

| | USIM | | Network | | | Test Results | |
|---|---|---|---|---|---|---|---|
| | IMSI | | RACH | Informative: Cell Barred for: | BCCH/ LAI | Normal Call | Emergency Call |
| | | Access Class | Octet 3<br>Octet 4 | Emergency Call<br>Normal Call | MCC<br>MNC | | |
| Test (g) | "2460813579" | 11 & x | 0000 1111<br>1111 1111 | Yes<br>All normal ACC and ACC on USIM | 246<br>081 | No | No |
| | " | 11 & x | 0000 1011<br>1111 1111 | No<br>All normal ACC and ACC on USIM | 246<br>081 | No | Yes |
| | "2460813579" | 12 & x | 0001 0111<br>1111 1111 | Yes<br>All normal ACC and ACC on USIM | 246<br>082 | No | No |
| | " | 12 & x | 0001 0011<br>1111 1111 | No<br>All normal ACC and ACC on USIM | 246<br>082 | No | Yes |
| | "2460813579" | 13 & x | 0010 0111<br>1111 1111 | Yes<br>All normal ACC and ACC on USIM | 246<br>082 | No | No |
| | " | 13 & x | 0010 0011<br>1111 1111 | No<br>All normal ACC and ACC on USIM | 246<br>082 | No | Yes |
| | "2460813579" | 14 & x | 0100 0111<br>1111 1111 | Yes<br>All normal ACC and ACC on USIM | 246<br>082 | No | No |
| | " | 14 & x | 0100 0011<br>1111 1111 | No<br>All normal ACC and ACC on USIM | 246<br>082 | No | Yes |
| | "2460813579" | 15 & x | 1000 0111<br>1111 1111 | Yes<br>All normal ACC and ACC on USIM | 246<br>081 | No | No |
| | "<br>Set "x" to an arbitrary value in the range 0 to 9 | 15 & x | 1000 0011<br>1111 1111 | No<br>All normal ACC and ACC on USIM | 246<br>081 | No | Yes |

**Table 5-1 (concluded)**

| | USIM | | Network | | | Test Results | |
|---|---|---|---|---|---|---|---|
| | IMSI | | RACH | Informative: Cell Barred for: | BCCH/ LAI | Normal Call | Emergency Call |
| | | Access Class | Octet 3<br>Octet 4 | Emergency Call<br>Normal Call | MCC<br>MNC | | |
| Test (h) | "2460813579" | 11 & x | 1111 0011<br>1111 1111 | No<br>All, except "special" ACC on USIM | 246<br>081 | Yes | Yes |
| | " | 11 & x | 1111 0111<br>1111 1111 | Yes<br>All, except "special" ACC on USIM | 246<br>081 | Yes | Yes |
| | "2460813579" | 12 & x | 1110 1011<br>1111 1111 | No<br>All, except "special" ACC on USIM | 246<br>082 | Yes | Yes |
| | " | 12 & x | 1110 1111<br>1111 1111 | Yes<br>All, except "special" ACC on USIM | 246<br>082 | Yes | Yes |
| | "2460813579" | 13 & x | 1101 1011<br>1111 1111 | No<br>All, except "special" ACC on USIM | 246<br>082 | Yes | Yes |
| | " | 13 & x | 1101 1011<br>1111 1111 | Yes<br>All, except "special" ACC on USIM | 246<br>082 | Yes | Yes |
| | "2460813579" | 14 & x | 1011 1111<br>1111 1111 | No<br>All, except "special" ACC on USIM | 246<br>082 | Yes | Yes |
| | " | 14 & x | 1011 1011<br>1111 1111 | Yes<br>All, except "special" ACC on USIM | 246<br>082 | Yes | Yes |
| | "2460813579" | 15 & x | 0111 1011<br>1111 1111 | No<br>All, except "special" ACC on USIM | 246<br>081 | Yes | Yes |
| | "<br>Set "x" to an arbitrary value in the range 0 to 9 | 15 & x | 0111 1111<br>1111 1111 | Yes<br>All, except "special" ACC on USIM | 246<br>081 | Yes | Yes |




NOTE: UE adopts Access Class 0-9, based on IMSI, see TS 22.011.
Access Class in USIM, See TS 31.102 EF ACC, "6F 78".
ECs: Emergency Calls.
EC Bit: Bit 3 of Octet3 of RACH Control Parameters, See GSM 04.18 subclause 10.5.2.29.
AC Bit: See Bytes 3 & 4 of the RACH Control Parameters.
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.

This test applies to all 3G Terminals.

#### 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, subclause 11.1.9;
- TS 31.102, clause 6;
- TS 22.030, 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.

This test applies to all 3G Terminals.

### 6.1.2.2 Conformance requirement

The Terminal shall support the change of PIN procedure as defined in TS 102 221 subclause 11.10.

Reference:

- TS 102 221, subclause 11.1.10;
- TS 31.102, clause 6;
- TS 22.030, 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.
3) 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.

This test applies to 3G Terminals.

### 6.1.3.2 Conformance requirement

The Terminal shall support the Unblock PIN command, as defined in TS 102 221 subclause 11.13.

Reference:

- TS 102 221, subclause 11.1.13;
- TS 31.102, clause 6;
- TS 22.030, 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 j), 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.

This test applies to all 3G Terminals supporting a feature requiring PIN2 entry (such as e.g. AoC or FDN).

### 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, subclause 11.1.9;
- TS 31.102, clause 6;
- TS 22.030, 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 b) the Terminal shall send a VERIFY PIN command to the UICC, with parameter P2 = "81".

2) After step b) 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.

This test applies to all 3G Terminals supporting a feature requiring PIN2 entry (such as e.g. AoC or FDN).

### 6.1.5.2 Conformance requirement

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

Reference:

- TS 102 221, subclause 11.1.10;
- TS 31.102, clause 6;
- TS 22.030, 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.

3) 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.

This test applies to all 3G Terminals supporting a feature requiring PIN2 entry (such as e.g. AoC or FDN).

### 6.1.6.2 Conformance requirement

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

Reference:

- TS 102 221,subclause 11.1.13;
- TS 31.102, clause 6;
- TS 22.030, 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*089675*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*089675*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.

## 6.2 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 $EF_{ECC.}$

This test applies to Terminals accessing UTRAN. Besides of that, this test is applicable only to those Terminals supporting FDN.

#### 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 allows call set-up of an emergency call using the emergency number stored in the Terminal.

7) The UE allows call set-up of an emergency call using the emergency number stored in the USIM.

Reference:

- TS 22.101, clauses 8 and A.24;
- TS 31.102, subclauses 4.4.2, 4.2.24, 5.1.1 and 5.3.2.

#### 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 allows emergency call set-up using the emergency number stored in the Terminal.

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 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.

#### 6.2.1.4.2 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 the emergency call code stored in the Terminal.

g) 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, subclause 8.1 shall be used (i.e. 000, 08, 112, 110, 911 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) and e) the UE shall prevent call set-up.

4) After steps f) and g) 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.

This test applies to Terminals accessing UTRAN. Besides of that, this test is applicable only to those Terminals supporting FDN.

### 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:

- TS 22.101, clauses 8 and A.24;
- TS 31.102, 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 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.

This test applies to Terminals accessing UTRAN. Besides of that, this test is applicable only to those Terminals supporting FDN.

### 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:

- TS 22.101, clause 8 and A.24;
- TS 31.102, 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 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:

| | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | B13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hex | 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 |

## 6.3 Barred Dialling numbers (BDN) handling

### 6.3.1 Terminal and USIM with BDN enabled

#### 6.3.1.1 Definition and applicability

Barred Dialling Numbers (BDN) is a service defined for the USIM. An enabled BDN 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 BDN the UE runs the BDN capability request procedure during UICC-Terminal initialisation.

This test applies to Terminals accessing UTRAN. Besides of that, this test is applicable only to those Terminals supporting BDN.

#### 6.3.1.2 Conformance requirement

1) Recognising the state of the USIM (BDN enabled) the UE shall perform the UICC initialisation procedure as specified.

2) The UE shall prevent call set-up to a any number stored in $EF_{BDN}$.

3) The UE allows call set-up of an emergency call, even if this number is stored in the USIM.

Reference:

- TS 22.101, clause 8 and A.19;
- TS 31.102, subclauses 4.2.44, 4.4.2.3, 5.1.1 and 5.3.2.

### 6.3.1.3 Test purpose

1) To verify that the Terminal rejects call set-up to any number that has an entry in $EF_{BDN}$.

2) To verify that the Terminal allows call set-up to any number not stored in $EF_{BDN}$.

3) To verify that the Terminal allows emergency call set-up even if the number is stored in $EF_{BDN}$.

### 6.3.1.4 Method of test

#### 6.3.1.4.1 Initial conditions

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

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

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

#### 6.3.1.4.2 Procedure

a) The UE is powered on and PIN is entered.

b) Using the MMI a call set-up to the barred dialling number 1 (record 1) is attempted.

c) Using the ADN entry a call set-up to the abbreviated dialling number 1 (record 1) end is attempted.

d) Using the MMI a call set-up to the number "123456" is attempted.

e) Using the MMI an emergency call set-up is attempted using the emergency call code stored in the Terminal

f) 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 e) one of the emergency call codes according to 22.101, subclause 8 is used (i.e. 000, 08, 112, 110, 911 or 999).

### 6.3.1.5 Acceptance criteria

1) After step a) the UE is registered and in idle state.

2) After steps b) the UE shall prevent call set-up.

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

4) After step f) and g) the UE shall allow emergency call by indicating the call setup as "Emergency Call".

## 6.3.2 Terminal and USIM with BDN disabled

### 6.3.2.1 Definition and applicability

Barred Dialling Numbers (BDN) is a service defined for the USIM. An enabled BDN service results in call restrictions for the UE. No numbers which are stored in the $EF_{BDN}$ may be dialled by the UE. The call restrictions are controlled by the Terminal. To ascertain the type of USIM and state of BDN the UE runs the BDN 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. When the BDN is disabled no special controls are specified. The BDN may be read as if they were normal ADN. However a modification or deletion of the a BDN is under PIN2 control.

This test applies to Terminals accessing UTRAN. Besides of that, this test is applicable only to those Terminals supporting BDN.

### 6.3.2.2 Conformance requirement

1) Recognising the state of the USIM (BDN disabled) the UE correctly performs the UICC initialisation procedure.

2) The UE allows call set-up to a directory number as stored in $EF_{BDN}$.

3) Any change to the $EF_{BDN}$ does requests PIN2.

Reference:

- TS 22.101, clauses 8 and A.19;
- TS 31.102, subclauses 4.2.44, 5.1.1 and 5.3.2.

### 6.3.2.3 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 BDN number.

3) The UE shall allow updating of $EF_{BDN}$ by the use of PIN2.

### 6.3.2.4 Method of test

#### 6.3.2.4.1 Initial conditions

The USS 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.

#### 6.3.2.4.2 Procedure

a) Using the MMI a call set-up to the barred dialling number 1 is attempted.

b) Using the MMI the directory number "+876543210" is stored in $EF_{BDN}$ as barred dialling number 1 (record 1). The alpha identifier is not changed. On request of the UE PIN2 is entered.

### 6.3.2.5 Acceptance criteria

1) After step a) the UE shall allow call set-up and send the requested number across the air interface.

2) After step b) record 1 in $EF_{BDN}$ , shall contain the following values:

| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | B13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hex | 42 | 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 |

# 6.4 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.

This test applies to Terminals accessing UTRAN. Besides of that, this test is applicable only to those Terminals supporting AoCC.

### 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, subclause 5.1.2.1;
- TS 23.086, subclauses 1.2, 1.3, 2.2 and 2.3;
- TS 24.086, 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'.

| Coding: | B1 | B2 | B3 | B4 | B5 |
|---|---|---|---|---|---|
| binary | xxxx xx11 | xxx0 xxxx | xxxx 1x00 | xxxx x1xx | xxxx xxx1 |

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

The generic call set up procedures 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 transmits CONNECT containing AoCC information.

b) For an MO call in the U4 state the USS transmits FACILITY containing AoCC information.

c) For an MT call in the U9 state the USS transmits FACILITY containing AoCC information.

d) For an MO call in the U10 state the USS 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

The ACM shall be updated at the end of every interval, where the interval length is given by parameter e2. The Terminal shall update the ACM not more frequently than once every 5 s, even if the interval is less than 5 s. More frequent updating may affect the USIMs read/write cycles.

This test applies to Terminals accessing UTRAN. Besides of that, this test is applicable only to those Terminals supporting AoCC.

### 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.

Reference:

- TS 22.024, subclause 4.3, part h.

### 6.4.2.3 Test purpose

To verify that the interval between increments is 5 s.

### 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'.

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

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

**$EF_{ACM}$ (Accumulated call meter)**

Logically: 50 units

**$EF_{ACMmax}$ (Accumulated call meter maximum)**

Logically: 150 units

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".

#### 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 24.008 [16], 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 within 1 s 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.

Maximum Duration of Test:

2 minutes.

Expected Sequence:

| 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 | |
| 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 | CHANNEL RELEASE | All connections of RRC are released. |
| 23 | UE -> USS | RRC CONNECTION RELEASE COMPLETE | |

Specific Message Contents:

**i) FACILITY Information Element** with **Invoke = ForwardChargeInformation** component type as defined in TS 24.080 subclauses 3.6.1 table 3.3.

For ASN.1 description see default message contents in subclause 31.6.1.3.

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 clause 3.

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

For ASN.1 description see default message contents in subclause 31.6.1.3.

#### 6.4.2.5 Acceptance criteria

The UE shall 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).

This test applies to Terminals accessing UTRAN. Besides of that, this test is applicable only to those Terminals supporting AoCC.

#### 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).

Reference:

- TS 22.024, subclauses 4.2.2 and 4.3 (part h);
- TS 102 221, subclause 14.1.3.

#### 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.

#### 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 '1'.

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

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 |

**$EF_{ACMmax}$ (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".

#### 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 24.008 [16], 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 within 1 s 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:

| 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 30 s after CAI information sent by USS |
| 19 | UE -> USS | DISCONNECT | |
| 20 | USS -> UE | RELEASE | |
| 21 | UE -> USS | RELEASE COMPLETE | |
| 22 | UE -> USS | RRC CONNECTION RELEASE | All connections of RRC are released. |
| 23 | UE -> USS | RRC CONNECTION RELEASE COMPLETE | |

Specific Message Contents:

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

For ASN.1 description see default message contents in subclause 31.6.1.3.

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 clause 3.

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

For ASN.1 description see default message contents in subclause 31.6.1.3.

#### 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).

This test applies to Terminals accessing UTRAN. Besides of that, this test is applicable only to those Terminals supporting AoCC.

#### 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).

References:

- TS 31.102, subclause 5.3.4;
- TS 22.086, subclauses 2.1 and 2.2.1.

#### 6.4.4.3 Test purpose

To verify that the Terminal clears a charged call if the USIM indicates that the ACM cannot be increased.

#### 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'.

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

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 |

**$EF_{ACMmax}$ (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".

#### 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 24.008 [16], 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 within 1 s 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) 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, subclause 10.2.1.

Maximum Duration of Test:

3 minutes.

Expected Sequence:

| 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 | ASSIGNMENT COMMAND | 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 | UE -> USS | RRC CONNECTION RELEASE | All connections of RRC are released. |
| 23 | UE -> USS | RRC CONNECTION RELEASE COMPLETE | |

Specific Message Contents:

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

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 clause 3.

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

### 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 location updating attempts to appropriate networks with respect to this list of forbidden PLMNs. As a result of a location update reject with the cause "PLMN not allowed" the UE stores the PLMN which rejected the update request in the USIM.

After a location update, which is not followed by an authentication procedure, the Key Set Identifier indicates that the Key Set Identifier is undefined.

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.

This test applies to Terminals accessing UTRAN.

#### 7.1.1.2 Conformance requirement

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, subclause 2.3;
- TS 31.102, subclauses 5.1.1 and 5.2.7.

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

Reference:

- TS 22.011, subclause 2.3;
- TS 31.102, 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, subclauses 5.1.2, 5.2.5 and 5.2.6;
- TS 21.111, 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, subclauses 5.1.2, 5.2.5 and 5.2.6;
- TS 21.111, subclause 10.1.

#### 7.1.1.3 Test purpose

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 UPDATE 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.

## 7.1.1.4 Method of test

### 7.1.1.4.1 Initial conditions

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

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 234/002/0001.
- Access control: unrestricted.

The default UICC is used with the following exception:

**$EF_{IMSI}$ (IMSI)**

Logically: 246081111111111

| 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 |

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

**$EF_{Keys}$ (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 |

### 7.1.1.4.2 Procedure

a) The UE is powered on.

b) 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): 234/003

The USS then resumes RF output on the BCCH.

c) 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): 234/004

The USS then resumes RF output on the BCCH.

d) 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): 234/005

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): 234/007

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) After receipt of a LOCATION UPDATE REQUEST from the UE, the USS sends LOCATION UPDATE 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

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) After receipt of a LOCATION UPDATE REQUEST from the UE, the USS sends LOCATION UPDATE ACCEPT with:

LAI (MCC/MNC): 234/008

TMSI: "43658709"

to the UE.

j) After receipt of a TMSI REALLOCATION COMPLETE 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.

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 UPDATE.

2) After step f) the UE shall send LOCATION UPDATE REQUEST to the USS.

3) After step h) the UE shall send LOCATION UPDATE REQUEST to the USS.

4) After step i) the UE shall respond with TMSI REALLOCATION COMPLETE.

5) After step k) the USIM shall contain the following values:

**$EF_{LOCI}$ (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 |

**$EF_{Keys}$ (Ciphering and Integrity Keys)**

Logically: Key Set Identifier KSI: 07 (not available)
Ciphering 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 |

**$EF_{FPLMN}$ (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 |

## 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 location updating attempts to appropriate networks with respect to this list of forbidden PLMNs. As a result of a location update reject with the cause "PLMN not allowed" the UE stores the PLMN which rejected the update request in the USIM.

This test applies to Terminals accessing UTRAN.

### 7.1.2.2 Conformance requirement

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

Reference:

- TS 22.011, subclause 3.2.2.4.

### 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 transmits on the BCCH, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 234/002/0001.

-Access control: unrestricted.

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.

#### 7.1.2.4.2 Procedure

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) After receipt of a LOCATION UPDATE REQUEST from the UE, the USS sends LOCATION UPDATE 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.

### 7.1.2.5 Acceptance criteria

1) After step b) the UE shall send LOCATION UPDATE REQUEST to the USS.

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

This test applies to Terminals accessing UTRAN.

### 7.1.3.2 Conformance requirement

1) In manual PLMN selection mode the UE shall be able to perform a LOCATION UPDATE attempt to a PLMN which is in the forbidden PLMN list.

   - TS 22.011, subclause 3.2.2.2.

2) After receipt of LOCATION UPDATE ACCEPT the UE shall delete the forbidden PLMN from the forbidden PLMN list.

   - TS 22.011, subclause 3.2.2.4.

### 7.1.3.3 Test purpose

1) To verify that the UE is able to perform a LOCATION UPDATE on a forbidden PLMN in manual PLMN selection mode.

2) To verify that the UE after a successful LOCATION UPDATE 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 transmits on the BCCH, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 234/005/0001.
- Access control: unrestricted.

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.

#### 7.1.3.4.2 Procedure

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) After receipt of a LOCATION UPDATE REQUEST from the UE, the USS sends LOCATION UPDATE ACCEPT with:

LAI (MCC/MNC): 234/005

TMSI: "12345678"

to the UE.

e) After receipt of TMSI REALLOCATION COMPLETE 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.

### 7.1.3.5 Acceptance criteria

1) After step c) the UE shall send LOCATION UPDATE REQUEST to the USS.

2) After step d) the UE shall respond with TMSI REALLOCATION COMPLETE.

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

**$EF_{LOCI}$ (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 |

**$EF_{FPLMN}$ (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 |

# 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.

This test applies to Terminals accessing UTRAN.

### 7.2.1.2 Conformance requirement

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

- TS 31.102, 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 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 567/002, 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:

| | |
|---|---|
| 1st PLMN: | 244 081 (MCC MNC) |
| 1st ACT: | UTRAN |
| 2nd PLMN: | 567 002 |
| 2nd ACT | UTRAN |
| 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: | 244 009 |
| 11th ACT | UTRAN |
| 12th PLMN: | 244 010 |
| 12th 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 | 27 | 00 | 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.

This test applies to Terminals accessing UTRAN.

### 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, 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 transmits on two BCCHs, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 244/033/0001.
- Access control: unrestricted.

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 244/034/0001.
- Access control: unrestricted.

The default UICC is used with the following exception:

**$EF_{PLMNwACT}$ (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 |
| 3rd PLMN: | 244 082 |
| 3rd ACT | GSM |
| ..... | |
| ..... | |
| 10th PLMN: | 244 008 |
| 10th ACT | UTRAN |
| 11th PLMN: | 244 034 |
| 11th ACT | UTRAN |
| 12th PLMN: | 244 033 |
| 12th 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 | ..... | ..... | ..... | ..... | | | | | | |
| | 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.

#### 7.2.2.4.2 Procedure

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) After receipt of a LOCATION UPDATE REQUEST from the UE, the USS sends LOCATION UPDATE ACCEPT with:

LAI (MCC/MNC): 244/034

TMSI: "34567890"

to the UE.

d) After receipt of a TMSI REALLOCATION COMPLETE 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.

e) The UE is soft powered down.

### 7.2.2.5 Acceptance criteria

1) After step b) the UE shall send LOCATION UPDATE REQUEST containing an MCC/MNC of 234/034 to the USS.

2) After step c) the UE shall respond with TMSI REALLOCATION COMPLETE.

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

**$EF_{LOCI}$ (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 |

## 7.2.3 UE recognising the priority order of the User controlled PLMN selector list using a 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.

This test applies to a GSM/UMTS dual mode UE accessing both UTRAN and GSM using either ID-1 or Plug-in UICC.

### 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. After the successful registration the Registered PLMN, the last used ACcess Technology field $EF_{RPLMNACT}$ shall be updated.

- TS 22.011, subclause 3.2.2;
- TS 31.102, subclauses 4.2.5 and 5.1.2.

#### 7.2.3.2.1 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 and that the $EF_{RPLMNACT}$ is correct updated.

### 7.2.3.3 Method of test

#### 7.2.3.3.1 Initial conditions

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

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

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

The UMTS USS transmit 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 with the following exception:

**$EF_{RPLMNACT}$ (Registered PLMN last used ACcess Technology)**

Logically: Last registered ACT set to UTRAN

| Coding: | B1 | B2 |
|---|---|---|
| Hex | 80 | 00 |

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

#### 7.2.3.3.2 Procedure

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 UPDATE REQUEST from the UE, the SS sends LOCATION UPDATE 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.

#### 7.2.3.4 Acceptance criteria

1) After step b) the UE shall send LOCATION UPDATE REQUEST containing an MCC/MNC of 244/081 to the SS.

2) After step c) the UE shall respond with TMSI REALLOCATION COMPLETE.

3) 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 |

**$EF_{RPLMNACT}$ (Registered PLMN last used ACcess Technology)**

Logically: Last registered ACT set to GSM

| Coding: | B1 | B2 |
|---|---|---|
| Hex | 00 | 80 |

### 7.2.4 UE recognising the priority order of the User controlled PLMN selector list using a ACT preference; accessing UTRAN

#### 7.2.4.1 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.

This test applies to Terminals accessing UTRAN. This test does not apply, if the previous test is performed.

#### 7.2.4.2 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. After the successful registration the Registered PLMN, the last used ACcess Technology field $EF_{RPLMNACT}$ shall be updated

- TS 22.011, subclause 3.2.2;
- TS 31.102, subclauses 4.2.5 and 5.1.2.

##### 7.2.4.2.1 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 and that the $EF_{RPLMNACT}$ is correct updated.

#### 7.2.4.3 Method of test

##### 7.2.4.3.1 Initial conditions

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

- Attach/detach: disabled.

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

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 244/003/0001.
- Access control: unrestricted.

The default UICC is used with the following exception:

**$EF_{RPLMNACT}$ (Registered PLMN last used ACcess Technology)**

Logically: Last registered ACT shall be set to GSM

| Coding: | B1 | B2 |
|---|---|---|
| Hex | 00 | 80 |

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

#### 7.2.4.3.2 Procedure

a) The UE is powered on.

b) After receipt of a RRC CONNECTION REQUEST from the UE, the SS 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 LOCATION UPDATE REQUEST from the UE, the SS sends LOCATION UPDATE ACCEPT with:

LAI (MCC/MNC): 244/082

TMSI: "34567890"

to the UE.

d) After receipt of a TMSI REALLOCATION COMPLETE from the UE, the SS sends RRC CONNECTION RELEASE to the UE, followed by RRC CONNECTION RELEASE COMPLETE sent by the UE to the USS.

e) The UE is soft powered down.

### 7.2.4.4 Acceptance criteria

1) After step b) the UE shall send LOCATION UPDATE REQUEST containing an MCC/MNC of 244/081 to the SS.

2) After step c) the UE shall respond with TMSI REALLOCATION COMPLETE.

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

**$EF_{LOCI}$ (Location Information)**

Logically: LAI-MCC: 244
LAI-MNC: 082
TMSI: "34567890"

| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hex | 34 | 56 | 78 | 90 | 42 | 24 | 80 | xx | xx | xx | 00 |

**$EF_{RPLMNACT}$ (Registered PLMN last used ACcess Technology)**

Logically: Last registered ACT shall be set to UTRAN

| Coding: | B1 | B2 |
|---|---|---|
| Hex | 80 | 00 |

# 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.

This test applies to Terminals accessing UTRAN.

### 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, subclause 3.2.2;
- TS 31.102, 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 is needed.

The USS transmits on two BCCHs, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 254/011/0001.
- Access control: unrestricted.

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 244/012/0001.
- Access control: unrestricted.

The default UICC is used with the following exception:

**$EF_{OPLMNwACT}$ (OPLMN Selector)**

| Logically: | 1st PLMN: | 254 012 (MCC MNC) |
|---|---|---|
| | 1st ACT | UTRAN |
| | 2nd PLMN: | 254 011 |
| | 2nd ACT | UTRAN |

| | |
|---|---|
| 3rd PLMN: | 254 002 |
| 3rd ACT: | UTRAN |
| 4th PLMN: | 254 003 |
| 4th 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 | 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 | 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 |

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

#### 7.3.1.4.2 Procedure

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) After receipt of a LOCATION UPDATE REQUEST from the UE, the USS sends LOCATION UPDATE ACCEPT with:

LAI (MCC/MNC): 254/012

TMSI: "34567890"

to the UE.

d) After receipt of a TMSI REALLOCATION COMPLETE 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.

e) The UE is soft powered down.

### 7.3.1.5 Acceptance criteria

1) After step b) the UE shall send LOCATION UPDATE REQUEST containing an MCC/MNC of 254/012 to the USS.

2) After step c) the UE shall respond with TMSI REALLOCATION COMPLETE.

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

**$EF_{LOCI}$ (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 |

## 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 $EF_{PLMNwACT}$.

This test applies to Terminals accessing UTRAN.

### 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, subclause 3.2.2.2;
- TS 31.102, 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 is needed.

The USS transmits on two BCCHs, with the following network parameters:

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 254/001/0001.
- Access control: unrestricted.

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 244/010/0001.
- 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.

#### 7.3.2.4.2 Procedure

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) After receipt of a LOCATION UPDATE REQUEST from the UE, the USS sends LOCATION UPDATE ACCEPT with:

LAI (MCC/MNC): 244/010

TMSI: "34567890"

to the UE.

d) After receipt of a TMSI REALLOCATION COMPLETE 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.

e) The UE is soft powered down.

#### 7.3.2.5 Acceptance criteria

1) After step b) the UE shall send LOCATION UPDATE REQUEST containing an MCC/MNC of 244/010 to the USS.

2) After step c) the UE shall respond with TMSI REALLOCATION COMPLETE.

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

**$EF_{LOCI}$ (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 |

## 7.4 HPLMN search handling

### 7.4.1 UE recognising the search period of the HPLMN

#### 7.4.1.1 Definition and applicability

The HPLMN list gives in priority order the Home PLMN on which the UE shall register first. The HPLMN search period gives the time interval in which the UE shall search for a possible HPLMN registration.

This test applies to Terminals accessing UTRAN.

#### 7.4.1.2 Conformance requirement

After registered onto a VPLMN the UE shall take into account the HPLMN search period timer and the priority order of the HPLMNs in the preferred list on the USIM.

- TS 22.011, subclauses 3.2.2 and 3.2.2.5.

#### 7.4.1.3 Test purpose

To verify that the HPLMN timer is read and the HPLMN 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 a UTRAN USS is needed.

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

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

- Access control: unrestricted.

After the registration of UE the USS transmits on a second BCCH, with the following network parameters:

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

The default UICC shall be used with the following exception:

**$EF_{HPLMN}$ (HPLMN 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.

#### 7.4.1.4.2 Procedure

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) After receipt of a LOCATION UPDATE REQUEST from the UE, the USS sends LOCATION UPDATE ACCEPT with:

LAI (MCC/MNC): 244/081

TMSI: "34567890"

to the UE.

d) After receipt of a TMSI REALLOCATION COMPLETE 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.

e) The USS starts to send on the second BCCH with the MCC/MNC 246/081. An internal timer shall start to run.

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. The internal timer is stopped.

g) After receipt of a LOCATION UPDATE REQUEST from the UE, the USS sends LOCATION UPDATE ACCEPT with:

LAI (MCC/MNC): 246/081

TMSI: "12345678"

to the UE.

h) After receipt of a TMSI REALLOCATION COMPLETE from the UE, the USS 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 shall send LOCATION UPDATE REQUEST containing an MCC/MNC of 246/081 to the USS.

2) After step g) the UE shall respond with TMSI REALLOCATION COMPLETE.

3) 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 1 s greater than the required 6 s.

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

**$EF_{LOCI}$ (Location Information)**

Logically: LAI-MCC: 246
LAI-MNC: 081
TMSI: "12345678"

| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hex | 12 | 34 | 56 | 78 | 42 | 16 | 80 | xx | xx | xx | 00 |

### 7.4.2 GSM/UMTS dual mode UEs recognising the search period of the HPLMN

#### 7.4.2.1 Definition and applicability

The HPLMN list gives in priority order the Home 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 $EF_{HPLMNACT}$. The HPLMN search period gives the time interval in which the UE shall search for a possible HPLMN registration. To avoid a duplication of a test.

This test applies to a GSM/UMTS dual mode UE accessing both UTRAN and GSM using either ID-1 or Plug-in UICC.

To avoid a duplication of tests, this test supersede 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 HPLMN search period timer and the priority order of the HPLMNs in the preferred list on the USIM including the Access Technology Identifier.

- TS 22.011, subclauses 3.2.2 and 3.2.2.5.

#### 7.4.2.3 Test purpose

To verify that the HPLMN timer is read and the HPLMN 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 a 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.

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): 246/081/0001.
- Access control: unrestricted.

At the same time as the SS sends on a second BCCH, the UMTS USS transmit on 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:

**$EF_{HPLMNwACT}$ (HPLMN selector with Access Technology)**

Logically: Set to MCC 246 and MNC 081
Set to UTRAN

| Coding: | B1 | B2 | B3 | B4 | B5 |
|---|---|---|---|---|---|
| Hex | 42 | 16 | 80 | 80 | 00 |

**$EF_{HPLMN}$ (HPLMN Search period)**

Logically: set to 6minutes

| Coding: | B1 |
|---|---|
| Hex | 01 |

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

#### 7.4.2.4.2 Procedure

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 UPDATE REQUEST from the UE, the SS sends LOCATION UPDATE 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 246/081 and the USS starts to send with the Same MCC/MNC. An internal timer shall start to run.

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. The internal timer is stopped.

g) After receipt of a LOCATION UPDATE REQUEST from the UE, the USS sends LOCATION UPDATE ACCEPT with:

LAI (MCC/MNC): 246/081

TMSI: "12345678"

to the UE.

h) After receipt of a TMSI REALLOCATION COMPLETE 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.

i) The UE is soft powered down.

#### 7.4.2.5 Acceptance criteria

1) After step e) the UE shall send LOCATION UPDATE REQUEST containing an MCC/MNC of 246/081 to the USS.

2) After step g) the UE shall respond with TMSI REALLOCATION COMPLETE.

3) 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 1 s greater than the required 6 s.

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

**$EF_{LOCI}$ (Location Information)**

Logically: LAI-MCC: 246
LAI-MNC: 081
TMSI: "12345678"

| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hex | 12 | 34 | 56 | 78 | 42 | 16 | 80 | xx | xx | xx | 00 |

## 7.5 RPLMNACT handling

### 7.5.1 UE recognising the last registered ACT

#### 7.5.1.1 Definition and applicability

The RPLMNACT identifies the last Access Technology in which the UE was registered. Together with the identification of the last registered PLMN. This two lists shall be used for the network selection in the case the UE is within coverage (at switch-on) or returns to coverage of the PLMN on which it is already registered (as indicated by the registered PLMN stored in the USIM), the UE shall perform a location update to a new location area if necessary.

NOTE: According toTS 22.011 subclause 3.2.2.2, the last registered network take precedence even over the HPLMN.

This test applies to a GSM/UMTS dual mode UE accessing both UTRAN and GSM using either ID-1 or Plug-in UICC.

#### 7.5.1.2 Conformance requirement

1) Recognising the network, in which the UE was last registered.

2) Recognising the Access Technology, in which the UE has last used.

3) AT the time of power on, from all available network the above network and Access Technology shall be first selected.

- TS 22.011, subclauses 3.2.2 and 3.2.2.2;
- TS 31.102, subclause 5.1.1.

### 7.5.1.3 Test purpose

To verify that the last registered network together with the last used Access technology takes precedence over all other available network.

### 7.5.1.4 Method of test

#### 7.5.1.4.1 Initial conditions

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

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

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

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 242/001/0001.
- Access control: unrestricted.

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

- Attach/detach: disabled.
- LAI (MCC/MNC/LAC): 242/001/0001.
- Access control: unrestricted.

The default UICC shall be used with the following exception:

**$EF_{LOCI}$ (Location Information)**

Logically: LAI-MCC: 242
LAI-MNC: 001
LAI-LAC: 9999
TMSI: "12345678"

| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hex | 12 | 34 | 56 | 78 | 42 | 12 | 00 | 99 | 99 | FF | 00 |

**$EF_{RPLMNACT}$ (Registered PLMN Access Technology)**

Logically: set to GSM

| Coding: | B1 | B2 |
|---|---|---|
| Hex | 00 | 80 |

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

#### 7.5.1.4.2 Procedure

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 UPDATE REQUEST from the UE, the SS sends LOCATION UPDATE ACCEPT with:

LAI (MCC/MNC): 242/001

LAC: 0001

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.

#### 7.5.1.5 Acceptance criteria

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

**$EF_{LOCI}$ (Location Information)**

Logically: LAI-MCC: 242
LAI-MNC: 001
LAI-LAC: 0001
TMSI: "34567890"

| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hex | 34 | 56 | 78 | 90 | 42 | 12 | 00 | 00 | 01 | FF | 00 |

# 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 GSM terminal, the phonebook my 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 Terminal later, the 3G 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 $EF_{CC}$.

This test applies to all 3G Terminal using either ID-1 UICC or Plug-In UICC.

#### 8.1.1.2 Conformance requirement

The 3G 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 31.121, subclause 4.4.2.

#### 8.1.1.3 Test purpose

1) To verify that the 3G Terminal has recognised that the phonebook has been altered by a GSM Terminal.

2) To verify that the 3G Terminal does the synchronising of the changed phonebook entries.

3) To verify that the 3G 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: | "ABCDEFGHIJKLMNOPQRSTUVWXYZABCDEF"; |
| | 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 |

**$EF_{PBC}$ (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 3G 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 hall be regenerated.

The PSC is a part of the phonebook identifier.

This test applies to all 3G Terminal using either ID-1 UICC or Plug-in UICC.

### 8.1.2.2 Conformance requirement

Every time either the UID or the CC is incremented by the Terminal, the value of the contend 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, subclause 4.4.2.12.2.

### 8.1.2.3 Test purpose

1) To verify that the 3G Terminal has recognised that the values of UID and CC has changed.
2) To verify that the 3G Terminal reset the maximal value of $EF_{UID}$ and $EF_{CC}$ back to "00 01".
3) To verify that the 3G 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 use.

### 8.1.2.5 Acceptance criteria

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

The $EF_{UID}$ (Unique Identifier) shall have been regenerated. The value FF FF shall have been replaced by an appropriate value which shall be distinguishable to the maximum value (e.g. by having only 11 ADN records).

Logically: set to "xx xx"

| Coding: | B1 | B2 |
|---|---|---|
| Hex | xx | xx |

NOTE: "xx xx" may have any value except "FF FF".

**$EF_{PUID}$ (Previous Unique Identifier)**

Logically: set to "00 01"

| Coding: | B1 | B2 |
|---|---|---|
| Hex | 00 | 01 |

**$EF_{CC}$ (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 |

# 8.2 Short message handling report

## 8.2.1 Correct storage of a SMS on the USIM

### 8.2.1.1 Definition and applicability

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 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, this shall be indicated in the SMS Status filed.

This test applies to all 3G Terminal accessing UTRAN and supporting "receive SMS" functionality.

### 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). After the last empty SMS field is filled with a received SMS, the memory full flag shall be set in the $EF_{SMSS}$.

- TS 23.038, clause 4.
- TS 23.040;
- TS 31.102, subclauses 4.2.25 and 4.2.28.

### 8.2.1.3 Test purpose

1) To verify that the 3G Terminal stored correctly the class 2 SMS on the USIM.
2) To verify that the 3G Terminal sets the status of a received, and not yet read SMS to "3" (SMS to be read).
3) To verify that the 3G Terminal sets the memory full flag in $EF_{SMSS}$.

### 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'.

| Coding: | B1 | B2 | B3 | B4 | B5 |
|---|---|---|---|---|---|
| binary | xx1x xx11 | x11x xxxx | xxxx 1x00 | xxxx x1xx | xxxx xxx1 |

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 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | ... | 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 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 transmits on the BCCH, with the following network parameters:

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

The USS transmits the short message with the following parameters:

Logically:

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..."

Coding:

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hex | 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 | | | | | | | | | |

User Equipment:

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

#### 8.2.1.4.2 Procedure

a) After the UE is set to idle mode, a defined SMS with 160 characters shall be send to the UE.

b) After the UE has indicated that a SMS was received, the SMS shall not be read. 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:

Record 1:

Logically:

Status:

RFU bits 8-6: 000

Status: Used space, message received by MS 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 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..."

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 b) the memory flag in the $EF_{SMSS}$ shall be set to full.

**$EF_{SMSS}$ (SMS Status)**

Logically: Last used TP-MR shall be set to any appropriate value.
Memory capacity available (flag set b1="0").

| Coding: | B1 | B2 |
|---|---|---|
| Hex | FE | xx |

## 8.2.2 Correct reading of a SMS on the USIM

### 8.2.2.1 Definition and applicability

A SMS 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).

This test applies to all 3G Terminal accessing UTRAN and supporting "receive SMS" functionality.

### 8.2.2.2 Conformance requirement

A received shall be 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, clause 4;
- TS 23.040;
- TS 31.102, subclauses 4.2.25 and 4.2.28.

### 8.2.2.3 Test purpose

1) To verify that the 3G Terminal read correctly the SMS on the USIM.

2) To verify that the 3G 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'

| Coding: | B1 | B2 | B3 | B4 | B5 |
|---|---|---|---|---|---|
| binary | xx1x xx11 | x11x xxxx | xxxx 1x00 | xxxx x1xx | xxxx xxx1 |

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

**$EF_{SMSS}$ (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 TS 23.038 which represents the stored SMS.

At least 9 records.

Logically: Status byte set to empty
No text is written (Remainder Bytes set to "00").

Record:

| Coding: | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | ... | B176 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hex | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | ... | FF |

A USS is only needed to bring the UE into a defined idle mode. The USS transmit 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 text 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 which represents the stored SMS.

# Annex A (informative): Change history

The table below indicates all change requests that have been incorporated into the present document since it was initially approved by 3GPP TSG-T.

| Change history | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Date** | **TSG #** | **TSG Doc** | **CR** | **Rev** | **Cat** | **Subject/Comment** | **Old** | **New** |
| 2000-12 | TP-10 | TP-000205 | | | | Final draft approved at TSG-T #10 | 2.0.0 | 3.0.0 |
| 2001-06 | TP-12 | TP-010108 | 001 | | F | Correction of EF(UST) used in the Test USIM | 3.0.0 | 3.1.0 |
| | | TP-010108 | 002 | | F | Correction of EF(ECC) used in the Test USIM | | |
| | | TP-010108 | 003 | | F | Correction to EF(HPLMN) regarding test USIMs | | |
| | | TP-010108 | 004 | | F | Deletion of a duplicated test case | | |
| 2002-06 | TP-16 | TP-020117 | 006 | | F | Correction of tests using EF (USIM Service Table) | 3.1.0 | 3.2.0 |
| 2002-09 | TP-17 | TP-020215 | 009 | | F | Correction of coding of EF ACMMax | 3.2.0 | 3.3.0 |
| | | | 011 | | F | Correction of number of bytes of EF Keys | | |
| | | | 013 | 1 | F | Definition of short message | | |
| 2002-12 | TP-18 | TP-020286 | 014 | | F | Correction of PIN 2 related tests | 3.3.0 | 3.4.0 |
| | | | 016 | | F | Essential Clarifications | | |
| | | | 018 | | F | Correction of EF OPLMNwACT | | |
| 2003-03 | TP-19 | TP-030028 | 020 | | F | File size correction | 3.4.0 | 3.5.0 |
| | | | 022 | | F | Correction of PLMN coding | | |
| 2003-06 | TP-20 | TP-030123 | 024 | | F | Correction of acceptance criteria | 3.5.0 | 3.6.0 |
| 2003-09 | TP-21 | TP-030184 | 026 | | F | Usage of 3G PDU definition for UEs accessing UTRAN | 3.6.0 | 3.7.0 |
| 2004-03 | TP-23 | TP-040028 | 028 | | F | CR 31.121 R99: Essential Corrections | 3.7.0 | 3.8.0 |

# History

| Document history | | |
|---|---|---|
| V3.0.0 | December 2000 | Publication |
| V3.1.0 | June 2001 | Publication |
| V3.2.0 | June 2002 | Publication |
| V3.3.0 | September 2002 | Publication |
| V3.4.0 | December 2002 | Publication |
| V3.5.0 | March 2003 | Publication |
| V3.6.0 | June 2003 | Publication |
| V3.7.0 | September 2003 | Publication |
| V3.8.0 | March 2004 | Publication |