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conformance test specification
(3GPP TS 31.122 version 17.1.0 Release 17)

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Contents

Foreword

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

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

Version x.y.z

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x the first digit:

1 presented to TSG for information;

2 presented to TSG for approval;

3 or greater indicates TSG approved document under change control.

y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

z the third digit is incremented when editorial only changes have been incorporated in the document.

In the present document, modal verbs have the following meanings:

shall indicates a mandatory requirement to do something

shall not indicates an interdiction (prohibition) to do something

The constructions "shall" and "shall not" are confined to the context of normative provisions, and do not appear in Technical Reports.

The constructions "must" and "must not" are not used as substitutes for "shall" and "shall not". Their use is avoided insofar as possible, and they are not used in a normative context except in a direct citation from an external, referenced, non-3GPP document, or so as to maintain continuity of style when extending or modifying the provisions of such a referenced document.

should indicates a recommendation to do something

should not indicates a recommendation not to do something

may indicates permission to do something

need not indicates permission not to do something

The construction "may not" is ambiguous and is not used in normative elements. The unambiguous constructions "might not" or "shall not" are used instead, depending upon the meaning intended.

can indicates that something is possible

cannot indicates that something is impossible

The constructions "can" and "cannot" are not substitutes for "may" and "need not".

will indicates that something is certain or expected to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

will not indicates that something is certain or expected not to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

might indicates a likelihood that something will happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

might not indicates a likelihood that something will not happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

In addition:

is (or any other verb in the indicative mood) indicates a statement of fact

is not (or any other negative verb in the indicative mood) indicates a statement of fact

The constructions "is" and "is not" do not indicate requirements.

1 Scope

The present document provides the Conformance Test Specification for a Universal IC Card (UICC) defined in TS 31.101 [2] with Universal Subscriber Identity Module (USIM) defined in TS 31.102 [3].

2 Normative 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 to a non-3GPP document, the latest version applies.
- For a non-specific reference to a 3GPP document, the latest version in the same release as the implementation release of the UICC under test applies.

[1] ETSI TS 102 221: "UICC-Terminal Interface; Physical and Logical Characteristics".

[2] 3GPP TS 31.101: "UICC-Terminal Interface; Physical and Logical Characteristics".

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

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

[5] ISO/IEC 7816-2: "Identification cards - Integrated circuit cards - Part 2: Card with contacts - Dimensions and locations of the contacts".

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

[7] ISO/IEC 7816-4: "Identification cards - Integrated circuit cards - Part 4: Organization, security and commands for interchange".

[8] Void

[9] Void

[10] Void

[11] Void

[12] ISO/IEC 7811-1: "Identification cards - Recording technique - Part 1: Embossing"

[13] Void

[14] 3GPP TS 11.11: "Digital cellular telecommunications system (Phase 2+); Specification of the Subscriber Identity Module - Mobile Equipment (SIM - ME) interface".

[15] ETSI TS 101 220: "Smart cards; ETSI numbering system for telecommunication application providers".

[16] ETSI TS 102 221 Release 99: "UICC-Terminal Interface; Physical and Logical Characteristics".

[17] ETSI TS 102 221 Release 4: "UICC-Terminal Interface; Physical and Logical Characteristics".

[18] ETSI TS 102 221 Release 5: "UICC-Terminal Interface; Physical and Logical Characteristics".

[19] ISO/IEC 9646-7 (1995): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".

[20] ETSI TS 102 230-2 v13.0.0: "UICC-Terminal interface; Physical, electrical and logical test specification; Part 2: UICC features".

3 Definitions, symbols, abbreviations and coding

3.1 Definitions

For the purposes of the present document, the following definitions apply in addition to the terms defined in TS 102.221 [1] and TS 31.102 [3].

Implementation Conformance Statement (ICS): A statement made by the supplier of an implementation or system claimed to conform to a given specification, stating which capabilities have been implemented. The ICS can take several forms: protocol ICS, profile ICS, profile specific ICS, information object ICS, etc.

ICS proforma: A document, in the form of a questionnaire, which when completed for an implementation or system becomes an ICS.

3.2 Symbols

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

t_F	fall time
t_R	rise time
V_{IH}	Input Voltage (high)
V_{IL}	Input Voltage (low)
V_{OH}	Output Voltage (high)
V_{OL}	Output Voltage (low)

3.3 Abbreviations

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

CRn	Conformance Requirement 'n'
IUT	Implementation Under Test
ME	Mobile Equipment
TS	Test Specification
UICC	Universal Integrated Circuit Card
USIM	Universal Subscriber Identity Module

3.4 Coding Conventions

The following coding conventions apply to the present document:

All lengths are presented in bytes, unless otherwise stated. Each byte is represented by bit 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.

3.5 Applicability

3.5.1 Applicability of the present document

The present document applies to a UICC which supports one or more USIMs.

3.5.2 Applicability to the UICC

The applicability to a UICC supporting one or more USIMs is specified in table B.1, unless otherwise specified in the specific clause.

3.5.3 Applicability of the individual tests

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

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

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

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

References to items

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

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

3.5.4 Applicability of conformance requirements

All conformance requirements are annotated with their applicability. This clause defines the notation used.

The basic notation is as follows:

(DefinedRelease) ReleaseRange: Options

The components of the notation are as follows:

Component	Content	Example content
DefinedRelease	Contains a single release. Optional (along with the surrounding parentheses). If present, it indicates the release of the core specification in which the conformance requirement was first defined. This is intended for conformance requirements which were defined in a certain release of the core specification but for which tests were not introduced into this document until a later release. If absent, this indicates that the conformance requirement was introduced in the first release contained in ReleaseRange.	R99 Rel-6
ReleaseRange	Contains a single release or a range of releases. An ellipsis (…) in the right-hand part indicates the current release of this document. Optional; but at least one of ReleaseRange and Options must be present. If present, it indicates the range of releases for which the conformance requirement is tested. If absent, it is equivalent to "R99 - …".	R99 R99 - Rel-5 Rel-6 - …
Options	A comma-separated list containing at least one of the options in table A.1. Optional (along with the preceding colon); but at least one of ReleaseRange and Options must be present. If present, this indicates that the conformance requirement is only applicable to UICCs supporting all of the specified options. If absent, this indicates that the conformance requirement applies to all UICCs.	O_LOG_CHANS O_LOG_CHANS, O_SHAREABLE

An additional shortcut notation for "R99 - …" is specified: "M". This indicates that the conformance requirement is mandatory for all UICCs of all releases.

Examples of the notation are as follows:

Example	Meaning
(Rel-4) Rel-6 – …: O_LOG_CHANS	Conformance requirement introduced in Rel-4, but not tested until Rel-6, where it is only applicable if O_LOG_CHANS is supported.
(Rel-4) Rel-6 – …: O_LOG_CHANS, O_SHAREABLE	Conformance requirement introduced in Rel-4, but not tested until Rel-6, where it is only applicable if O_LOG_CHANS and O_SHAREABLE are supported.
Rel-6 – …: O_LOG_CHANS	Conformance requirement introduced in Rel-6, where it is only applicable if O_LOG_CHANS is supported.
Rel-6 – …: O_LOG_CHANS, O_SHAREABLE	Conformance requirement introduced in Rel-6, where it is only applicable if O_LOG_CHANS and O_SHAREABLE are supported.
R99 - Rel-5	Mandatory for all UICCs from R99 to Rel-5.
Rel-6 - …	Mandatory for all UICCs from all releases up to and including the current release of this document.
O_MONO_APP	Applies to all releases, but only applicable if O_MONO_APP is supported by the UICC.
M	Mandatory for all releases; equivalent to "R99 - …".

3.6 Table of optional features

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

The "Option defined in Releases" column indicates the releases of the relevant core specification(s) in which the option is defined.

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

A supplier may choose to use a single UICC and reconfigure it as required for each test; or may choose to use a number of UICCs which are based on the same platform but are configured differently. The supplier shall state the chosen solution and in the latter case shall confirm usage of identical platforms.

Table A.1: Options

Option	Status	Option defined in Releases	Support	Mnemonic
ID-1 UICC	O.1	R99		O_ID1_UICC
Plug-in UICC	O.1	R99		O_PLUG_IN_UICC
Type 1 (i.e. UICC which always enters the negotiable mode after a warm reset)	O.2	R99		O_TYPE_1
Type 2 (UICC which always enters the specific mode after a warm reset)	O.2	R99		O_TYPE_2
T=0	O.3	R99		O_T0
T=1	O.3	R99		O_T1
Mono application UICC	O.4	R99		O_MONO_APP
Multi-application UICC	O.4	R99		O_MULTI_APP
Single verification capable UICC	O.5	R99		O_SINGLE_VER
Multi-verification capable UICC	O.5	R99		O_MULTI_VER
More than one logical channel supported	O	Rel-4		O_LOG_CHANS
More than two logical channels supported	O	Rel-4		O_LOG_CHANS_34
Shareable files	O	Rel-4		O_SHAREABLE
Non-shareable files	O	Rel-4		O_NON_SHAREABLE
GET CHALLENGE	O	Rel-4		O_GET_CHALLENGE
Mini-UICC	O.1	Rel-6		O_MINI_UICC
(F, D) = (512, 64)	O	Rel-6		O_F_D_512_64
Low impedance drivers	O	Rel-6		O_LOW_IMPEDANCE
BER-TLV structure EFs	O	Rel-6		O_BER_TLV_FILES
GET IDENTITY when SUCI calculation performed by the USIM	O	Rel-15		O_GET IDENTITY_SUCI

3.7 Applicability table

Table B.1: Applicability of tests

Clause	Description	Test procedure	Tested features defined in Release	R99 UICC	Rel-4 UICC	Rel-5 UICC	Rel-6 UICC	Rel-7 UICC	Rel-8 UICC	Rel-9 UICC	Rel-10 UICC	Rel-11 UICC	Rel-12 UICC	Rel-13 UICC	Rel-14 UICC	Rel-15 UICC	Support
7.1	Contents of the Elementary Files (EF)	1	R99				M	M	M	M	M	M	M	M	M	M	
		2	R99	M	M	M											
7.2	Security features	1	R99	C016	C016	C016	C016	C016	C016	C016	C016	C016	C016	C016	C016	C016	
7.3.1	AUTHENTICATE	1	R99	M	M	M	M	M	M	M	M	M	M	M	M	M	
7.3.2.1	Security management	1	R99	M	M	M	M	M	M	M	M	M	M	M	M	M	
7.3.2.2	Status Words of the Commands	N/A															
7.3.3	GET IDENTITY	1	Rel-15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	C024	
8.1.1	GSM/USIM application interaction and restrictions	1	Rel-6				M	M	M	M	M	M	M	M	M	M	
8.2.1	Transmission speed	1	Rel-6				C006	C006	C006	C006	C006	C006	C006	C006	C006	C006	
		1	Rel-6				C007	C007	C007	C007	C007	C007	C007	C007	C007	C007	
8.2.2	Voltage classes	1	Rel-6				M	M	M	M	M	M	M	M	M	M	
8.2.3	File Control Parameters (FCP)	1	Rel-6				M	M	M	M	M	M	M	M	M	M	
8.3	User verification and file access conditions	1	Rel-6				C016	C016	C016	C016	C016	C016	C016	C016	C016	C016	
		2	Rel-6				C017	C017	C017	C017	C017	C017	C017	C017	C017	C017	
8.4.1	Contents of the EFs at the MF level	1	Rel-6				M	M	M	M	M	M	M	M	M	M	

Clause	Description	Test procedure	Tested features defined in Release	R99 UICC	Rel-4 UICC	Rel-5 UICC	Rel-6 UICC	Rel-7 UICC	Rel-8 UICC	Rel-9 UICC	Rel-10 UICC	Rel-11 UICC	Rel-12 UICC	Rel-13 UICC	Rel-14 UICC	Rel-15 UICC	Support
C006 IF O_T0 THEN M ELSE N/A C007 IF O_T1 THEN M ELSE N/A C016 IF O_MULTI_VER THEN M ELSE N/A C017 IF O_SINGLE_VER THEN M ELSE N/A																	

4 Test environment

This clause specifies several requirements which shall be met, and a number of rules which shall be adhered to before testing can proceed.

4.1 Test equipment

This clause recommends a minimum specification for each of the items of test equipment referenced in the tests.

4.1.1 ME simulator

This item of equipment shall allow T = 0 and T = 1 protocol communications to take place on both ID-1 and plug-in UICCs. It shall be able to generate and send any command APDU and receive any of the possible responses. These commands may be generated manually, one at a time, or automatically from a predefined batch procedure containing one or more commands.

The ME simulator shall be able to support clock stop modes.

The ME simulator shall be able to accept an external clock signal to drive CLK (contact C3) of the UICC.

It shall be possible to access all the UICC contacts either directly or through test points.

4.1.2 Signal generation device

4.1.2.1 Void

4.1.2.2 Void

4.1.2.3 CLK

This item of equipment shall be able to generate square wave signals for the clock on the UICC, any of which can be a single-shot or continuous signal, in the range 1 MHz to 5 MHz.

It shall also provide control over the following parameters:

- rise and fall time to an accuracy of 1 % or 5 ns whichever is the worst. *(5 ns = 2,5 % accuracy for f_{max} = 5 MHz).*

4.1.2.4 I/O

The equipment shall be able to generate I/O-Signals according to TS 102.221 [1]

The timing of the bitstream (jitter, guardtime, etu-value, etc.) on the I/O-Line shall be programmable with an accuracy of ≤ 0,01 etu or 2 clk-cycles whichever is the worst.

4.1.3 Precision force-inducing contacting device

This item of equipment shall be able to apply a prescribed and maintained level of force onto one or more contacts of the UICC. The range shall be between 0 and 0,5 N and accurate to 0,01 N.

4.1.4 Temperature controllable environment

This item of equipment shall be able to control the temperature of a chamber large enough to enclose the UICC and the card reader. The range of temperature control shall be between -25 °C and +85 °C to an accuracy of 0,5 °C.

4.1.5 Temperature measuring device

This item of equipment shall be able to measure the temperature of the UICC to within 0,5 °C. The range of this device shall allow measurement of temperatures between -25 °C and +85 °C.

4.1.6 Void

4.1.7 Precision measuring device

This item of equipment shall be able to measure both linear and radius of curvature dimensions to an accuracy of 0,01 mm.

4.1.8 Void

4.1.9 Timing Measurements on contact I/O

To verify the timing of the I/O transmission from the UICC, the ME simulator shall be able to measure the I/O-Bit-Timing in clk-cycles with an accuracy of ≤ 0,01 etu or 2 clk-cycles whichever is the worst.

4.2 IUT default conditions

Unless otherwise stated, the following is default:

- The voltage level for Vcc (contact C1) shall be set to 3,0 V.
- The voltage levels for CLK (contact C3) shall be set to 0 V and 3,0 V for low and high respectively.
- The clock frequency CLK (contact C3) shall be set to 5 MHz with duty cycle 50 %.
- Any level 1 user verification requirement (PIN) on the UICC shall be enabled with three VERIFY PIN attempts and ten UNBLOCK PIN attempts remaining.
- Any level 2 user verification requirement (PIN2) on the UICC shall be enabled with three VERIFY PIN2 attempts and ten UNBLOCK PIN2 attempts remaining, if assigned.
- A Universal PIN on the UICC shall be enabled, if IUT is a multi-verification capable UICC.

4.3 Default data formatting

All numeric data enclosed in single quotes (' ') in this document are hexadecimal data.

Where 'X' is used in place of a hexadecimal digit, X ranges from '0' to 'F'. For example, the data '6X' ranges from '60' to '6F' inclusive.

Where data is expressed as a group of bytes, it shall be in the following format: 'XX XX XX... XX', indicating first byte, second byte, third byte etc. in that order.

A string of digits shall be formatted with a continuous string of numeric data and enclosed with single quotes. For example, the string 'XXXXXXXX' where X ranges from 0 to 9 inclusive.

4.4 Test definition and applicability

The following statements are applicable to the test definition and applicability clause for all test purposes contained within the present document:

- Unless otherwise stated, tests apply to both plug-in and ID-1 UICC cards.
- Unless otherwise stated, tests apply to each protocol supported by the UICC.

- The tests are performed on a UICC as defined in TS 31.101 [2] with a USIM application as defined in TS 31.102 [3]. The tests to check the requirement of TS 31.101 [2] use the files as defined in TS 31.102 [3].

- Unless otherwise stated, the tests apply to single and multi-verification capable UICCs with USIM application(s). In the case of a multi-verification capable UICC, there shall be only one application.

4.5 Initial conditions

Unless otherwise stated, all the PINs used in the test procedures shall be initially enabled.

Figure 1 shows the files in the UICC which shall be used for the test procedures, in the case where the EFs are not mandatory, they may be replaced with other EFs of the same file structure.

Unless otherwise stated, all the EFs used in the test procedure shall be activated.

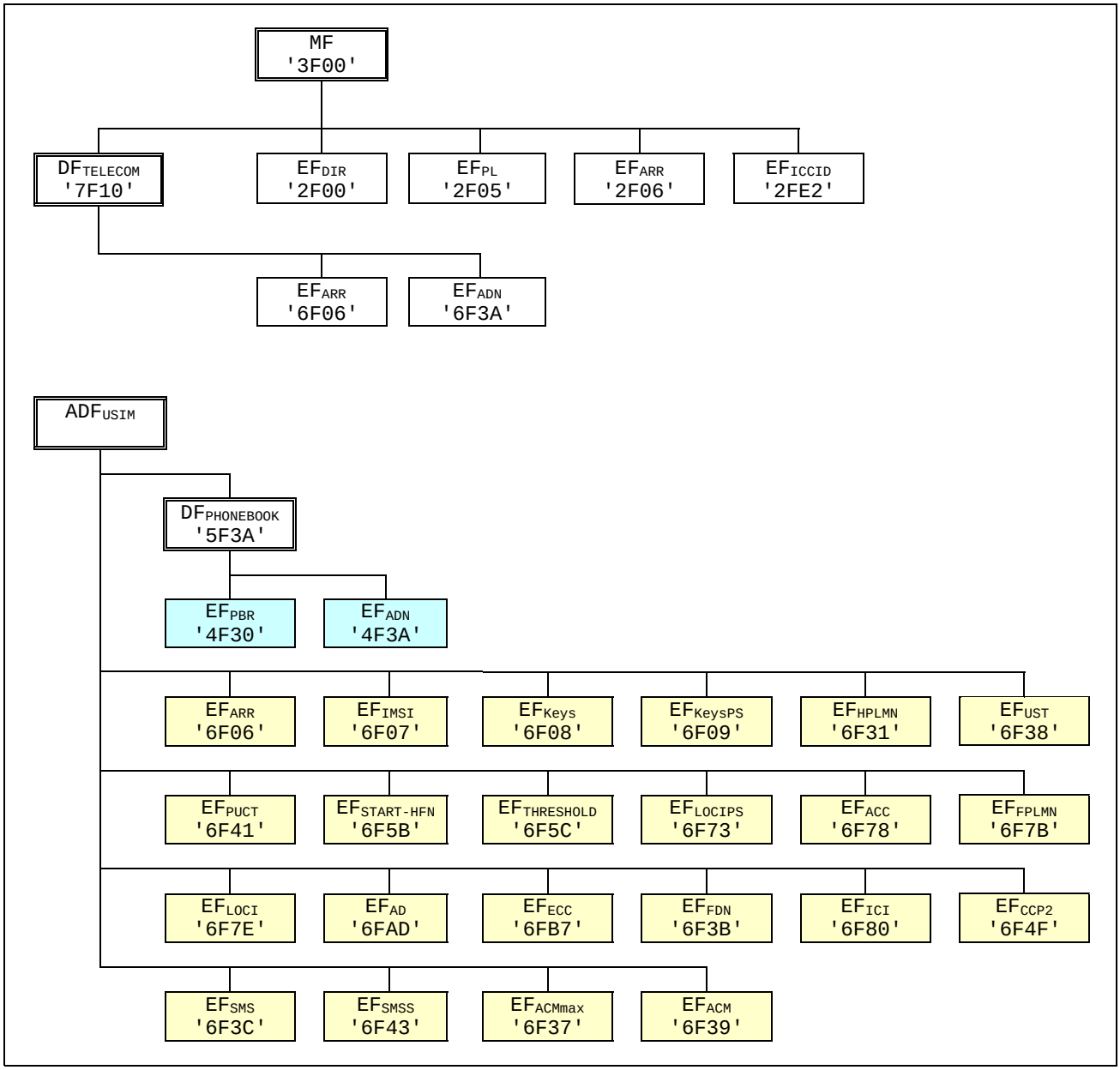

Figure 1: File identifiers and directory structures of UICC

The initial conditions for some of the EFs are given in the followings:

- PIN shall be set to '00000000'.

- PIN2 shall be set to '11111111'.
- Universal PIN shall be set to '22222222', if supported.
- EF_{FPLMN} shall contain the data string: '55 AA 0F 00 F0 FF 00 F0 FF 00 F0 FF'.
- EF_{LOCI} shall contain the data string: 'A1 A2 A3 A4 A5 A6 A7 A8 A9 00 00'.
- The records in EF_{SMS} shall contain the following data for the first 20 bytes:

```
1st record   'A0 A1 A2 B0 B1 B2 A0 A1 A2 A0 A1 A2 FF A0 A1 A2 A3 A4 A5 A6'
2nd record   'B0 B1 B2 A0 A1 A2 A0 A1 A2 B0 B1 B2 FF B0 B1 B2 B3 B4 B5 B6'
3rd record   'B0 B1 B2 A0 A1 A2 B0 B1 B2 A0 A1 A2 FF C0 C1 C2 C3 C4 C5 C6'
4th record   'A0 A1 A2 B0 B1 B2 B0 B1 B2 B0 B1 B2 FF D0 D1 D2 D3 D4 D5 D6'
```

  The data for the remainder of these four records and for all other records shall be 'FF'.

- The records in EF_{FDN} shall contain the following data for the first 10 bytes:

```
1st record  'A0 A1 A2 B0 B1 B2 A0 A1 A2 A0'
2nd record  'B0 B1 B2 A0 A1 A2 A0 A1 A2 B0'
3rd record  'B0 B1 B2 A0 A1 A2 B0 B1 B2 A0'
4th record  'A0 A1 A2 B0 B1 B2 B0 B1 B2 B0'
```

  The data for the remainder of these four records and for all other records (if any) shall be 'FF'.

- The records in EF_{CCP2} shall contain the following data:

```
1st record         '10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E'
2nd record         '20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E'
2nd last record    'E0 E1 E2 E3 E4 E5 E6 E7 E8 E9 EA EB EC ED EE'
Last record        'F0 F1 F2 F3 F4 F5 F6 F7 F8 F9 FA FB FC FD FE'
```

- The records in EF_{ACM} shall contain the following data, if it is supported:

```
1st record   '00 00 01'(last updated record)
2nd record   '00 00 02'
3rd record   '00 00 03'
Xth record   '00 00' followed by byte value X (first updated record)
```

- The records in EF_{ICI} shall contain the following data:

```
1st record   '01' for all bytes
2nd record   '02' for all bytes
3rd record   '03' for all bytes
Xth record   byte value X for all bytes
```

- The records in EF_{ECC} shall contain the following data:

```
1st record          '21 F2 FF 54 45 53 54 00'
All other records   'FF FF FF FF FF FF FF 00'
```

4.6 Test procedure

The following statements are applicable to the test procedure clause for all test purposes contained within the present document:

- Unless otherwise stated, all steps within the test procedure shall be carried out in order.
- Unless otherwise stated, all test procedures shall be applicable to both T = 0 and T = 1 protocols.
- Where steps indicate that a ME simulator shall select a particular DF or EF using an unspecified number of SELECT commands, the ME simulator is to send the correct sequence of SELECT commands in order to select the required file ID from the current file ID (this may be achieved most easily by selecting from the MF down each time).

- Unless otherwise stated, the Le (P3) for all READ RECORD commands and Lc (P3) for all UPDATE RECORD commands sent by the ME simulator is to be that of the record length of the EF currently selected. In the case where an EF is not currently selected, the length sent is to be 1 unless otherwise stated.
- Unless otherwise stated, the offset for all READ BINARY and UPDATE BINARY commands sent by the ME simulator is to be '00 00'.
- Unless otherwise specified, when the T = 0 protocol is used, the necessary GET RESPONSE commands are assumed to be sent, or the same command header is assumed to be resent with P3 = L_{UICC} at the transport layer level in order to retrieve the available response data from the UICC.
- Unless otherwise stated, the length (Le) for all SELECT, STATUS and GET RESPONSE commands sent by the ME simulator is to be such that all available data is read.
- Unless otherwise stated, the PIN and Unblock PIN presented for VERIFY PIN, CHANGE PIN, DISABLE PIN, ENABLE PIN and UNBLOCK PIN commands sent by the ME simulator is to be correct.
- Unless otherwise stated, a SELECT command sent to the UICC to select ADF_{USIM} is with the application's AID, indicating in the command parameter that the application shall be activated.
- Unless otherwise stated, a SELECT command sent to the UICC is with P2 = '04', indicating that the FCP shall be returned.
- Unless otherwise stated, all RETRIEVE DATA commands sent to the UICC shall be with P2 indicating "current EF".
- Unless otherwise stated, all SET DATA commands sent to the UICC shall be with P2 indicating "current EF".
- Unless otherwise stated, all SET DATA commands sent to the UICC shall be sent with the maximum amount of data possible according to the data object being transmitted.

4.7 Test requirement

Where steps within a test procedure involve a ME simulator sending one or more commands to the UICC, these commands are required to be correctly executed, with the UICC responding with status conditions of '90 00', unless otherwise stated in the clause for the test.

5 Void

6 Test Procedure (TS 102.221)

This clause details all the tests for testing the IUT against TS 102.221 [1]. This test suite allows testing of the IUT against the base specification with respect to:

- Physical characteristics
- Electrical specifications of the UICC - Terminal interface
- Initial communication establishment procedure
- Transmission protocols
- Application and File structure
- Security features
- Structure of commands and responses
- Commands

- Transmission Oriented Commands
- Application independent files

Tests against TS 102.221 [1] are defined in ETSI TS 102 230 - 2 [20].

7 Test Procedure (31.102)

This clause details all the tests for testing the IUT against TS 31.102 [3]. This test suite allows testing of the IUT against the base specification with respect to:

- Contents of the Elementary Files
- Security Features supported by USIM
- USIM commands.

7.1 Contents of the Elementary Files (EF)

The clause provides tests to ensure that the IUT contains all of the EFs need for a Telecom session.

7.1.1 Definition and applicability

See clause 3.5.3.

7.1.2 Conformance requirement

The following conformance requirements refer to the tables for each EF in TS 31.102 [3], clause 4.

CR1	Each existing EF shall be selectable under the respective DF using the identifier given in the table for that EF.	M
CR2	All mandatory EFs shall exist on the UICC.	M
CR3	The identifier of the EF shall be that given in the table for that EF.	M
CR4	The type and structure of the EF shall be that given in the table for that EF.	M
CR5	The file size shall be at least that given in the table for that EF.	M
CR6	The short file identifier shall be those given in the table for that EF.	M
CR7	The short file identifier shall exist if it is mandatory in the table for that EF. This includes EFs with SFI indicated by 'YY'.	(R99) Rel-6 - …
CR8	The access conditions shall be those given in the table for that EF.	M
CR9	If no SFI is indicated in the table for the EF, the EF shall not have an SFI.	(R99) Rel-6 - …
CR10	The short file identifier shall exist if it is mandatory in the table for that EF.	M

Reference: TS 31.102 [3], clause 4.

7.1.3 Test purpose

To verify that the UICC conforms to the above requirements.

NOTE: The contents and coding of the data within the files are not tested, but shall conform to the respective contents and coding of the data given for each file in TS 31.102 [3], clause 4.

7.1.4 Method of test

Initial conditions

1) The UICC shall be connected to a ME simulator.

Test procedure 1

a) The ME simulator shall reset the UICC.

b) The ME simulator shall send a SELECT command to the UICC to select the respective DF for the first EF in clause 4 of TS 31.102 [3].

The status condition returned by the UICC shall be SW1 = '90', SW2 = '00' - normal ending of the command [CR1].

c) The ME simulator shall send a SELECT command to the UICC to select the first EF in clause 4 of TS 31.102 [3].

The status condition returned by the UICC shall be SW1 = '90', SW2 = '00' - normal ending of the command [CR1, CR2].

The following shall be true of the response data:

- *TLV DO with tag '83' shall indicate the identifier of the file selected [CR3];*
- *TLV DO with tag '82' shall not be '38' and '78' indicating EF [CR4];*
- *TLV DO with tag '82' shall indicate the structure given in the table for the file in clause 4 of TS 31.102 [3] [CR4];*
- *TLV DO with tag '80' shall be at least the minimum file size given in the table for the file in clause 4 of TS 31.102 [3]. if the EF is transparent [CR5];*
- *Byte 5 and 6 of TLV DO with tag '82' shall be in accordance with the record length given in the table for the file in clause 4 of TS 31.102 [3]. if the EF is linear fixed or cyclic [CR5];*
- *TLV DO with tag '80' shall be an integer multiple of the record length if the EF is linear fixed or cyclic [CR5];*
- *If a value for the SFI is specified in the table for the file in clause 4 of TS 31.102 [3] and the value of the specified SFI is equal to the 5 least significant bits (bits b5 to b1) of the file identifier for the file, then the TLV DO with tag '88'shall either be absent, or shall be present with the specified SFI value [CR6, CR7];*
- *If a value for the SFI is specified in the table for the file in clause 4 of TS 31.102 [3] and the value of the specified SFI is not equal to the 5 least significant bits (bits b5 to b1) of the file identifier for the file, then the TLV DO with tag '88'shall be present with the specified SFI value [CR6, CR7];*
- *If an SFI is specified in the table for the file in clause 4 of TS 31.102 [3] but no actual value is specified (i.e. 'YY' is used), then the TLV DO with tag '88'shall either be absent, or shall be present with a value of length 1 [CR6, CR7];*
- *If no SFI is specified in the table for the file in clause 4 of TS 31.102 [3], then the TLV DO with tag '88'shall be present with an empty value [CR9]*
- *TLV DO with tag '86' or '8B' or '8C' or 'AB' shall indicate the access conditions given in the table for the file in clause 4 of TS 31.102 [3] [CR8].*
  Note: if the access conditions indicate referenced security, the referenced record in the EF_{ARR} may be read at this point if necessary.

d) Steps a) to c) shall be repeated for the remaining mandatory EFs clause 4 of TS 31.102 [3].

e) Steps a) to c) shall be repeated for the existing optional EFs clause 4 of TS 31.102 [3].

Test procedure 2

a) The ME simulator shall reset the UICC.

b) The ME simulator shall send a SELECT command to the UICC to select the respective DF for the first EF in clause 4 of TS 31.102 [3].

The status condition returned by the UICC shall be SW1 = '90', SW2 = '00' - normal ending of the command [CR1].

c) The ME simulator shall send a SELECT command to the UICC to select the first EF in clause 4 of TS 31.102 [3].

The status condition returned by the UICC shall be SW1 = '90', SW2 = '00' - normal ending of the command [CR1, CR2].

The following shall be true of the response data:

- *TLV DO with tag '83' shall indicate the identifier of the file selected [CR3];*
- *TLV DO with tag '82' shall not be '38' and '78' indicating EF [CR4];*
- *TLV DO with tag '82' shall indicate the structure given in the table for the file in clause 4 of TS 31.102 [3] [CR4];*
- *TLV DO with tag '80' shall be at least the minimum file size given in the table for the file in clause 4 of TS 31.102 [3]. if the EF is transparent [CR5];*
- *Byte 5 and 6 of TLV DO with tag '82' shall be in accordance with the record length given in the table for the file in clause 4 of TS 31.102 [3]. if the EF is linear fixed or cyclic [CR5];*
- *TLV DO with tag '80' shall be an integer multiple of the record length if the EF is linear fixed or cyclic [CR5];*
- *TLV DO with tag '88' shall indicate the short file identifier given in the table for the file in clause 4 of TS 31.102 [3] [CR6, CR10];*
- *TLV DO with tag '86' or '8B' or '8C' or 'AB' shall indicate the access conditions given in the table for the file in clause 4 of TS 31.102 [3] [CR8].*
  Note: if the access conditions indicate referenced security, the referenced record in the EF_{ARR} may be read at this point if necessary.

d) Steps a) to c) shall be repeated for the remaining mandatory EFs clause 4 of TS 31.102 [3].

e) Steps a) to c) shall be repeated for the existing optional EFs clause 4 of TS 31.102 [3].

7.2 Security features

7.2.1 Definition and applicability

See clause 3.5.3.

7.2.2 Conformance requirement

CR1	The USIM application shall use a global key reference as PIN and a local key reference as PIN2.	M
CR2	Access with PIN2 shall be limited to the ADF (USIM).	M
CR3	For a USIM application on a multi-verification capable UICC, the only valid values for the usage qualifiers shall be '00' (verification requirement is not used) and '08' (user authentication knowledge based (PIN)) as defined in ISO/IEC 7816-4 [7].	O_MULTI_VER
CR4	Void	N/A
CR5	Void	N/A
CR6	Void	N/A
CR7	Void	N/A
CR8	For access to $DF_{TELECOM}$ the PIN shall be verified.	M

Reference: TS 31.102 [3], clause 6.4.

7.2.3 Test purpose

To verify that the UICC conforms to the above requirements.

NOTE 1: CR1, CR2 are tested in the clause 6.6.4.

NOTE 2: CR8 is not currently tested.

7.2.4 Method of test

No test procedure is currently required for a single verification capable UICC.

Initial conditions

1) The UICC shall be connected to a ME simulator.

Test procedure 1

a) The ME simulator shall reset the UICC.

b) The ME simulator shall send a SELECT command to the UICC to select and activate USIM application.

The following shall be true of the response data:

- *TLV DO with tag 'C6' (PS Template DO) shall contain for the Universal PIN the TLV DO with tag '95' (Usage Qualifier) and the value of this TLV shall be '00' or '08' [CR3];*

7.3 USIM commands

7.3.1 AUTHENTICATE

7.3.1.1 Definition and applicability

See clause 3.5.3.

7.3.1.2 Conformance requirement

CR1	This function shall cause the UICC to run the f1, f2, f3, f4, f5, and f1* algorithms using a 16 bytes random number, AUTN, and the subscriber authentication key K stored in the UICC.	M
CR2	If the received sequence number SQN is in the correct range, the function shall return the response RES, cipher key CK, and integrity key IK.	M
CR3	If the UICC detects the sequence numbers are not in the valid range, the function shall return the signed response AUTS.	M
CR4	The function shall not be executable unless a particular USIM application has been selected as the Current Directory and activated and the current directory is the USIM ADF or any subdirectory under this ADF.	M
CR5	The function shall not be executable unless a successful PIN verification procedure has been performed.	M
CR6	The function shall not be executable unless the expected MAC-A is received.	M
CR7	If the UICC does not support 'GSM context' which is indicated in parameter P2, the function shall not be executable.	M

Reference: TS 31.102 [3], clause 7.1.

7.3.1.3 Test purpose

To verify that the UICC conforms to the above requirements.

7.3.1.4 Method of test

Initial conditions

1) The UICC shall be connected to a ME simulator.

Test procedure 1

a) The ME simulator shall reset the UICC.

b) The ME simulator shall send a SELECT command to the UICC to select the USIM application.

c) The ME simulator shall send an AUTHENTICATE command to the UICC.

The status condition returned by the UICC shall be SW1 = '69', SW2 = '82' - security status not satisfied [CR5].

d) The ME simulator shall reset the UICC.

e) The ME simulator shall send a SELECT command to the UICC to select the USIM application.

f) The ME simulator shall send a VERIFY PIN command with PIN to the UICC.

g) The ME simulator shall send a SELECT command to the UICC to select the MF.

h) The ME simulator shall send an AUTHENTICATE command to the UICC.

The command shall be aborted [CR4].

i) The ME simulator shall send a SELECT command to the UICC to select the current ADF ('7FFF').

j) The ME simulator shall send an AUTHENTICATE command to the UICC with incorrect signed data.

The status condition returned by the UICC shall be SW1 = '98', SW2 = '62' - authentication error, incorrect MAC [CR6].

k) If the 'GSM context' is not supported, the ME simulator shall send an AUTHENTICATE command with parameter P2 indicating 'GSM context'.

The status condition returned by the UICC shall be SW1 = '98', SW2 = '64' - authentication error, GSM security context not supported [CR7].

l) The ME simulator shall send an AUTHENTICATE command to the UICC with incorrect sequence number SQN.

The data field returned shall begin with the tag 'DC', and the data shall be correct for the given f1 and f5 algorithms and K stored in the UICC [CR1, CR3].*

m) The ME simulator shall send an AUTHENTICATE command to the UICC with correct data.

The data field returned shall begin with the tag 'DB', and the data shall be correct for the given f2, f3 and f4 algorithms and K stored in the UICC [CR1, CR2].

7.3.2 Status Conditions Returned by the USIM

7.3.2.1 Security management

7.3.2.1.1 Definition and applicability

See clause 3.5.3.

7.3.2.1.2 Conformance requirement

CR1	The UICC shall respond with the correct SW1 and SW2 status words for commands which produce authentication errors.	M

Reference: TS 31.102 [3], clause 7.3.1.

7.3.2.1.3 Test purpose

To verify that the UICC conforms to the above requirements when issuing SW1 and SW2 status words.

7.3.2.1.4 Method of test

Initial conditions

1) The UICC shall be connected to a ME simulator.

Test procedure 1

a) The ME simulator shall reset the UICC.

b) The ME simulator shall send a SELECT command to the UICC to select the USIM application.

c) The ME simulator shall send a VERIFY PIN command with relevant PIN to the UICC.

d) The ME simulator shall send an AUTHENTICATE command to the UICC with incorrect MAC.

The status condition returned by the UICC shall be SW1 = '98', SW2 = '62' - authentication error, incorrect MAC [CR1].

e) If the 'GSM context' is not supported, the ME simulator shall send an AUTHENTICATE command with parameter P2 indicating 'GSM context'.

The status condition returned by the UICC shall be SW1 = '98', SW2 = '64' - authentication error, GSM security context not supported [CR1].

7.3.2.2 Status Words of the Commands

7.3.2.2.1 Definition and applicability

See clause 3.5.3.

7.3.2.2.2 Conformance requirement

CR1	Table in TS 31.102 [3], clause 7.3.2 shows for each command the possible status conditions returned (marked by an asterisk *). The UICC shall not generate status conditions other than those allowed for each command.	M

Reference: TS 31.102 [3], clause 7.3.2.

7.3.2.2.3 Test purpose

To verify for each command that the UICC will only generate the allowed status conditions.

NOTE: CR1 shall not be tested as it is not possible to force the UICC to generate all of the allowed and disallowed status conditions for each command.

7.3.2.2.4 Method of test

Initial conditions

N/A

Test procedure

N/A

7.3.3 GET IDENTITY

7.3.3.1 Definition and applicability

See clause 3.5.3.

7.3.3.2 Conformance requirement

CR1	The function can be used to retrieve the SUCI when "SUCI calculation is to be performed by the USIM" (i.e. Service n°124 and Service n°125 are "available").	M
CR2	The function shall not be executable unless a particular USIM application has been selected as the Current Directory and activated and the current directory is the USIM ADF or any subdirectory under this ADF.	M
CR3	The function shall not be executable unless a successful PIN verification procedure has been performed.	M
CR4	The command returns the SUCI which is a privacy preserving identifier containing the concealed SUPI.	M
CR5	The SUCI is designed for one-time use, however, the freshness and randomness of SUCI returned upon each call of the command depends on the protection scheme configured. There is the special case where the protection scheme used is null-scheme, in such case SUCI contains the non concealed SUPI.	M
CR6	If the home network public key is not provisioned in the USIM, the SUCI shall be calculated using the null-scheme irrespective of the protection scheme stored in the USIM.	M
CR7	If SUCI context is supported and: - Service n°124 is not "available" or: - "SUCI calculation is to be performed by the ME" (i.e. Service n°124 is "available", and Service n°125 is not "available") the status word '6985' (Conditions of use not satisfied) shall be returned.	M

Reference: TS 31.102 [3], clause 7.5.

7.3.3.3 Test purpose

To verify that the UICC conforms to the above requirements.

7.3.3.4 Method of test

Initial conditions 1

1) Service n°124 and service n°125 are both "available" in the USIM.

2) The Profile B protection scheme is configured to be used in the USIM, and the corresponding home network public key(compressed or uncompressed) is provisioned in the USIM.

3) The USIM supports ECIES scheme profile B.

4) The UICC shall be connected to an ME simulator.

Test procedure 1

a) The ME simulator shall reset the UICC.

b) The ME simulator shall send a SELECT command to the UICC to select the USIM application.

c) The ME simulator shall send a GET IDENTITY command to the UICC.

The status condition returned by the UICC shall be SW1 = '69', SW2 = '82' - security status not satisfied [CR3],

or, *SW1 = '69', SW2 = '85' - conditions of use not satisfied [CR7].*

d) The ME simulator shall reset the UICC.

e) The ME simulator shall send a SELECT command to the UICC to select the USIM application.

f) The ME simulator shall send a VERIFY PIN command with PIN to the UICC.

g) The ME simulator shall send a SELECT command to the UICC to select the MF.

h) The ME simulator shall send a GET IDENTITY command to the UICC.

The command shall be aborted [CR2].

i) The ME simulator shall send a SELECT command to the UICC to select the current ADF ('7FFF').

j) The ME simulator shall send a GET IDENTITY command to the UICC with correct data.

The data field returned shall begin with the tag 'A1', and the data shall be correct for the ECIES scheme profile B *and home network public key stored in the UICC [CR1, CR2, CR3, CR4].*

k) The ME simulator shall send a GET IDENTITY command to the UICC with correct data.

The data field returned shall begin with the tag 'A1', and the data shall be correct for the ECIES scheme profile B *and home network public key stored in the UICC [CR1, CR2, CR3, CR4].*

The data shall be different with j) [CR5].

Initial conditions 2

1) Service n°124 and service n°125 are both "available" in the USIM.

2) The Profile A protection scheme is configured to be used in the USIM, and the corresponding home network public key(compressed or uncompressed) is provisioned in the USIM.

3) The USIM supports ECIES scheme profile A.

4) The UICC shall be connected to an ME simulator.

Test procedure 2

a) The ME simulator shall reset the UICC.

b) The ME simulator shall send a SELECT command to the UICC to select the USIM application.

c) The ME simulator shall send a GET IDENTITY command to the UICC.

The status condition returned by the UICC shall be SW1 = '69', SW2 = '82' - security status not satisfied [CR3].

d) The ME simulator shall reset the UICC.

e) The ME simulator shall send a SELECT command to the UICC to select the USIM application.

f) The ME simulator shall send a VERIFY PIN command with PIN to the UICC.

g) The ME simulator shall send a SELECT command to the UICC to select the MF.

h) The ME simulator shall send a GET IDENTITY command to the UICC.

The command shall be aborted [CR2].

i) The ME simulator shall send a SELECT command to the UICC to select the current ADF ('7FFF').

j) The ME simulator shall send a GET IDENTITY command to the UICC with correct data.

The data field returned shall begin with the tag 'A1', and the data shall be correct for the ECIES scheme profile A *and home network public key stored in the UICC [CR1, CR2, CR3, CR4].*

k) The ME simulator shall send a GET IDENTITY command to the UICC with correct data.

The data field returned shall begin with the tag 'A1', and the data shall be correct for the ECIES scheme profile A *and home network public key stored in the UICC [CR1, CR2, CR3, CR4]*

The data shall be different with j) [CR5].

Initial conditions 3

1) Service n°124 and service n°125 are both "available" in the USIM.

2) The home network public key is not provisioned, or null-scheme is configured to be used in the USIM.

3) The UICC shall be connected to an ME simulator.

Test procedure 3

a) The ME simulator shall reset the UICC.

b) The ME simulator shall send a SELECT command to the UICC to select the USIM application.

c) The ME simulator shall send a GET IDENTITY command to the UICC.

The status condition returned by the UICC shall be SW1 = '69', SW2 = '82' - security status not satisfied [CR3].

d) The ME simulator shall reset the UICC.

e) The ME simulator shall send a SELECT command to the UICC to select the USIM application.

f) The ME simulator shall send a VERIFY PIN command with PIN to the UICC.

g) The ME simulator shall send a SELECT command to the UICC to select the MF.

h) The ME simulator shall send a GET IDENTITY command to the UICC.

The command shall be aborted [CR2].

i) The ME simulator shall send a SELECT command to the UICC to select the current ADF ('7FFF').

j) The ME simulator shall send a GET IDENTITY command to the UICC with correct data.

The data field returned shall begin with the tag 'A1', and the data shall be correct for the given Null-scheme [CR6].

k) The ME simulator shall send a GET IDENTITY command to the UICC with correct data.

The data field returned shall begin with the tag 'A1', and the data shall be correct for the given Null-scheme [CR6].

The data shall be the same with j) [CR5].

Initial conditions 4

1) Service n°124 is not "available" in the USIM, or Service n°124 is "available", and Service n°125 is not "available" in the USIM.

2) The home network public key is provisioned in the USIM.

3) The UICC shall be connected to an ME simulator.

Test procedure 4

a) The ME simulator shall reset the UICC.

b) The ME simulator shall send a SELECT command to the UICC to select the USIM application.

c) The ME simulator shall send a GET IDENTITY command to the UICC.

The status condition returned by the UICC shall be SW1 = '69', SW2 = '85' - conditions of use not satisfied [CR7].

d) The ME simulator shall reset the UICC.

e) The ME simulator shall send a SELECT command to the UICC to select the USIM application.

f) The ME simulator shall send a VERIFY PIN command with PIN to the UICC.

g) The ME simulator shall send a SELECT command to the UICC to select the MF.

h) The ME simulator shall send a GET IDENTITY command to the UICC.

The command shall be aborted [CR2].

i) The ME simulator shall send a SELECT command to the UICC to select the current ADF ('7FFF').

j) The ME simulator shall send a GET IDENTITY command to the UICC with correct data.

The status condition returned by the UICC shall be SW1 = '69', SW2 = '85' - conditions of use not satisfied [CR7].

7.4 Void

8 Test Procedure (31.101)

This clause details each of the tests in each of the test groups within the Test Group Ts 31.101 [2]. This test suite allows testing of the IUT against the base specification with respect to:

- General 3GPP platform requirements
- Physical and logical characteristics
- User verification and file access conditions
- Files.

8.1 General 3GPP platform requirements

8.1.1 GSM/USIM application interaction and restrictions

8.1.1.1 Definition and applicability

See clause 3.5.3.

8.1.1.2 Conformance requirement

CR1	Activation of a USIM session shall exclude the activation of a GSM session.	Rel-6 - …
CR2	Once a USIM application session has been activated, commands sent to the UICC with CLA byte set to 'A0' shall return SW1SW2 '6E 00' (class not supported) to the ME.	Rel-6 - …
CR3	Activation of a GSM session shall exclude the activation of a USIM session.	Rel-6 - …

Reference: TS 31.101 [2], clause 4.1.

8.1.1.3 Test purpose

To verify that the UICC conforms to the above requirements.

NOTE: CR3 is not tested as it is out of the scope of the present document.

8.1.1.4 Method of test

Initial conditions

1) The UICC shall be connected to a ME simulator.

Test procedure 1

a) The ME simulator shall reset the UICC.

b) The ME simulator shall send a SELECT command to the UICC to select and activate USIM application.

c) The ME simulator shall send a STATUS command with 'A0' as the class byte.

The status condition returned by the UICC shall be SW1 = '6E', SW2 = '00' – class not supported [CR1, CR2].

d) The ME simulator shall send a STATUS command with '80' as the class byte.

The status condition returned by the UICC shall be SW1 = '90', SW2 = '00' – normal ending of a command [CR1].

8.2 Physical and logical characteristics

8.2.1 Transmission speed

8.2.1.1 Definition and applicability

See clause 3.5.3.

8.2.1.2 Conformance requirement

CR1	The UICC shall support (F, D) = (512, 32) in addition to those required by TS 102.221 [1].	Rel-6 - …

Reference: TS 31.101 [2], clause 5.1.

8.2.1.3 Test purpose

To verify that the UICC conforms to the above requirements.

8.2.1.4 Method of test

Initial conditions

1) The UICC shall be connected to a ME simulator.

Test Procedure 1

a) The ME simulator shall cold reset the UICC.

b) The ME simulator shall send a PPS-Request to the UICC, selecting T = 0 protocol and (F, D) = (512, 32).

The UICC shall send a valid PPS-Response indicating support for the requested parameters.

c) The ME simulator shall send a STATUS command with P2 = '00' at (F, D) = (512, 32).

The UICC shall send a status word indicating successful command execution [CR1].

Test Procedure 2

a) The ME simulator shall cold reset the UICC.

b) The ME simulator shall send a PPS-Request to the UICC, selecting T = 1 protocol and (F, D) = (512, 32).

The UICC shall send a valid PPS-Response indicating support for the requested parameters.

c) The ME simulator shall send a STATUS command with P2 = '00' at (F, D) = (512, 32).

The UICC shall send a status word indicating successful command execution [CR1].

8.2.2 Voltage classes

8.2.2.1 Definition and applicability

See clause 3.5.3.

8.2.2.2 Conformance requirement

CR1	A UICC holding a USIM application shall support at least two consecutive voltage classes as defined in TS 102.221 [1], e.g. AB or BC.	Rel-6 - …
CR2	If the UICC supports more than two classes, they shall all be consecutive, e.g. ABC.	Rel-6 - …

Reference: TS 31.101 [2], clause 5.2.

8.2.2.3 Test purpose

To verify that the UICC conforms to the above requirements.

8.2.2.4 Method of test

Initial conditions

1) The UICC shall be connected to a ME simulator.

Test procedure 1

a) The ME simulator shall reset the UICC.

The UICC shall send the ATR sequence.

The supply voltage class indicator (the lower 6 bits in TA(i) after the first occurrence of T = 15 in TD(i-1) for I > 2) shall be exist and one of the following values:

- *'03', '06', '07' [CR1, CR2].*

8.2.3 File Control Parameters (FCP)

8.2.3.1 Definition and applicability

See clause 3.5.3.

8.2.3.2 Conformance requirement

CR1	The value indicated in the Minimum application clock frequency object shall not exceed 3 MHz, corresponding to '1E'.	Rel-6 - …

Reference: TS 31.101 [2], clause 5.3.

8.2.3.3 Test purpose

To verify that the UICC conforms to the above requirements.

8.2.3.4 Method of test

Initial conditions

1) The UICC shall be connected to a ME simulator.

Test procedure 1

a) The ME simulator shall reset the UICC.

b) The ME simulator shall send a SELECT command with AID to the UICC to select and activate the USIM application.

The status returned by the UICC shall be SW1 = '90', SW2 = '00' – normal ending of the command.

If the returned FCP contains the Proprietary Information object (Tag 'A5') and the Proprietary Information object contains the Minimum application clock frequency object (Tag '82') then:

- *The Application minimum clock frequency value shall not exceed '1E', which corresponds to 3 MHz. [CR1]*

8.3 User verification and file access conditions

8.3.1 Definition and applicability

See clause 3.5.3.

8.3.2 Conformance requirement

CR1	Every file related to a 3GPP application shall have a reference to an access rule stored in EF_{ARR}.	Rel-6 - …
CR2	A multi-verification capable UICC holding a 3GPP application shall support the referenced format using SEID as defined in TS 102 221 [1].	Rel-6 - …: O_MULTI_VER
CR3	A 3GPP application residing on a multi-verification capable UICC shall support the replacement of its application PIN with the Universal PIN, key reference '11', as defined in TS 102 221 [1].	Rel-6 - …: O_MULTI_VER
CR4	Only the Universal PIN is allowed as a replacement.	Rel-6 - …: O_MULTI_VER

Reference: TS 31.101 [2], clause 7.

8.3.3 Test purpose

To verify that the UICC conforms to the above requirements.

NOTE 1: CR3 is tested in the clause 6.6.3.

NOTE 2: CR4 is not currently tested in this document.

8.3.4 Method of test

Initial conditions

1) The UICC shall be connected to a ME simulator.

Test procedure 1

a) The ME simulator shall reset the UICC.

b) The ME simulator shall send a SELECT command to the UICC to select and activate USIM application.

c) The ME simulator shall send a SELECT command to the UICC to select the first EF in the USIM application.

The response data shall contain the TLV DO with with tag '8B' indicating Referenced Security Attributes and shall contain the file ID and EF_{ARR} record numbers for SEID = 0 and SEID = 1 [CR1, CR2].

d) Step c) shall be repeated for all the EFs under the selected USIM in the UICC.

Test procedure 2

a) The ME simulator shall reset the UICC.

b) The ME simulator shall send a SELECT command to the UICC to select and activate USIM application.

c) The ME simulator shall send a SELECT command to the UICC to select the first EF in the USIM application.

The response data shall contain the TLV DO with with tag '8B' indicating Referenced Security Attributes [CR1].

d) Step c) shall be repeated for all the EFs under the selected USIM in the UICC.

8.4 Files

8.4.1 Contents of the EFs at the MF level

8.4.1.1 Definition and applicability

See clause 3.5.3.

8.4.1.2 Conformance requirement

CR1	EF_{ARR} under MF is mandatory.	Rel-6 - …
CR2	EF_{DIR} entries for 3GPP applications shall contain the Application Identifier and the Application Label as mandatory elements.	Rel-6 - …
CR3	EF_{DIR} entries for 3GPP applications shall not contain a path object for application selection.	Rel-6 - …

Reference: TS 31.101 [2], clause 8.1.

8.4.1.3 Test purpose

To verify that the Elementary Files within the UICC application structure conform to the above requirements.

8.4.1.4 Method of test

Initial conditions

1) The UICC shall be connected to a ME simulator.

Test procedure 1

a) The ME simulator shall reset the UICC.

b) The ME simulator shall send a SELECT command to the UICC to select EF_{ARR}.

The status condition returned by the UICC shall be SW1 = '90', SW2 = '00' – normal ending of the command [CR1].

c) The ME simulator shall send a SELECT command to the UICC to select EF_{DIR}.

d) Step e) shall be repeated for each record in EF_{DIR}.

e) The ME simulator shall send a READ RECORD command with NEXT mode to the UICC.

If the EF_{DIR} entry contains a 3GPP application (i.e. contains an AID matching the AID of a 3GPP application as defined in TS 101 220 [15]), then:

- *the Application Label shall be present [CR2];*
- *a File Reference (tag '51') TLV DO shall not be present [CR3].*

Annex A (informative): Change history

Change history							
Date	**Meeting**	**TDoc**	**CR**	**Rev**	**Cat**	**Subject/Comment**	**New version**
2000-12	TP-10	TP-000206	-	-	-	Final draft was approved at TSG-T #10	3.0.0
2001-12	TP-10	TP-010247	001	-	F	Corrections	3.1.0
2001-12	TP-10	TP-010247	004	1	F	Change test for TLV DO with tag '82' and '83'	3.1.0
2002-03	TP-15	TP-020067	005	-	F	Removal of an invalid transfer protocol test case	3.2.0
2002-03	TP-15	TP-020067	006	-	F	Corrections	3.2.0
2002-06	TP-16	TP-020118	007	-	F	General Corrections	3.3.0
2002-06	TP-16	TP-020118	008	-	F	Removal of test for use of procedure byte '61xx' for case 2 commands	3.3.0
2002-09	TP-17	TP-020216	009	-	F	Expected remainder of returned data string	3.4.0
2002-09	TP-17	TP-020216	010	-	F	Corrections and Clarifications	3.4.0
2002-09	TP-17	TP-020216	011	-	F	Correction of error in read binary test case for T=0	3.4.0
2002-09	TP-17	TP-020216	012	-	F	Alignment of conformance requirement due to CR 088 on TS 102 221	3.4.0
2002-09	TP-17	TP-020216	013	-	F	Correction of case 3/case 4 command tests in case of wrong P1-P2.	3.4.0
2002-12	TP-18	TP-020287	014	-	F	Correction of test of Read Record on Linear Fixed EF and T=1 test	3.5.0
2003-03	TP-19	TP-030029	015	-	F	Correction to the returned FCP of the SELECT and the STATUS command	3.6.0
2003-12	TP-22	TP-030256	016	-	D	Editorial Corrections	3.7.0
2004-12	TP-26	TP-040264	017	-	F	Correction of non specific references	3.8.0
2004-12	TP-26	-	-	-		Upgrade to Rel-4	4.0.0
2005-06	CT-28	CP-050136	018	-	A	Correction of ISO/IEC 7816 Series References	4.1.0
2005-06	CT-28	CP-050136	020	-	A	ISO/IEC 7811 Series Revision	4.1.0
2005-09	CT-29	CP-050337	021	-	F	CR to TS 31.122, Release 4: Creation of a Release 6 Version of TS 31.122	6.0.0
2006-03	CT-31	CP-060158	022	1	F	Essential Corrections to many test cases, which would cause the USIM to fail essential tests	6.1.0
2006-09	CT-33	CP-060477	0023	2	F	Updates to Physical characteristics tests	6.2.0
2006-09	CT-33	CP-060477	0032	1	F	Updates based on changes to 31.102	6.2.0
2006-09	CT-33	CP-060477	0026	2	F	Updates to Protocol Tests	6.2.0
2006-09	CT-33	CP-060477	0031	1	F	Refinement of tests for shareable files	6.2.0
2006-09	CT-33	CP-060477	0027	1	F	Removal of Test Groups	6.2.0
2006-09	CT-33	CP-060477	0029	1	F	Addition of tests for current file after application session termination	6.2.0
2006-09	CT-33	CP-060477	0030	3	F	Addition of tests for 31.101	6.2.0
2006-11	CT-34	CP-060726	0028	5	F	Addition of tests for BER-TLV structure files and Data Oriented commands	6.3.0
2006-11	CT-34	CP-060726	0029	-	F	Addition of tests for (F, D) = (512, 64) and introduction of Test Cases related to Low Impedance Drivers	6.3.0
2007-03	CT-35	CP-070061	0036	2	F	Creation of combined R99 – Rel-6 version, by addition of applicability tables	6.4.0
2007-06	-	-	-	-	-	Update to Rel-7 version (MCC)	7.0.0
2007-09	CT-37	CP-070618	0037	-	F	Addition of applicability column for Rel-7	7.1.0
2007-09	CT-37	CP-070618	0039	1	F	Essential corrections to various tests	7.1.0
2007-09	CT-37	CP-070618	0040	1	F	Correction to test for Reservation of file IDs	7.1.0
2007-09	CT-37	CP-070618	0041	1	F	Replacement of EF_{SMS} with EF_{ECC} for SEARCH RECORD (SFI) test	7.1.0
2007-09	CT-37	CP-070618	0046	1	F	Essential correction of FCP content in test 6.8.1.2	7.1.0
2009-03	CT-42					Upgraded without technical change to Rel-8	8.0.0
2009-04						Update history box	8.0.1
2009-12	CT-46					Upgraded without technical change to Rel-9	9.0.0
2010-09	CT-49	CP-100588	0049	1	F	Essential correction of SET DATA, Delete Tag test case	9.1.0
2010-12	CT-50	CP-100832	0050	1	F	Correction to RETRIEVE DATA test sequence	9.2.0
2010-12	SP-51					Upgraded without technical change to Rel-10	10.0.0
2012-09	SP-57					Upgraded without technical change to Rel-11	11.0.0
2013-06	CT-60	CP-130369	0051	1	F	Correction of a misleading note for threshold measurements on contact C3 (CLK).	11.1.0
2014-10	SP-65					Upgraded without technical change to Rel-12	12.0.0
2015-12	CT-70	CP-150828	0056	3	F	Specify the status condition returned if search pattern can not be found in any of the records	13.0.0
2017-03	SA-75	-	-	-	-	Update to Rel-14 version (MCC)	14.0.0
2018-06	CT-80	CP-181155	0057	-1	F-	Remove platform related testcases from 31.122 as they are added to ETSI specification 102.230-2.	15.0.0
2019-06	CT-84	CP-191015		1	F	Add missing Rel-8 onwards applicability in the applicability table	15.1.0
2019-06	CT-84	CP-191019		3	B	Extend the scope of 31.122 to cover USIM Command GET IDENTITY	15.1.0
2020-06	CT#88e	CP-201150	0065	1	B	Update test case of 7.3.3 GET IDENTITY	15.2.0
2020-07	SA-89e	-	-	-	-	Update to Rel-16 version (MCC)	16.0.0
2020-09	CT#89e	CP-202130	0066	1	A	Update of spec. reference	16.1.0
2020-12	CT#90e	CP-203093	0068	1	F	Correction of a reference to ETSI TS 102 230-2	16.2.0
2021-06	CT#92e	CP-211099	0070	-	F	Correction of test case 7.3.3	16.3.0
2022-04	-	-	-	-		Update to Rel-17 version (MCC)	17.0.0

2022-06	CT#96	CP-221171	0073	-	D	Correction of the Applicability table	17.1.0
2022-06	CT#96	CP-221171	0074	1	F	Simplification of TS 31.122	17.1.0

History

Document history		
V17.0.0	April 2022	Publication
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