

Agenda Item: 5.3.3

Source: T3

Title: CRs for TS 31.121

Document for: approval

This document contains following change requests that were approved by 3GPP TSG T3 and are forwarded to 3GPP TSG T#24 for approval:

Doc-2nd-Level	Spec	CR	Rev	Phase	Subject	Cat	Version Current	Version -New	WI
T3-040337	31.121	030		R99	Removal of EF_RPLMNACT and related tests	F	3.8.0	3.9.0	TEI
T3-040338	31.121	031		Rel-4	Removal of EF_RPLMNACT and related tests	A	4.7.0	4.8.0	TEI
T3-040339	31.121	032		R99	Security related tests	F	3.8.0	3.9.0	TEI
T3-040340	31.121	033		Rel-4	Security related tests	A	4.7.0	4.8.0	TEI

CR-Form-v7	
CHANGE REQUEST	
⌘ 31.121 CR 030 ⌘ rev - ⌘	Current version: 3.8.0 ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: UICC apps ME Radio Access Network Core Network

Title:	⌘ CR 31.121 R99: Removal of EF_RPLMNACT and related tests		
Source:	⌘ T3		
Work item code:	⌘ TEI	Date:	⌘ 29/04/2004
Category:	⌘ F	Release:	⌘ R99
	<i>Use one of the following categories:</i> F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		<i>Use one of the following releases:</i> 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)

Reason for change:	⌘ EF_RPLMNACT was deleted in 3GPP TS 31.102 R99
Summary of change:	⌘ EF_RPLMNACT deleted and test 7.2.3 modified and tests 7.2.4 (now already covered by 7.2.2) and 7.5 deleted.
Consequences if not approved:	⌘ Inconsistency between 3GPP TS 31.102 and 3GPP TS 31.121

Clauses affected:	⌘ 3.3, 4.1.1, 4.1.1.13, 7, 7.2.3, 7.2.4, 7.5										
Other specs affected:	<table border="1" style="font-size: x-small;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> </tr> </table>	Y	N	X	X	X	X	X	X	Other core specifications	⌘
	Y	N									
	X	X									
X	X										
X	X										
		Test specifications									
		O&M Specifications									
Other comments:	⌘										

How to create CRs using this form:

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- 1) Fill out the above form. The symbols above marked ¶ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

3.3 Abbreviations

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

3G	3 rd Generation
3GPP	3 rd Generation Partnership Project
ACC	ACcess Class
ACL	APN Control List
ACM	Accumulated Call Meter
ACMmax	ACM maximal value
ACT	ACcess Technology
ADF	Application Dedicated File
AoC	Advice of Charge
AoCC	Advice of Charge Charging
APN	Access Point Name
ATR	Answer To Reset
BCCH	Broadcast Control Channel
BCD	Binary Coded Decimal
BDN	Barred Dialling Number
CCI	Capability / 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

4.1.1 Values of the EF's (Default UICC)

[..]

4.1.1.13 ~~Void~~EF_{RPLMNACT} (~~RPLMN Last used Access Technology~~)

~~Logically: No information about the last used ACT available.~~

~~Coding: B1 B2
Hex 00 00~~

[..]

7 PLMN related tests

[..]

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: B4 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 ~~Void 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:	B4	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_{LOC}~~ (Location Information)

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

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

~~EF_{RPLMNACT}~~ (Registered PLMN last used Access Technology)

Logically: ~~Last registered ACT shall be set to UTRAN~~

Coding:	B4	B2
Hex	80	00

[..]

7.5 Void ~~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 to TS 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_{LOC}(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_{PLMNACT} (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_{LOC} (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~~

CR-Form-v7	
CHANGE REQUEST	
⌘ 31.121 CR 031 ⌘ rev - ⌘	Current version: 4.7.0 ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: UICC apps ME Radio Access Network Core Network

Title:	⌘ CR 31.121 Rel-4: Removal of EF_RPLMNACT and related tests		
Source:	⌘ T3		
Work item code:	⌘ TEI	Date:	⌘ 29/04/2004
Category:	⌘ A	Release:	⌘ Rel-4
	<i>Use one of the following categories:</i> F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		<i>Use one of the following releases:</i> 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)

Reason for change:	⌘ EF_RPLMNACT was deleted in 3GPP TS 31.102 Rel-4
Summary of change:	⌘ EF_RPLMNACT deleted and test 7.2.3 modified and tests 7.2.4 (now already covered by 7.2.2) and 7.5 deleted.
Consequences if not approved:	⌘ Inconsistency between 3GPP TS 31.102 and 3GPP TS 31.121

Clauses affected:	⌘ 3.3, 4.1.1, 4.1.1.13, 7, 7.2.3, 7.2.4, 7.5								
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	Y	N							
	X	X							
X	X								
Test specifications									
O&M Specifications									
Other comments:	⌘								

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CCM	Current Call Meter
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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
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RRC	Radio Resource Control
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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

4.1.1 Values of the EF's (Default UICC)

[..]

4.1.1.13 ~~Void~~EF_{RPLMNACT} (~~RPLMN Last used Access Technology~~)

~~Logically: No information about the last used ACT available.~~

~~Coding: B1 B2~~
~~Hex 00 00~~

[..]

7 PLMN related tests

[..]

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: B4 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

- The UE is powered on.
- After receipt of a CHANNEL REQUEST from the UE, the SS sends IMMEDIATE ASSIGNMENT to the UE.
- After receipt of a LOCATION 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:	B4	B2
Hex	00	80

~~7.2.4 Void 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:	B4	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_{LOC} (Location Information)~~

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

Coding:	B4	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:	B4	B2
Hex	80	00

7.5 Void ~~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 to TS 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_{LOC} (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.
- e) 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_{LOC} (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

3GPP TSG T WG3 Meeting #31
 Berlin, Germany, 27th – 30th April 2004

T3-040339
 (revised T3-40234)

CR-Form-v7	
CHANGE REQUEST	
⌘ 31.121 CR 032 ⌘ rev - ⌘ Current version: 3.8.0 ⌘	

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: UICC apps ME Radio Access Network Core Network

Title:	⌘ CR 31.121 R99: Security related tests		
Source:	⌘ T3		
Work item code:	⌘ TEI	Date:	⌘ 29/04/2004
Category:	⌘ F	Release:	⌘ R99
	Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)

Reason for change:	⌘ Correction of FDN and BDN tests in relation with emergency call and insufficient PIN related tests
Summary of change:	⌘ <ol style="list-style-type: none"> 1) FDN and BDN test related to emergency calls corrected 2) Tests for Universal PIN inserted 3) Implicit testing when the SFI value of EF ACM is different to the recommended value introduced 4) Update of references
Consequences if not approved:	⌘ Incorrect and insufficient security related tests

Clauses affected:	⌘ 3.3, 4, 4.1.1, 4.1.1.7, 4.1.1.11, 4.1.1.14, 4.1.1.15, 4.1.1.16, 4.1.1.17, 4.1.1.18, 6.1, 6.1.1.2, 6.1.2.2, 6.1.3.2, 6.1.4.2, 6.1.5.2, 6.1.6.2, 6.2.1.2, 6.2.1.3, 6.2.1.4.2, 6.2.1.5, 6.2.2.2, 6.2.3.2, 6.3.1.2, 6.3.1.4.2, 6.3.2.2, 6.4.1.2, 6.4.2.2, 6.4.2.3, 6.4.2.4.1, 6.4.2.4.2, 6.4.3.2, 6.4.3.3, 6.4.3.4.1, 6.4.3.4.2, 6.4.4.2, 6.4.4.3, 6.4.4.4.1, 6.4.4.4.2							
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;">Y</td> <td style="text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> </table> Other core specifications	Y	N		X		X	⌘
Y	N							
	X							
	X							
	Test specifications	⌘						

<input type="checkbox"/>	<input checked="" type="checkbox"/>	O&M Specifications	
Other comments: ☼			

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.htm>. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ☼ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

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] 3GPP TS 44.018: "Mobile radio interface layer 3 specification; Radio Resource Control Protocol".
 - [16] 3GPP TS 24.008: "Mobile radio interface Layer 3 specification; Core Network protocols; Stage 3".
 - [17] 3GPP TS 24.080: "Mobile radio Layer 3 supplementary service specification; Formats and coding".
 - [18] 3GPP TS 22.086: "Advice of Charge (AoC) supplementary services; Stage 1".
 - [19] 3GPP TS 21.111: "USIM and IC card requirements".
 - [20] 3GPP TS 25.331 "Radio Resource Control (RRC); Protocol Specification"

3.3 Abbreviations

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

3G	3 rd Generation
3GPP	3 rd Generation Partnership Project
ACC	ACcess Class
ACL	APN Control List
ACM	Accumulated Call Meter
ACMmax	ACM maximal value
ACT	ACcess Technology
ADF	Application Dedicated File
AoC	Advice of Charge
AoCC	Advice of Charge Charging
APN	Access Point Name
ATR	Answer To Reset
BCCH	Broadcast Control Channel
BCD	Binary Coded Decimal
BDN	Barred Dialling Number
CCI	Capability / 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
RRC	Radio Resource Control
<u>SFI</u>	<u>Short File Identifier</u>
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

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[5], 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)

[..]

4.1.1.7 EF_{FPLMN} (Forbidden PLMNs)

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

Logically:	PLMN1:	234 001 (MCC MNC)											
	PLMN2:	234 002											
	PLMN3:	234 003											
	PLMN4:	234 004											
	PLMN5:	234 005											
	PLMN6:	234 006											
Coding:	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	
Hex	32	14	00	32	24	00	32	34	00	32	44	00	
	B13	B14	B15	B16	B17	B18							
	32	54	00	32	64	00							

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

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

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

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

4.1.1.14 PIN

[Key reference: 01](#)

Logically: 2468

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

4.1.1.15 PIN2

[Key reference: 81](#)

Logically: 3579

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

4.1.1.16 Unblock PIN

[Key reference: 01](#)

Logically: 13243546

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

4.1.1.17 Unblock PIN2

[Key reference: 81](#)

Logically: 08978675

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

4.1.1.18 Other Values of the USIM

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

4.1.1.19 EF_{PSLOCI} (Packet Switch Location Information)

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

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

Coding:	B12	B13	B14
Hex	01	05	00

4.1.1.20 Universal PIN

Key reference: 11

Logically: 2839

<u>Coding:</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>	<u>B6</u>	<u>B7</u>	<u>B8</u>
<u>Hex</u>	<u>32</u>	<u>38</u>	<u>33</u>	<u>39</u>	<u>FF</u>	<u>FF</u>	<u>FF</u>	<u>FF</u>

4.1.1.21 Unblock Universal PIN

Key reference: 11

Logically: 0203040506

<u>Coding:</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>	<u>B6</u>	<u>B7</u>	<u>B8</u>
<u>Hex</u>	<u>30</u>	<u>32</u>	<u>30</u>	<u>33</u>	<u>30</u>	<u>34</u>	<u>30</u>	<u>35</u>

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

6.1.1.3 Test purpose

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

6.1.1.4 Method of test

6.1.1.4.1 Initial conditions

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

The default UICC is used.

6.1.1.4.2 Procedure

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

6.1.1.5 Acceptance criteria

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

6.1.2 Change of PIN

6.1.2.1 Definition and applicability

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

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[5], subclause 11.1.10.

Reference:

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

6.1.2.3 Test purpose

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

6.1.2.4 Method of test

6.1.2.4.1 Initial conditions

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

The default UICC is used.

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

6.1.2.4.2 Procedure

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

6.1.2.5 Acceptance criteria

- 1) After step a), the Terminal shall send a CHANGE PIN command to the UICC, with the parameter P2 set to "01".
- 2) Following the successful execution of the command, the UE shall give an indication that the new PIN is accepted.
- 3) After step c), the UE shall give an indication that the entered PIN is not accepted.
- 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[5] subclause 11.1.13.

Reference:

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

6.1.3.3 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[5], subclauses [9](#) and [11.1.9](#);
- TS 31.102[4], clause 6;
- TS 22.030 [12], subclause 6.6.1.

6.1.4.3 Test purpose

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

6.1.4.4 Method of test

6.1.4.4.1 Initial conditions

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

The default UICC is used.

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

6.1.4.4.2 Procedure

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

6.1.4.5 Acceptance criteria

- 1) After step 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[5], subclause 11.1.10.

Reference:

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

6.1.5.3 Test purpose

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

6.1.5.4 Method of test

6.1.5.4.1 Initial conditions

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

The default UICC is used.

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

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

6.1.5.4.2 Procedure

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

6.1.5.5 Acceptance criteria

- 1) After step a), the Terminal shall send a CHANGE PIN2 command to the UICC, with the parameter P2 set to "81".
- 2) Following the successful execution of the command, the UE shall give an indication that the new PIN2 is accepted.
- 3) After step d), the UE shall give an indication that the entered PIN2 is not accepted.
- 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[5], subclause 11.1.13.

Reference:

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

6.1.6.3 Test purpose

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

6.1.6.4 Method of test

6.1.6.4.1 Initial conditions

The Terminal is connected to the UICC simulator.

The default UICC is used.

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

6.1.6.4.2 Procedure

- a) The Terminal is powered on and the correct PIN is entered.
- b) Enter "***052*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.

6.1.7 Replacement of PIN

6.1.7.1 Definition and applicability

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

This test applies to all 3G Terminals.

6.1.7.2 Conformance requirement

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

Reference:

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

6.1.7.3 Test purpose

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

6.1.7.4 Method of test

6.1.7.4.1 Initial conditions

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

The default UICC is used.

6.1.7.4.2 Procedure

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

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

6.1.7.5 Acceptance criteria

- 1) After step b) the Terminal shall send a VERIFY PIN command to the UICC, with parameter P2 = "01".
- 2) After step c), the Terminal shall send a DISABLE PIN command to the UICC, with parameter P1="91" and P2 = "01".
- 3) After step d) the Terminal shall send a VERIFY PIN command to the UICC, with parameter P2 = "11" and after unsuccessful execution of the command the Terminal shall indicate that the PIN has not been accepted.
- 4) After step e) the Terminal shall send a VERIFY PIN command to the UICC, with parameter P2 = "11" and after successful execution of the command the Terminal shall indicate that the PIN has been accepted.
- 5) After step f), the Terminal shall send an ENABLE PIN command to the UICC, with parameter P2 = "01".
- 6) After step g) the Terminal shall send a VERIFY PIN command to the UICC, with parameter P2 = "01" and after unsuccessful execution of the command the Terminal shall indicate that the PIN has not been accepted.
- 7) After step e) the Terminal shall send a VERIFY PIN command to the UICC, with parameter P2 = "01" and after successful execution of the command the Terminal shall indicate that the PIN has been accepted.

6.1.8 Change of Universal PIN

6.1.8.1 Definition and applicability

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

This test applies to all 3G Terminals.

6.1.8.2 Conformance requirement

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

Reference:

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

6.1.8.3 Test purpose

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

6.1.8.4 Method of test

6.1.8.4.1 Initial conditions

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

The default UICC is used with the following exception:

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

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

6.1.8.4.2 Procedure

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

6.1.8.5 Acceptance criteria

- 1) After step a), the Terminal shall send a CHANGE PIN command to the UICC, with the parameter P2 set to "11".
- 2) Following the successful execution of the command, the UE shall give an indication that the new (Universal) PIN is accepted.
- 3) After step c), the UE shall give an indication that the entered (Universal) PIN is not accepted.
- 4) After step e), the UE shall give an indication "OK".

6.1.9 Unblock Universal PIN

6.1.9.1 Definition and applicability

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

This test applies to all 3G Terminals.

6.1.9.2 Conformance requirement

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

Reference:

- TS 102 221 [5], subclause 11.1.13;

- TS 31.102 [4], clause 6.

6.1.9.3 Test purpose

To verify that the PIN unblocking procedure is performed correctly.

6.1.9.4 Method of test

6.1.9.4.1 Initial conditions

The Terminal is connected to the UICC simulator.

The default UICC is used.

6.1.9.4.2 Procedure

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

6.1.9.5 Acceptance criteria

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

6.2 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 **does not allow**s call set-up of an emergency call using the emergency number stored in the Terminal except "112", "911" and the emergency numbers stored on the SIM/USIM.
- 7) The UE allows call set-up of an emergency call using the emergency number stored in the USIM.

Reference:

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

6.2.1.3 Test purpose

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

6) To verify that the Terminal allows emergency call set-up using the emergency number stored in the USIM.

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~~an emergency call code stored in the Terminal, but not "112", "911" nor one of the emergency numbers stored on the SIM/USIM.
- g) Using the MMI an emergency call set-up is attempted using either "112" or "911".
- gh) 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 [111], subclause 8.1, except "112" and "911", shall be used (i.e. "000", "08", ~~112~~, "110", "118", "119" ~~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), e) and ef) the UE shall prevent call set-up.
- 4) After steps fg) and gh) 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 [\[11\]](#), clauses 8 and A.24;
- TS 31.102 [\[4\]](#), subclauses 4.4.2.3, 4.2.24, 4.2.47, 5.1.1 and 5.3.2.

6.2.2.3 Test purpose

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

6.2.2.4 Method of test

6.2.2.4.1 Initial conditions

The USS 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 [11], clause 8 and A.24;
- TS 31.102 [4], subclauses 4.4.2.3, 4.2.24, 4.2.47, 5.1.1 and 5.3.2.

6.2.3.3 Test purpose

- 1) To verify that the Terminal correctly performs the update of a number in EF_{FDN}.

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

6.2.3.4 Method of test

6.2.3.4.1 Initial conditions

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

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

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

6.2.3.4.2 Procedure

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

6.2.3.5 Acceptance criteria

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

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

6.3 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 [11], clause 8 and A.19;
- TS 31.102 [4], 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, which are available when a SIM/USIM is present, according to 22.101 [11], subclause 8 is used (i.e. ~~000, 08, "112", 110, or "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 [11], clauses 8 and A.19;
- TS 31.102 [4], 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 [\[16\]](#), subclause 5.1.2.1;
- TS 23.086 [\[9\]](#), subclauses 1.2, 1.3, 2.2 and 2.3;
- TS 24.086 [\[10\]](#), clause 2.

6.4.1.3 Test purpose

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

- 4) To verify that an UE not supporting AoCC (where the Terminal does support AoCC but the USIM does not) and in the U10 call active state, on receipt of a FACILITY message containing AoCC information, shall ignore and not acknowledge the AoCC information sent within the FACILITY.

6.4.1.4 Method of test

6.4.1.4.1 Initial conditions

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

EF_{UST} (USIM Service Table)

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

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

- For an MO call in the U4 state the USS transmits CONNECT containing AoCC information.
- For an MO call in the U4 state the USS transmits FACILITY containing AoCC information.
- For an MT call in the U9 state the USS transmits FACILITY containing AoCC information.
- 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.

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

Reference:

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

6.4.2.3 Test purpose

- 1) To verify that the interval between increments is 5 s.
- 2) To verify that the Terminal is able to handle other values than '1C' as SFI of EF_{ACM}.

6.4.2.4 Method of test

6.4.2.4.1 Initial conditions

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

EF_{UST} (USIM Service Table)

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

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

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

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

Specific Message Contents:

- i) **FACILITY Information Element** with **Invoke = ForwardChargeInformation** component type as defined in TS 24.080 [17], 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 [8], clause 3.

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

For ASN.1 description see default message contents in 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).

[When used the value 'IC' shall be used as SFI for EF_{ACM}, for compatibility reasons the terminal shall accept other values.](#)

Reference:

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

6.4.3.3 Test purpose

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

6.4.3.4 Method of test

6.4.3.4.1 Initial conditions

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

EF_{UST} (USIM Service Table)

Logically: Local Phone Book available;
 User controlled PLMN selector available;
 Fixed dialling numbers available;

The GSM Access available;
 The Group Identifier level 1 and level 2 not available;
 AoC available;
 Service n 33 (Packed Switched Domain) shall be set to '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

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

EF_{ACMmax} (Accumulated call meter maximum)

Logically: 94 units

Coding:	B1	B2	B3
Binary	0000 0000	0000 0000	0101 1110

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

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

User Equipment:

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

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

Specific Message Contents:

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

For ASN.1 description see default message contents in 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 [8], clause 3.

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

For ASN.1 description see default message contents in 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 its maximum value, then all calls in progress, chargeable to the user, shall be terminated by the UE, once the chargeable interval determined by the CAI has elapsed, (except emergency calls).

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

References:

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

6.4.4.3 Test purpose

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

2) To verify that the Terminal is able to handle other values than 'IC' as SFI of EF_{ACM} .

6.4.4.4 Method of test

6.4.4.4.1 Initial conditions

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

EF_{UST} (USIM Service Table)

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

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

[The SFI of EF_{ACM} shall be set to '18'.](#)

EF_{ACMmax} (Accumulated call meter maximum)

Logically: (Maximum value - 2) units

Coding:	B1	B2	B3
Binary	1111 1111	1111 1111	1111 1101

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

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

User Equipment:

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

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[5], 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	
23	UE -> USS	RRC CONNECTION RELEASE COMPLETE	All connections of RRC are released.

Specific Message Contents:

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

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

e-parameters:

parameter:	e1	e2	e3	e4	e5	e6	e7
Value	20	10	1	0	0	0	0

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

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

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.

3GPP TSG T WG3 Meeting #31
 Berlin, Germany, 27th – 30th April 2004

T3-040340
 (revised T3-040234)

CR-Form-v7

CHANGE REQUEST

⌘ **31.121 CR 033** ⌘ rev **-** ⌘ Current version: **4.7.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: UICC apps ME Radio Access Network Core Network

Title:	⌘ CR 31.121 Rel-4: Security related tests		
Source:	⌘ T3		
Work item code:	⌘ TEI	Date:	⌘ 29/04/2004
Category:	⌘ A	Release:	⌘ Rel-4
Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)	

Reason for change:	⌘ Correction of FDN and BDN tests in relation with emergency call codes and insufficient PIN related tests		
Summary of change:	⌘ <ol style="list-style-type: none"> 1) FDN and BDN test related to emergency calls corrected 2) PIN related tests enhanced to test correct handling of key reference values available only on multi-verification capable UICC and to test Universal PIN handling 3) Implicit testing when the SFI value of EF ACM is different to the recommended value introduced 4) Update of references 		
Consequences if not approved:	⌘ Incorrect and insufficient security related tests		

Clauses affected:	⌘ 3.3, 4, 4.1.1, 4.1.1.7, 4.1.1.11, 4.1.1.14, 4.1.1.15, 4.1.1.16, 4.1.1.17, 4.1.1.18, 6.1, 6.1.1.2, 6.1.2.2, 6.1.3.2, 6.1.4.2, 6.1.5.2, 6.1.6.2, 6.2.1.2, 6.2.1.3, 6.2.1.4.2, 6.2.1.5, 6.2.2.2, 6.2.3.2, 6.3.1.2, 6.3.1.4.2, 6.3.2.2, 6.4.1.2, 6.4.2.2, 6.4.2.3, 6.4.2.4.1, 6.4.2.4.2, 6.4.3.2, 6.4.3.3, 6.4.3.4.1, 6.4.3.4.2, 6.4.4.2, 6.4.4.3, 6.4.4.4.1, 6.4.4.4.2								
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Y</td> <td style="padding: 2px;">N</td> </tr> <tr> <td style="padding: 2px; text-align: center;">X</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px; text-align: center;">X</td> </tr> </table>	Y	N	X			X	Other core specifications	⌘
Y	N								
X									
	X								
		Test specifications	⌘						

<input checked="" type="checkbox"/>	O&M Specifications
-------------------------------------	--------------------

Other comments: ⌘

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.htm>. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/>. For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

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] 3GPP TS 44.018: "Mobile radio interface layer 3 specification; Radio Resource Control Protocol".
 - [16] 3GPP TS 24.008: "Mobile radio interface Layer 3 specification; Core Network protocols; Stage 3".
 - [17] 3GPP TS 24.080: "Mobile radio Layer 3 supplementary service specification; Formats and coding".
 - [18] 3GPP TS 22.086: "Advice of Charge (AoC) supplementary services; Stage 1".
 - [19] 3GPP TS 21.111: "USIM and IC card requirements".
 - [20] 3GPP TS 25.331 "Radio Resource Control (RRC); Protocol Specification"

3.3 Abbreviations

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

3G	3 rd Generation
3GPP	3 rd Generation Partnership Project
ACC	ACcess Class
ACL	APN Control List
ACM	Accumulated Call Meter
ACMmax	ACM maximal value
ACT	ACcess Technology
ADF	Application Dedicated File
AoC	Advice of Charge
AoCC	Advice of Charge Charging
APN	Access Point Name
ATR	Answer To Reset
BCCH	Broadcast Control Channel
BCD	Binary Coded Decimal
BDN	Barred Dialling Number
CCI	Capability / 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
<u>SFI</u>	<u>Short File Identifier</u>
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

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 [\[5\]](#), 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)

[..]

4.1.1.7 EF_{FPLMN} (Forbidden PLMNs)

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

Logically:	PLMN1:	234 001 (MCC MNC)										
	PLMN2:	234 002										
	PLMN3:	234 003										
	PLMN4:	234 004										
	PLMN5:	234 005										
	PLMN6:	234 006										
Coding:	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
Hex	32	14	00	32	24	00	32	34	00	32	44	00
	B13	B14	B15	B16	B17	B18						
	32	54	00	32	64	00						

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

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

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

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

4.1.1.14 PIN

[Key reference: 01](#)

Logically: 2468

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

4.1.1.15 PIN2

[Key reference: 81](#)

Logically: 3579

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

4.1.1.16 Unblock PIN

[Key reference: 01](#)

Logically: 13243546

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

4.1.1.17 Unblock PIN2

[Key reference: 81](#)

Logically: 08978675

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

<u>Coding:</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>	<u>B6</u>	<u>B7</u>	<u>B8</u>
<u>Hex</u>	<u>30</u>	<u>32</u>	<u>30</u>	<u>33</u>	<u>30</u>	<u>34</u>	<u>30</u>	<u>35</u>

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 [\[5\]](#), subclauses [9 and 11.1.9](#);
- TS 31.102 [\[4\]](#), clause 6;
- TS 22.030 [\[12\]](#), subclause 6.6.1.

6.1.1.3 Test purpose

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

6.1.1.4 Method of test

6.1.1.4.1 Initial conditions

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

The default UICC is used.

6.1.1.4.2 Procedure

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

6.1.1.5 Acceptance criteria

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

6.1.2 Change of PIN

6.1.2.1 Definition and applicability

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

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 [\[5\]](#), subclause 11.10.

Reference:

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

6.1.2.3 Test purpose

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

6.1.2.4 Method of test

6.1.2.4.1 Initial conditions

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

The default UICC is used.

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

6.1.2.4.2 Procedure

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

6.1.2.5 Acceptance criteria

- 1) After step a), the Terminal shall send a CHANGE PIN command to the UICC, with the parameter P2 set to "01".
- 2) Following the successful execution of the command, the UE shall give an indication that the new PIN is accepted.
- 3) After step c), the UE shall give an indication that the entered PIN is not accepted.
- 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 [\[5\]](#), subclause 11.13.

Reference:

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

6.1.3.3 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 [\[5\]](#), subclauses [9 and 11.1.9](#);
- TS 31.102 [\[4\]](#), clause 6;
- TS 22.030 [\[12\]](#), subclause 6.6.1.

6.1.4.3 Test purpose

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

6.1.4.4 Method of test

6.1.4.4.1 Initial conditions

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

The default UICC is used.

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

6.1.4.4.2 Procedure

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

6.1.4.5 Acceptance criteria

- 1) After step 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 [\[5\]](#), subclause 11.1.10.

Reference:

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

6.1.5.3 Test purpose

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

6.1.5.4 Method of test

6.1.5.4.1 Initial conditions

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

The default UICC is used.

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

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

6.1.5.4.2 Procedure

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

6.1.5.5 Acceptance criteria

- 1) After step a), the Terminal shall send a CHANGE PIN2 command to the UICC, with the parameter P2 set to "81".
- 2) Following the successful execution of the command, the UE shall give an indication that the new PIN2 is accepted.
- 3) After step d), the UE shall give an indication that the entered PIN2 is not accepted.
- 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 [\[5\]](#), subclause 11.1.13.

Reference:

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

6.1.6.3 Test purpose

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

6.1.6.4 Method of test

6.1.6.4.1 Initial conditions

The Terminal is connected to the UICC simulator.

The default UICC is used.

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

6.1.6.4.2 Procedure

- a) The Terminal is powered on and the correct PIN is entered.
- b) Enter "***052*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.

6.1.7 Replacement of PIN

6.1.7.1 Definition and applicability

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

This test applies to all 3G Terminals.

6.1.7.2 Conformance requirement

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

Reference:

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

6.1.7.3 Test purpose

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

6.1.7.4 Method of test

6.1.7.4.1 Initial conditions

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

The default UICC is used.

6.1.7.4.2 Procedure

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

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

6.1.7.5 Acceptance criteria

- 1) After step b) the Terminal shall send a VERIFY PIN command to the UICC, with parameter P2 = "01".
- 2) After step c), the Terminal shall send a DISABLE PIN command to the UICC, with parameter P1="91" and P2 = "01".
- 3) After step d) the Terminal shall send a VERIFY PIN command to the UICC, with parameter P2 = "11" and after unsuccessful execution of the command the Terminal shall indicate that the PIN has not been accepted.
- 4) After step e) the Terminal shall send a VERIFY PIN command to the UICC, with parameter P2 = "11" and after successful execution of the command the Terminal shall indicate that the PIN has been accepted.
- 5) After step f), the Terminal shall send an ENABLE PIN command to the UICC, with parameter P2 = "01".
- 6) After step g) the Terminal shall send a VERIFY PIN command to the UICC, with parameter P2 = "01" and after unsuccessful execution of the command the Terminal shall indicate that the PIN has not been accepted.
- 7) After step e) the Terminal shall send a VERIFY PIN command to the UICC, with parameter P2 = "01" and after successful execution of the command the Terminal shall indicate that the PIN has been accepted.

6.1.8 Change of Universal PIN

6.1.8.1 Definition and applicability

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

This test applies to all 3G Terminals.

6.1.8.2 Conformance requirement

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

Reference:

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

6.1.8.3 Test purpose

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

6.1.8.4 Method of test

6.1.8.4.1 Initial conditions

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

The default UICC is used with the following exception:

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

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

6.1.8.4.2 Procedure

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

6.1.8.5 Acceptance criteria

- 1) After step a), the Terminal shall send a CHANGE PIN command to the UICC, with the parameter P2 set to "11".
- 2) Following the successful execution of the command, the UE shall give an indication that the new (Universal) PIN is accepted.
- 3) After step c), the UE shall give an indication that the entered (Universal) PIN is not accepted.
- 4) After step e), the UE shall give an indication "OK".

6.1.9 Unblock Universal PIN

6.1.9.1 Definition and applicability

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

This test applies to all 3G Terminals.

6.1.9.2 Conformance requirement

The Terminal shall support the Unblock PIN command, as defined in TS 102 221 [5], subclause 11.13.

Reference:

- TS 102 221 [5], subclause 11.1.13;

- TS 31.102 [4], clause 6.

6.1.9.3 Test purpose

To verify that the PIN unblocking procedure is performed correctly.

6.1.9.4 Method of test

6.1.9.4.1 Initial conditions

The Terminal is connected to the UICC simulator.

The default UICC is used.

6.1.9.4.2 Procedure

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

6.1.9.5 Acceptance criteria

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

6.1.10 Entry of PIN on multi-verification capable UICCs

6.1.10.1 Definition and applicability

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

This test applies to all 3G Terminals.

6.1.10.2 Conformance requirement

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

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

Reference:

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

6.1.10.3 Test purpose

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

6.1.10.4 Method of test

6.1.10.4.1 Initial conditions

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

The default UICC is used with the following exceptions:

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

PIN

Key reference: 07

Logically: 8642

<u>Coding:</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>	<u>B6</u>	<u>B7</u>	<u>B8</u>
<u>Hex</u>	<u>38</u>	<u>36</u>	<u>34</u>	<u>32</u>	<u>FF</u>	<u>FF</u>	<u>FF</u>	<u>FF</u>

Unblock PIN

Key reference 07

Logically: 64534231

<u>Coding:</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>	<u>B6</u>	<u>B7</u>	<u>B8</u>
<u>Hex</u>	<u>36</u>	<u>34</u>	<u>35</u>	<u>33</u>	<u>34</u>	<u>32</u>	<u>33</u>	<u>31</u>

PIN2

Key reference 87

Logically: 9753

<u>Coding:</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>	<u>B6</u>	<u>B7</u>	<u>B8</u>
<u>Hex</u>	<u>39</u>	<u>37</u>	<u>35</u>	<u>33</u>	<u>FF</u>	<u>FF</u>	<u>FF</u>	<u>FF</u>

Unblock PIN2

Key reference 87

Logically: 57687980

<u>Coding:</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>	<u>B6</u>	<u>B7</u>	<u>B8</u>
<u>Hex</u>	<u>35</u>	<u>37</u>	<u>36</u>	<u>38</u>	<u>37</u>	<u>39</u>	<u>38</u>	<u>30</u>

6.1.10.4.2 Procedure

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

6.1.10.5 Acceptance criteria

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

6.1.11 Change of PIN on multi-verification capable UICCs

6.1.11.1 Definition and applicability

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

This test applies to all 3G Terminals.

6.1.11.2 Conformance requirement

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

Reference:

- TS 102 221 [5], subclauses 9 and 11.1.10;

- [TS 31.102 \[4\], clause 6;](#)
- [TS 22.030 \[12\], subclause 6.6.2.](#)

6.1.11.3 Test purpose

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

6.1.11.4 Method of test

6.1.11.4.1 Initial conditions

[The Terminal is connected to the UICC simulator with the PIN enabled.](#)

[The default UICC is used with the following exceptions:](#)

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

PIN

[Key reference: 07](#)

[Logically: 8642](#)

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

[Unblock PIN](#)

[Key reference 07](#)

[Logically: 64534231](#)

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

PIN2

[Key reference 87](#)

[Logically: 9753](#)

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

[Unblock PIN2](#)

[Key reference 87](#)

[Logically: 57687980](#)

<u>Coding:</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>	<u>B6</u>	<u>B7</u>	<u>B8</u>
<u>Hex</u>	<u>35</u>	<u>37</u>	<u>36</u>	<u>38</u>	<u>37</u>	<u>39</u>	<u>38</u>	<u>30</u>

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

6.1.11.4.2 Procedure

- a) Enter "***04*8642*01234567*01234567#".
- b) The UE is switched off and on.
- c) When the UE is in the "PIN check" mode, the sequence "8642#" 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.

6.1.11.5 Acceptance criteria

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

6.1.12 Unblock PIN on multi-verification capable UICCs

6.1.12.1 Definition and applicability

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

This test applies to all 3G Terminals.

6.1.12.2 Conformance requirement

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

Reference:

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

6.1.12.3 Test purpose

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

6.1.12.4 Method of test

6.1.12.4.1 Initial conditions

The Terminal is connected to the UICC simulator.

The default UICC is used with the following exceptions:

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

PIN

Key reference: 07

Logically: 8642

<u>Coding:</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>	<u>B6</u>	<u>B7</u>	<u>B8</u>
<u>Hex</u>	<u>38</u>	<u>36</u>	<u>34</u>	<u>32</u>	<u>FF</u>	<u>FF</u>	<u>FF</u>	<u>FF</u>

Unblock PIN

Key reference 07

Logically: 64534231

<u>Coding:</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>	<u>B6</u>	<u>B7</u>	<u>B8</u>
<u>Hex</u>	<u>36</u>	<u>34</u>	<u>35</u>	<u>33</u>	<u>34</u>	<u>32</u>	<u>33</u>	<u>31</u>

PIN2

Key reference 87

Logically: 9753

<u>Coding:</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>	<u>B6</u>	<u>B7</u>	<u>B8</u>
<u>Hex</u>	<u>39</u>	<u>37</u>	<u>35</u>	<u>33</u>	<u>FF</u>	<u>FF</u>	<u>FF</u>	<u>FF</u>

Unblock PIN2

Key reference 87

Logically: 57687980

<u>Coding:</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>	<u>B6</u>	<u>B7</u>	<u>B8</u>
<u>Hex</u>	<u>35</u>	<u>37</u>	<u>36</u>	<u>38</u>	<u>37</u>	<u>39</u>	<u>38</u>	<u>30</u>

6.1.12.4.2 Procedure

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

6.1.12.5 Acceptance criteria

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

6.1.13 Entry of PIN2 on multi-verification capable UICCs

6.1.13.1 Definition and applicability

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

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

6.1.13.2 Conformance requirement

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

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

Reference:

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

6.1.13.3 Test purpose

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

6.1.13.4 Method of test

6.1.13.4.1 Initial conditions

[The Terminal is connected to the UICC simulator with the PIN enabled, and powered off.](#)

[The default UICC is used with the following exceptions:](#)

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

PIN

[Key reference: 07](#)

[Logically: 8642](#)

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

Unblock PIN

[Key reference 07](#)

[Logically: 64534231](#)

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

PIN2

[Key reference 87](#)

[Logically: 9753](#)

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

Unblock PIN2

[Key reference 87](#)

[Logically: 57687980](#)

<u>Coding:</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>	<u>B6</u>	<u>B7</u>	<u>B8</u>
<u>Hex</u>	<u>35</u>	<u>37</u>	<u>36</u>	<u>38</u>	<u>37</u>	<u>39</u>	<u>38</u>	<u>30</u>

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

6.1.13.4.2 Procedure

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

6.1.13.5 Acceptance criteria

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

6.1.14 Change of PIN2 on multi-verification capable UICCs

6.1.14.1 Definition and applicability

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

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

6.1.14.2 Conformance requirement

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

Reference:

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

6.1.14.3 Test purpose

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

6.1.14.4 Method of test

6.1.14.4.1 Initial conditions

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

The default UICC is used with the following exceptions:

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

PIN

Key reference: 07

Logically: 8642

<u>Coding:</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>	<u>B6</u>	<u>B7</u>	<u>B8</u>
<u>Hex</u>	<u>38</u>	<u>36</u>	<u>34</u>	<u>32</u>	<u>FF</u>	<u>FF</u>	<u>FF</u>	<u>FF</u>

Unblock PIN

Key reference 07

Logically: 64534231

<u>Coding:</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>	<u>B6</u>	<u>B7</u>	<u>B8</u>
<u>Hex</u>	<u>36</u>	<u>34</u>	<u>35</u>	<u>33</u>	<u>34</u>	<u>32</u>	<u>33</u>	<u>31</u>

PIN2

Key reference 87

Logically: 9753

<u>Coding:</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>	<u>B6</u>	<u>B7</u>	<u>B8</u>
<u>Hex</u>	<u>39</u>	<u>37</u>	<u>35</u>	<u>33</u>	<u>FF</u>	<u>FF</u>	<u>FF</u>	<u>FF</u>

Unblock PIN2

Key reference 87

Logically: 57687980

<u>Coding:</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>	<u>B6</u>	<u>B7</u>	<u>B8</u>
<u>Hex</u>	<u>35</u>	<u>37</u>	<u>36</u>	<u>38</u>	<u>37</u>	<u>39</u>	<u>38</u>	<u>30</u>

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

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

6.1.14.4.2 Procedure

- a) Enter "***042*9753*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 "9753#" 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.

6.1.14.5 Acceptance criteria

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

6.1.15 Unblock PIN2 on multi-verification capable UICCs

6.1.15.1 Definition and applicability

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

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

6.1.15.2 Conformance requirement

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

Reference:

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

6.1.15.3 Test purpose

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

6.1.15.4 Method of test6.1.15.4.1 Initial conditions

The Terminal is connected to the UICC simulator.

The default UICC is used with the following exceptions:

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

PIN

Key reference: 07

Logically: 8642

<u>Coding:</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>	<u>B6</u>	<u>B7</u>	<u>B8</u>
<u>Hex</u>	<u>38</u>	<u>36</u>	<u>34</u>	<u>32</u>	<u>FF</u>	<u>FF</u>	<u>FF</u>	<u>FF</u>

Unblock PIN

Key reference 07

Logically: 64534231

<u>Coding:</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>	<u>B6</u>	<u>B7</u>	<u>B8</u>
<u>Hex</u>	<u>36</u>	<u>34</u>	<u>35</u>	<u>33</u>	<u>34</u>	<u>32</u>	<u>33</u>	<u>31</u>

PIN2

Key reference 87

Logically: 9753

<u>Coding:</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>	<u>B6</u>	<u>B7</u>	<u>B8</u>
<u>Hex</u>	<u>39</u>	<u>37</u>	<u>35</u>	<u>33</u>	<u>FF</u>	<u>FF</u>	<u>FF</u>	<u>FF</u>

Unblock PIN2

Key reference 87

Logically: 57687980

<u>Coding:</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>	<u>B6</u>	<u>B7</u>	<u>B8</u>
<u>Hex</u>	<u>35</u>	<u>37</u>	<u>36</u>	<u>38</u>	<u>37</u>	<u>39</u>	<u>38</u>	<u>30</u>

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

6.1.15.4.2 Procedure

- a) The Terminal is powered on and the correct PIN is entered.
- b) Enter "***052*57687980*1234*1234#"
- c) The Terminal is powered off and on and the correct PIN is entered.

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

6.1.15.5 Acceptance criterias

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

6.1.16 Replacement of PIN with key reference "07"

6.1.16.1 Definition and applicability

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

This test applies to all 3G Terminals.

6.1.16.2 Conformance requirement

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

Reference:

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

6.1.16.3 Test purpose

- 1) To verify that the PIN replacement is supported by the Terminal correctly.

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

6.1.16.4 Method of test

6.1.16.4.1 Initial conditions

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

The default UICC is used with the following exceptions:

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

PIN

Key reference: 07

Logically: 8642

<u>Coding:</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>	<u>B6</u>	<u>B7</u>	<u>B8</u>
<u>Hex</u>	<u>38</u>	<u>36</u>	<u>34</u>	<u>32</u>	<u>FF</u>	<u>FF</u>	<u>FF</u>	<u>FF</u>

Unblock PIN

Key reference 07

Logically: 64534231

<u>Coding:</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>	<u>B6</u>	<u>B7</u>	<u>B8</u>
<u>Hex</u>	<u>36</u>	<u>34</u>	<u>35</u>	<u>33</u>	<u>34</u>	<u>32</u>	<u>33</u>	<u>31</u>

PIN2

Key reference 87

Logically: 9753

<u>Coding:</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>	<u>B6</u>	<u>B7</u>	<u>B8</u>
<u>Hex</u>	<u>39</u>	<u>37</u>	<u>35</u>	<u>33</u>	<u>FF</u>	<u>FF</u>	<u>FF</u>	<u>FF</u>

Unblock PIN2

Key reference 87

Logically: 57687980

<u>Coding:</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>	<u>B6</u>	<u>B7</u>	<u>B8</u>
<u>Hex</u>	<u>35</u>	<u>37</u>	<u>36</u>	<u>38</u>	<u>37</u>	<u>39</u>	<u>38</u>	<u>30</u>

6.1.16.4.2 Procedure

- a) The Terminal is powered on.

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

6.1.16.5 Acceptance criteria

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

6.2 Fixed Dialling Numbers (FDN) handling

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

6.2.1.1 Definition and applicability

Fixed Dialling Numbers (FDN) is a service defined for the USIM. An enabled FDN service results in call restrictions for the UE. The call restrictions are controlled by the Terminal. To ascertain the type of USIM

and state of FDN the UE runs the FDN capability request procedure during UICC-Terminal initialisation. During the initialisation the Terminal shall request the Emergency call codes of the USIM EF_{ECC}. At the time an emergency call is setup using the emergency call code read from the EF_{ECC}, the UE shall use the category of the emergency service indicated.

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 does not allows call set-up of an emergency call using the emergency number stored in the Terminal except "112", "911" and the emergency numbers stored on the SIM/USIM.
- 7) The UE allows call set-up of an emergency call using the emergency number stored in the USIM.
- 8) The UE shall indicate the emergency service category as "Mountain Rescue", when using the emergency number stored in the USIM.

Reference:

- TS 22.101 [11], clauses 8-9 and A.254;
- TS 31.102 [4], subclauses 4.4.2, 4.2.24, 5.1.1 and 5.3.2;
- TS 24.008 [16], subclause 10.5.4.33.

6.2.1.3 Test purpose

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

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~~ an emergency call code stored in the Terminal, but not "112", "911" nor one of the emergency numbers stored on the SIM/USIM.
- g) Using the MMI an emergency call set-up is attempted using either "112" or "911".
- gh) Using the MMI an emergency call set-up is attempted using the emergency call code stored in the USIM (i.e. "122").

NOTE: For step f) one of the emergency call codes according to TS 22.101 [11], subclause 98.1.1, except "112" and "911", shall be used (i.e. "000", "08", ~~"112"~~, "110", "118", "119", ~~"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), e) and fe) the UE shall prevent call set-up.
- 4) After steps fg) and gh) the UE shall allow emergency call by indicating the call setup as "Emergency Call".
- 5) After step g) the UE shall send the emergency service category correctly as "Mountain Rescue".

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 [\[11\]](#), clauses [89](#) and [A.245](#);
- TS 31.102 [\[4\]](#), subclauses 4.4.2.3, 4.2.24, 4.2.47, 5.1.1 and 5.3.2.

6.2.2.3 Test purpose

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

6.2.2.4 Method of test

6.2.2.4.1 Initial conditions

The USS 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 [11], clause 89 and A.254;
- TS 31.102 [4], subclauses 4.4.2.3, 4.2.24, 4.2.47, 5.1.1 and 5.3.2.

6.2.3.3 Test purpose

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

6.2.3.4 Method of test

6.2.3.4.1 Initial conditions

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

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

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

6.2.3.4.2 Procedure

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

6.2.3.5 Acceptance criteria

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

Hex	B1 46	B2 44	B3 4E	B4 31	B5 31	B6 31	B7 06	B8 91	B9 78	B10 56	B11 34	B12 12	B13 F0
	B14 FF	B15 FF	B16 FF	B17 FF	B18 FF	B19 FF	B20 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. At the time an emergency call is setup using the emergency call code read from the EF_{ECC}, the UE shall use the category of the emergency service indicated.

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 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 [11], clause ~~8~~9 and A.~~19~~20;
- TS 31.102 [4], subclauses 4.2.44, 4.4.2.3, 5.1.1 and 5.3.2;
- TS 24.008 [16], subclause 10.5.4.33.

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}.
- 4) To verify that the Terminal reads correctly the emergency service category stored in EF_{ECC}.

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, [which are available when a SIM/USIM is present](#), according to TS 22.101 [\[11\]](#), subclause ~~89~~ is used (i.e. ~~000, 08, "112", "110, or " 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 steps e) and f) the UE shall allow an emergency call by indicating the call setup as "Emergency Call".
- 5) After step f) the UE shall send the emergency service category correctly as "Mountain Rescue".

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 [\[11\]](#), clauses ~~89~~ and A.~~19~~[20](#);
- TS 31.102 [\[4\]](#), 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 [\[16\]](#), subclause 5.1.2.1;
- TS 23.086 [\[9\]](#), subclauses 1.2, 1.3, 2.2 and 2.3;
- TS 24.086 [\[10\]](#), clause 2.

6.4.1.3 Test purpose

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

- 4) To verify that an UE not supporting AoCC (where the Terminal does support AoCC but the USIM does not) and in the U10 call active state, on receipt of a FACILITY message containing AoCC information, shall ignore and not acknowledge the AoCC information sent within the FACILITY.

6.4.1.4 Method of test

6.4.1.4.1 Initial conditions

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

EF_{UST} (USIM Service Table)

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

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

- For an MO call in the U4 state the USS transmits CONNECT containing AoCC information.
- For an MO call in the U4 state the USS transmits FACILITY containing AoCC information.
- For an MT call in the U9 state the USS transmits FACILITY containing AoCC information.
- 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.

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

Reference:

- TS 22.024 [8], subclause 4.3, part h₂
- TS 31.102 [4], subclauses 4.2.9, 5.3.4 and Annex H.1.

6.4.2.3 Test purpose

- 1) To verify that the interval between increments is 5 s.
- 2) To verify that the Terminal is able to handle other values than '1C' as SFI of EF_{ACM} .

6.4.2.4 Method of test

6.4.2.4.1 Initial conditions

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

EF_{UST} (USIM Service Table)

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

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

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

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 SETUPCOMPLETE	
14	USS -> UE	ALERTING	
15	USS -> UE	CONNECT	As default message except contains Facility IE with contents as indicated in i) below
			Either A or B branch is taken
A16	UE -> USS	CONNECT ACKNOWLEDGE	
A17	UE -> USS	FACILITY	As default message except contains Facility IE with contents as indicated in ii) below
B16	UE -> USS	FACILITY	As default message except contains Facility IE with contents as indicated in ii) below
B17	UE -> USS	CONNECT ACKNOWLEDGE	
18			call duration 90 s after CAI information sent by USS,
19	USS -> UE	DISCONNECT	
20	UE -> USS	RELEASE	
21	USS -> UE	RELEASE COMPLETE	
22	USS -> UE	RRC CONNECTION RELEASE	
23	UE -> USS	RRC CONNECTION RELEASE COMPLETE	All connections of RRC are released.

Specific Message Contents:

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

For ASN.1 description see default message contents in 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 [8], clause 3.

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

For ASN.1 description see default message contents in 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).

[When used the value 'IC' shall be used as SFI for EF_{ACM}, for compatibility reasons the terminal shall accept other values.](#)

Reference:

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

6.4.3.3 Test purpose

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

6.4.3.4 Method of test

6.4.3.4.1 Initial conditions

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

EF_{UST} (USIM Service Table)

Logically: Local Phone Book available;
 User controlled PLMN selector available;
 Fixed dialling numbers available;

The GSM Access available;
 The Group Identifier level 1 and level 2 not available;
 AoC available.
 Service n 33 (Packed Switched Domain) shall be set to '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

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

EF_{ACMmax} (Accumulated call meter maximum)

Logically: 94 units

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

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

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

User Equipment:

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

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

Specific Message Contents:

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

For ASN.1 description see default message contents in 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 [8], clause 3.

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

For ASN.1 description see default message contents in 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 its maximum value, then all calls in progress, chargeable to the user, shall be terminated by the UE, once the chargeable interval determined by the CAI has elapsed, (except emergency calls).

[When used the value 'IC' shall be used as SFI for EF_{ACM}, for compatibility reasons the terminal shall accept other values.](#)

References:

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

6.4.4.3 Test purpose

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

2) To verify that the Terminal is able to handle other values than 'IC' as SFI of EF_{ACM}.

6.4.4.4 Method of test

6.4.4.4.1 Initial conditions

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

EF_{UST} (USIM Service Table)

Logically: Local Phone Book available;

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

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

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

EF_{ACMmax} (Accumulated call meter maximum)

Logically: (Maximum value - 2) units

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

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

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

User Equipment:

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

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

Specific Message Contents:

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

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

e-parameters:

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

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

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

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.