### 27.22.8 MO SHORT MESSAGE CONTROL BY USIM

#### 27.22.8.1 Definition and applicability

See clause 3.2.2.

#### 27.22.8.2 Conformance requirement

The ME shall support the MO SEND SHORT MESSAGE CONTROL facility as defined in:

- TS 31.111 [15] clause 7.3.2.

The ME shall also support the SEND SMS facility as specified in

- TS 31.111 [15] clause 6.4.10

#### 27.22.8.3 Test purpose

To verify that for all SMS sending attempts, even those resulting from a SEND SHORT MESSAGE proactive UICC command, the ME shall first pass the RP\_destination\_address of the service center and the TP\_Destination\_Address to the UICC, using the ENVELOPE (MO Short Message CONTROL).

To verify that if the UICC responds with '90 00', the ME shall send the SMS with the address unchanged.

To verify that if the UICC returns response data, the ME shall use the response data appropriately to send the SM as proposed, not send the SM, or send the SM using the data supplied by the UICC.

To verify that, in the case where the initial SM request results from a proactive SEND SHORT MESSAGE, if the MO SMS CONTROL result is "not allowed" or "allowed with modifications", the ME shall inform the UICC using TERMINAL RESPONSE "interaction with call control by UICC or MO short message control by USIM, action not allowed".

#### 27.22.8.4 Method of tests

##### 27.22.8.4.1 Initial conditions

The ME is connected to the System Simulator and the USIM Simulator.

Prior to this test the ME shall have been powered on and performed the PROFILE DOWNLOAD procedure.

The MO SMS control service is available in the USIM Service Table.

The SMS service center address in the ME shall be set to "+112233445566778" prior to the execution of the tests.

For test sequences 1.1 to 1.8 the ME is connected to USS or SS.

The GERAN/UTRAN parameters of the system simulator are:

- Mobile Country Code (MCC) = 001;

- Mobile Network Code (MNC) = 01;

- Location Area Code (LAC) = 0001;

- Cell Identity value = 0001;

The PCS 1900 parameters of the system simulator are:

- Mobile Country Code (MCC) = 001;

- Mobile Network Code (MNC) = 011;

- Location Area Code (LAC) = 0001;

- Cell Identity value = 0001.

For test sequences 1.10 to 1.17 the ME is connected to the E-USS/NB-SS, where:

- SMS over SGs (DOWNLINK NAS TRANSPORT and UPLINK NAS TRANSPORT messages) is used to send and receive short messages

The E-USS parameters of the system simulator are:

- Mobile Country Code (MCC) = 001;

- Mobile Network Code (MNC) = 01;

- Tracking Area Code (TAC) = 0001;

- E-UTRAN Cell Id = 0001.

The NB-SS parameters of the system simulator are:

- Mobile Country Code (MCC) = 001;

- Mobile Network Code (MNC) = 01;

- Tracking Area Code (TAC) = 0001;

- NB-IoT Cell Id = 0001.

##### 27.22.8.4.2 Procedure

Expected Sequence 1.1 (MO SM CONTROL BY USIM , with Proactive command, Allowed, no modification')

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 1 | UICC -> ME | PROACTIVE COMMAND PENDING: SEND SHORT MESSAGE 1.1.1 |  |
| 2 | ME -> UICC | FETCH |  |
| 3 | UICC -> ME | PROACTIVE COMMAND: SEND SHORT MESSAGE 1.1.1 |  |
| 4 | ME -> USER | Display "Send SM" | [Alpha Identifier] |
| 5 | ME -> UICC | ENVELOPE: MO SHORT MESSAGE CONTROL 1.1.1A Or ENVELOPE: MO SHORT MESSAGE CONTROL 1.1.1B | [Option A shall apply for GERAN/UTRAN parameters] [Option B shall apply for PCS1900 parameters] |
| 6 | UICC -> ME | MO SMS CONTROL RESULT 1.1.1 | [ "Allowed, no modification"] |
| 7 | ME -> USS | Send SMS-PP Message 1.1 | [The ME sends the SM containing SMS-PP (SEND SHORT MESSAGE) Message 1.1 without modification] |
| 8 | USS -> ME | SMS RP-ACK |  |
| 9 | ME -> UICC | TERMINAL RESPONSE: SEND SHORT MESSAGE 1.1.1 |  |

PROACTIVE COMMAND: SEND SHORT MESSAGE 1.1.1

Logically:

Command details

Command number: 1

Command type: SEND SHORT MESSAGE

Command qualifier: packing not required

Device identities

Source device: UICC

Destination device: Network

Alpha identifier: "Send SM"

Address

TON: International number

NPI: "ISDN / telephone numbering plan"

Dialling number string "112233445566778"

SMS TPDU

TP-MTI SMS-SUBMIT

TP-RD Instruct the SC to accept an SMS-SUBMIT for a SM

TP-VPF TP-VP field not present

TP-RP TP-Reply-Path is not set in this SMS-SUBMIT

TP-UDHI The TP-UD field contains only the short message

TP-SRR A status report is not requested

TP-MR "00"

TP-DA

TON International number

NPI "ISDN / telephone numbering plan"

Address value "012345678"

TP-PID Short message type 0

TP-DCS

Message coding 8-bit data

Message class class 0

TP-UDL 12

TP-UD "Test Message"

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D0 | 37 | 81 | 03 | 01 | 13 | 00 | 82 | 02 | 81 | 83 | 85 |
|  | 07 | 53 | 65 | 6E | 64 | 20 | 53 | 4D | 86 | 09 | 91 | 11 |
|  | 22 | 33 | 44 | 55 | 66 | 77 | F8 | 8B | 18 | 01 | 00 | 09 |
|  | 91 | 10 | 32 | 54 | 76 | F8 | 40 | F4 | 0C | 54 | 65 | 73 |
|  | 74 | 20 | 4D | 65 | 73 | 73 | 61 | 67 | 65 |  |  |  |

SMS-PP (SEND SHORT MESSAGE) Message 1.1

Logically:

SMS RPDU

RP-Originator Address not used

RP-Destination SMSC Address

TON International number

NPI "ISDN / telephone numbering plan"

Address value "112233445566778"

SMS TPDU

TP-MTI SMS-SUBMIT

TP-RD Instruct the SC to accept an SMS-SUBMIT for a SM

TP-VPF TP-VP field not present

TP-RP TP-Reply-Path is not set in this SMS-SUBMIT

TP-UDHI The TP-UD field contains only the short message

TP-SRR A status report is not requested

TP-MR "01"

TP-DA

TON International number

NPI "ISDN / telephone numbering plan"

Address value "012345678"

TP-PID Short message type 0

TP-DCS

Message coding 8-bit data

Message class class 0

TP-UDL 12

TP-UD "Test Message"

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Coding | 00 | 09 | 91 | 11 | 22 | 33 | 44 | 55 | 66 | 77 | F8 | 18 |
|  | 01 | 01 | 09 | 91 | 10 | 32 | 54 | 76 | F8 | 40 | F4 | 0C |
|  | 54 | 65 | 73 | 74 | 20 | 4D | 65 | 73 | 73 | 61 | 67 | 65 |

ENVELOPE MO SHORT MESSAGE CONTROL 1.1.1A

Logically:

Device identities

Source device: ME

Destination device: UICC

RP Destination Address

TON: International

NPI: "ISDN / telephone numbering plan" or "unknown"

Dialling number string "112233445566778"

TP Destination Address

TON: International

NPI: "ISDN / telephone numbering plan" or "unknown"

Dialling number string "012345678"

Location Information

MCC & MNC the mobile country and network code (00F110)

LAC the location Area Code (0001)

Cell ID Cell Identity Value (0001)

Extended Cell ID RNC-id value (for Rel-4 onwards), see also Note 3

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Coding | D5 | Note 1 | 02 | 02 | 82 | 81 | 06 | 09 | 91 | 11 | 22 |
|  | 33 | 44 | 55 | 66 | 77 | F8 | 06 | 06 | 91 | 10 | 32 |
|  | 54 | 76 | F8 | 13 | Note 2 | 00 | F1 | 10 | 00 | 01 | 00 |
|  | 01 | Note 3 |  |  |  |  |  |  |  |  |  |

Note 1: Length of BER-TLV is '20' plus the actual length of all the present optional SIMPLE-TLV data objects.

Note 2: Depending on the presence of the Extended Cell Identity Value the length is '07' or '09'

Note 3: The Extended Cell Identity Value is present in Rel-4 and onwards implementations, the values of the two bytes shall not be verified.

ENVELOPE MO SHORT MESSAGE CONTROL 1.1.1B

Logically:

Device identities

Source device: ME

Destination device: UICC

RP Destination Address

TON: International

NPI: "ISDN / telephone numbering plan" or "unknown"

Dialling number string "112233445566778"

TP Destination Address

TON: International

NPI: "ISDN / telephone numbering plan" or "unknown"

Dialling number string "012345678"

Location Information

MCC & MNC the mobile country and network code (001110)

LAC the location Area Code (0001)

Cell ID Cell Identity Value (0001)

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D5 | 20 | 02 | 02 | 82 | 81 | 06 | 09 | 91 | 11 | 22 |
|  | 33 | 44 | 55 | 66 | 77 | F8 | 06 | 06 | 91 | 10 | 32 |
|  | 54 | 76 | F8 | 13 | 07 | 00 | 11 | 10 | 00 | 01 | 00 |
|  | 01 |  |  |  |  |  |  |  |  |  |  |

MO SHORT MESSAGE CONTROL RESULT 1.1.1

Logically:

MO Short Message control result: '00' = Allowed, no modification

Coding:

|  |  |  |
| --- | --- | --- |
| BER-TLV: | 00 | 00 |

TERMINAL RESPONSE: SEND SHORT MESSAGE 1.1.1

Logically:

Command details

Command number: 1

Command type: SEND SHORT MESSAGE

Command qualifier: packing not required

Device identities

Source device: ME

Destination device: UICC

Result

General Result: Command performed successfully

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 81 | 03 | 01 | 13 | 00 | 82 | 02 | 82 | 81 | 83 | 01 | 00 |

Expected Sequence 1.2 (MO SM CONTROL BY USIM , with user SMS, Allowed, no modification')

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 1 | USER -> ME | The user makes a SMS with the user data "Test Message" and sends it to +012345678. | [The data entered and the ME settings shall lead to the same SMS-TPDU as defined in SMS-PP (SEND SHORT MESSAGE) Message 1.2. |
| 2 | ME -> UICC | ENVELOPE: MO SHORT MESSAGE CONTROL 1.1.1A or ENVELOPE: MO SHORT MESSAGE CONTROL 1.1.1B | [Option A shall apply for GERAN/UTRAN parameters] [Option B shall apply for PCS1900 parameters] |
| 3 | UICC -> ME | MO SHORT MESSAGE CONTROL RESULT 1.1.1 | [ "Allowed, no modification"] |
| 4 | ME -> USS | Send SMS-PP Message 1.2 | [The ME sends the SM containing SMS-PP (SEND SHORT MESSAGE) Message 1.2 without modification] |
| 5 | USS -> ME | SMS RP-ACK |  |

SMS-PP (SEND SHORT MESSAGE) Message 1.2

Logically:

SMS RPDU

RP-Originator Address not used

RP-Destination SMSC Address

TON International number

NPI "ISDN / telephone numbering plan"

Address value "112233445566778"

SMS TPDU

TP-MTI SMS-SUBMIT

TP-RD value shall not be verified

TP-VPF value shall not be verified

TP-RP value shall not be verified

TP-UDHI value shall not be verified

TP-SRR value shall not be verified

TP-MR "01"

TP-DA

TON International number

NPI "ISDN / telephone numbering plan"

Address value "012345678"

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Coding | 00 | 09 | 91 | 11 | 22 | 33 | 44 | 55 | 66 | 77 | F8 | Note 1 |
|  | Note 2 | 01 | 09 | 91 | 10 | 32 | 54 | 76 | F8 | Note 3 |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |

Note 1: Octet shall not be verified

Note 2: Only the TP-MTI bits shall be verified

Note 3: The remaining octets shall not be verified

Expected Sequence 1.3 (MO SM CONTROL BY USIM , with Proactive command, Not allowed')

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 1 | UICC -> ME | PROACTIVE COMMAND PENDING: SEND SHORT MESSAGE 1.1.1 |  |
| 2 | ME -> UICC | FETCH |  |
| 3 | UICC -> ME | PROACTIVE COMMAND: SEND SHORT MESSAGE 1.1.1 |  |
| 4 | ME -> USER | Display "Send SM" | [The display of the Alpha Identifier shall not be verified] |
| 5 | ME -> UICC | ENVELOPE: MO SHORT MESSAGE CONTROL 1.1.1A or ENVELOPE: MO SHORT MESSAGE CONTROL 1.1.1B | [Option A shall apply for GERAN/UTRAN parameters] [Option B shall apply for PCS1900 parameters] |
| 6 | UICC -> ME | MO SHORT MESSAGE CONTROL RESULT 1.3.1 | [ "not Allowed"] |
| 7 | ME -> UICC | TERMINAL RESPONSE: SEND SHORT MESSAGE 1.3.1 | [ Permanent Problem - Interaction with Call Control or MO short message control by USIM ] |
| 8 | ME🡪 USS | The ME does not send the Short Message |  |

MO SHORT MESSAGE CONTROL RESULT 1.3.1

Logically:

MO Short Message control result: '01' = Not Allowed

Coding:

|  |  |  |
| --- | --- | --- |
| BER-TLV: | 01 | 00 |

TERMINAL RESPONSE: SEND SHORT MESSAGE 1.3.1

Logically:

Command details

Command number: 01

Command Type: SEND SHORT MESSAGE

Command qualifier: packing not required

Device identities

Source device: ME

Destination device: UICC

Result

General Result: Interaction with call control or MO-SM by USIM permanent problem

Additional information: Action not allowed

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 81 | 03 | 01 | 13 | 00 | 82 | 02 | 82 | 81 | 83 | 02 | 39 |
|  | 01 |  |  |  |  |  |  |  |  |  |  |  |

Expected Sequence 1.4 (MO SM CONTROL BY USIM , with user SMS, Not allowed ')

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 1 | USER -> ME | The user makes a SMS with the user data "Test Message" and sends it to +012345678. | [The data entered and the ME settings shall lead to the same SMS-TPDU as defined in SMS-PP (SEND SHORT MESSAGE) Message 1.2. |
| 2 | ME -> UICC | ENVELOPE: MO SHORT MESSAGE CONTROL 1.1.1A or ENVELOPE: MO SHORT MESSAGE CONTROL 1.1.1B | [Option A shall apply for GERAN/UTRAN parameters] [Option B shall apply for PCS1900 parameters] |
| 3 | UICC -> ME | MO SM CONTROL RESULT 1.3.1 | [ "Not allowed"] |
| 4 | ME 🡪 USS | The ME does not send the Short Message |  |

Expected Sequence 1.5 (MO SM CONTROL BY USIM , with Proactive command, Allowed with modifications')

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 1 | UICC -> ME | PROACTIVE COMMAND PENDING: SEND SHORT MESSAGE 1.1.1 |  |
| 2 | ME -> UICC | FETCH |  |
| 3 | UICC -> ME | PROACTIVE COMMAND: SEND SHORT MESSAGE 1.1.1 | Send SMS to "+012345678" |
| 4 | ME -> USER | Display "Send SM" | [Alpha Identifier] |
| 5 | ME -> UICC | ENVELOPE: MO SHORT MESSAGE CONTROL 1.1.1A or ENVELOPE: MO SHORT MESSAGE CONTROL 1.1.1B | [Option A shall apply for GERAN/UTRAN parameters] [Option B shall apply for PCS1900 parameters] |
| 6 | UICC -> ME | MO SM CONTROL RESULT 1.5.1 | ["Allowed with modifications"] |
| 7 | ME -> USS | Send SMS-PP Message 1.5 | [The ME sends the SM containing SMS-PP (SEND SHORT MESSAGE) Message 1.5 with the data provided by the UICC to the changed Service Center Address "+112233445566779" ] |
| 8 | USS -> ME | SMS RP-ACK |  |
| 9 | ME -> UICC | TERMINAL RESPONSE: SEND SHORT MESSAGE 1.5.1 |  |

MO SHORT MESSAGE CONTROL RESULT 1.5.1

Logically:

MO Short Message control result: '02' = Allowed with modifications

RP Destination\_Address of the Service Center

TON: International

NPI: "ISDN / telephone numbering plan" or "unknown"

Dialling number string: "112233445566779"

TP Destination Address

TON: International

NPI: "ISDN / telephone numbering plan" or "unknown"

Dialling number string: "012345679"

Coding:

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 02 | 13 | 86 | 09 | 91 | 11 | 22 | 33 | 44 | 55 | 66 |
| 77 | F9 | 86 | 06 | 91 | 10 | 32 | 54 | 76 | F9 |  |

SMS-PP (SEND SHORT MESSAGE) Message 1.5

Logically:

SMS RPDU

RP-Originator Address not used

RP-Destination SMSC Address

TON International number

NPI "ISDN / telephone numbering plan"

Address value "112233445566779"

SMS TPDU

TP-MTI SMS-SUBMIT

TP-RD Instruct the SC to accept an SMS-SUBMIT for a SM

TP-VPF TP-VP field not present

TP-RP TP-Reply-Path is not set in this SMS-SUBMIT

TP-UDHI The TP-UD field contains only the short message

TP-SRR A status report is not requested

TP-MR "01"

TP-DA

TON International number

NPI "ISDN / telephone numbering plan"

Address value "012345679"

TP-PID Short message type 0

TP-DCS

Message coding 8-bit data

Message class class 0

TP-UDL 12

TP-UD "Test Message"

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Coding | 00 | 09 | 91 | 11 | 22 | 33 | 44 | 55 | 66 | 77 | F9 | 18 |
|  | 01 | 01 | 09 | 91 | 10 | 32 | 54 | 76 | F9 | 40 | F4 | 0C |
|  | 54 | 65 | 73 | 74 | 20 | 4D | 65 | 73 | 73 | 61 | 67 | 65 |

TERMINAL RESPONSE: SEND SHORT MESSAGE 1.5.1

Logically:

Command details

Command number: 01

Command Type: SEND SHORT MESSAGE

Command qualifier: packing not required

Device identities

Source device: ME

Destination device: UICC

Result

General Result: Command performed successfully

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 81 | 03 | 01 | 13 | 00 | 82 | 02 | 82 | 81 | 83 | 01 | 00 |

Expected Sequence 1.6 (MO SM CONTROL BY USIM , with user SMS, Allowed with modifications')

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 1 | USER -> ME | The user makes a SMS with the user data "Test Message" and sends it to +012345678. | [The data entered and the ME settings shall lead to the same SMS-TPDU as defined in SMS-PP (SEND SHORT MESSAGE) Message 1.2. |
| 2 | ME -> UICC | ENVELOPE: MO SHORT MESSAGE CONTROL 1.1.1A or ENVELOPE: MO SHORT MESSAGE CONTROL 1.1.1B | [Option A shall apply for GERAN/UTRAN parameters] [Option B shall apply for PCS1900 parameters] |
| 3 | UICC -> ME | MO SM CONTROL RESULT 1.5.1 | [ "Allowed with modifications"] |
| 4 | ME-> USS | Send SMS-PP Message 1.6 | [The ME sends the SM containing SMS-PP (SEND SHORT MESSAGE) Message 1. 6 with the data provided by the UICC to the changed Service Center Address "+112233445566779"] |
| 5 | USS -> ME | SMS RP-ACK |  |

SMS-PP (SEND SHORT MESSAGE) Message 1.6

Logically:

SMS RPDU

RP-Originator Address not used

RP-Destination SMSC Address

TON International number

NPI "ISDN / telephone numbering plan"

Address value "112233445566779"

SMS TPDU

TP-MTI SMS-SUBMIT

TP-RD value shall not be verified

TP-VPF value shall not be verified

TP-RP value shall not be verified

TP-UDHI value shall not be verified

TP-SRR value shall not be verified

TP-MR "01"

TP-DA

TON International number

NPI "ISDN / telephone numbering plan"

Address value "012345679"

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Coding | 00 | 09 | 91 | 11 | 22 | 33 | 44 | 55 | 66 | 77 | F9 | Note 1 |
|  | Note 2 | 01 | 09 | 91 | 10 | 32 | 54 | 76 | F9 | Note 3 |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |

Note 1: Octet shall not be verified.

Note 2: Only the TP-MTI bits shall be verified.

Note 3: The remaining octets shall not be verified.

Expected Sequence 1.7 (MO SM CONTROL BY USIM , with Proactive command, the USIM responds with '90 00', Allowed, no modification)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 1 | UICC -> ME | PROACTIVE COMMAND PENDING: SEND SHORT MESSAGE 1.1.1 |  |
| 2 | ME -> UICC | FETCH |  |
| 3 | UICC -> ME | PROACTIVE COMMAND: SEND SHORT MESSAGE 1.1.1 | Send SMS to "+012345678" |
| 4 | ME -> USER | Display "Send SM" | [Alpha Identifier] |
| 5 | ME -> UICC | ENVELOPE: MO SHORT MESSAGE CONTROL 1.1.1A  or  ENVELOPE: MO SHORT MESSAGE CONTROL 1.1.1B | [Option A shall apply for GERAN/UTRAN parameters] [Option B shall apply for PCS1900 parameters] |
| 6 | UICC -> ME | 90 00 |  |
| 7 | ME ->USS | Send SMS-PP | [The ME sends the SM containing SMS-PP (SEND SHORT MESSAGE) Message 1.1 without modification] |
| 8 | USS -> ME | SMS RP-ACK |  |
| 9 | ME -> UICC | TERMINAL RESPONSE: SEND SHORT MESSAGE 1.1.1 |  |

Expected Sequence 1.8 (MO SM CONTROL BY USIM , Send Short Message attempt by user, the USIM responds with '90 00', Allowed, no modification)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 1 | User  ME | The user makes a SMS with the user data "Test Message" and sends it to +012345678. | [The data entered and the ME settings shall lead to the same SMS-TPDU as defined in SMS-PP (SEND SHORT MESSAGE) Message 1.2. |
| 2 | ME  UICC | ENVELOPE: MO SHORT MESSAGE CONTROL 1.1.1 A or ENVELOPE: MO SHORT MESSAGE CONTROL 1.1.1B | [Option A shall apply for GERAN/UTRAN parameters] [Option B shall apply for PCS1900 parameters] |
| 3 | UICC  ME | 90 00 |  |
| 4 | ME USS | Send SMS-PP | [The ME sends the SM containing SMS-PP (SEND SHORT MESSAGE) Message 1.2 without modification] |
| 5 | USS -> ME | SMS RP-ACK |  |

Expected Sequence 1.9void

Expected Sequence 1.10 (MO SM CONTROL BY USIM over SG in E-UTRAN, with Proactive command, Allowed, no modification)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 1 | UICC 🡪 ME | PROACTIVE COMMAND PENDING: SEND SHORT MESSAGE 1.1.1 |  |
| 2 | ME 🡪 UICC | FETCH |  |
| 3 | UICC -> ME | PROACTIVE COMMAND: SEND SHORT MESSAGE 1.1.1 |  |
| 4 | ME 🡪 USER | Display "Send SM" | [Alpha Identifier] |
| 5 | ME 🡪 UICC | ENVELOPE: MO SHORT MESSAGE CONTROL 1.10.1 |  |
| 6 | UICC 🡪 ME | MO SMS CONTROL RESULT 1.1.1 | [ "Allowed, no modification"] |
| 7 | ME 🡪 E-USS/NB-SS | Send SMS-PP Message 1.10 | [The ME sends the SM containing SMS-PP (SEND SHORT MESSAGE) Message 1.10 without modification] |
| 8 | E-USS/NB-SS 🡪 ME | RP-ACK |  |
| 9 | ME 🡪 UICC | TERMINAL RESPONSE: SEND SHORT MESSAGE 1.1.1 |  |

SMS-PP (SEND SHORT MESSAGE) Message 1.10

Logically:

SMS TPDU

TP-MTI SMS-SUBMIT

TP-RD Instruct the SC to accept an SMS-SUBMIT for a SM

TP-VPF TP-VP field not present

TP-RP TP-Reply-Path is not set in this SMS-SUBMIT

TP-UDHI The TP-UD field contains only the short message

TP-SRR A status report is not requested

TP-MR "01"

TP-DA

TON International number

NPI "ISDN / telephone numbering plan"

Address value "012345678"

TP-PID Short message type 0

TP-DCS

Message coding 8-bit data

Message class class 0

TP-UDL 12

TP-UD "Test Message"

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Coding | 00 | 09 | 91 | 11 | 22 | 33 | 44 | 55 | 66 | 77 | F8 | 18 |
|  | 01 | 01 | 09 | 91 | 10 | 32 | 54 | 76 | F8 | 40 | F4 | 0C |
|  | 54 | 65 | 73 | 74 | 20 | 4D | 65 | 73 | 73 | 61 | 67 | 65 |

ENVELOPE MO SHORT MESSAGE CONTROL 1.10.1

Logically:

Device identities

Source device: ME

Destination device: UICC

RP Destination Address

TON: International

NPI: "ISDN / telephone numbering plan" or "unknown"

Dialling number string "112233445566778"

TP Destination Address

TON: International

NPI: "ISDN / telephone numbering plan" or "unknown"

Dialling number string "012345678"

Location Information

Mobile Country Codes (MCC) 001

Mobile Network Codes (MNC) 01

Tracking Area Code (TAC): 0001

E-UTRAN Cell Identifier (ECI): 0001

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Coding | D5 | 22 | 02 | 02 | 82 | 81 | 06 | 09 | 91 | 11 | 22 |
|  | 33 | 44 | 55 | 66 | 77 | F8 | 06 | 06 | 91 | 10 | 32 |
|  | 54 | 76 | F8 | 13 | 09 | 00 | F1 | 10 | 00 | 01 | 00 |
|  | 00 | 00 | 1F |  |  |  |  |  |  |  |  |

Expected Sequence 1.11 (MO SM CONTROL BY USIM over SG in E-UTRAN, with user SMS, Allowed, no modification)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 1 | USER 🡪 ME | The user makes a SMS with the user data "Test Message"and sends it to +012345678. | [The data entered and the ME settings shall lead to the same SMS-TPDU as defined in SMS-PP (SEND SHORT MESSAGE) Message 1.11. |
| 2 | ME 🡪 UICC | ENVELOPE: MO SHORT MESSAGE CONTROL 1.10.1 |  |
| 3 | UICC 🡪 ME | MO SHORT MESSAGE CONTROL RESULT 1.1.1 | [ "Allowed, no modification"] |
| 4 | ME 🡪 E-USS/NB-SS | Send SMS-PP Message 1.11 | [The ME sends the SM containing SMS-PP (SEND SHORT MESSAGE) Message 1.11 without modification] |
| 5 | E-USS/NB-SS 🡪 ME | RP-ACK |  |

SMS-PP (SEND SHORT MESSAGE) Message 1.11

Logically:

SMS TPDU

TP-MTI SMS-SUBMIT

TP-RD value shall not be verified

TP-VPF value shall not be verified

TP-RP value shall not be verified

TP-UDHI value shall not be verified

TP-SRR value shall not be verified

TP-MR "01"

TP-DA

TON International number

NPI "ISDN / telephone numbering plan"

Address value "012345678"

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Coding | 00 | 09 | 91 | 11 | 22 | 33 | 44 | 55 | 66 | 77 | F8 | Note 1 |
|  | Note 2 | 01 | 09 | 91 | 10 | 32 | 54 | 76 | F8 | Note 3 |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |

Note 1: Octet shall not be verified

Note 2: Only the TP-MTI bits shall be verified

Note 3: The remaining octets shall not be verified

Expected Sequence 1.12 (MO SM CONTROL BY USIM over SG in E-UTRAN, with Proactive command, Not allowed)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 1 | UICC 🡪 ME | PROACTIVE COMMAND PENDING: SEND SHORT MESSAGE 1.1.1 |  |
| 2 | ME 🡪 UICC | FETCH |  |
| 3 | UICC 🡪 ME | PROACTIVE COMMAND: SEND SHORT MESSAGE 1.1.1 |  |
| 4 | ME 🡪 USER | Display "Send SM" | [The display of the Alpha Identifier shall not be verified] |
| 5 | ME 🡪 UICC | ENVELOPE: MO SHORT MESSAGE CONTROL 1.10.1 |  |
| 6 | UICC 🡪 ME | MO SHORT MESSAGE CONTROL RESULT 1.3.1 |  |
| 7 | ME 🡪 UICC | TERMINAL RESPONSE: SEND SHORT MESSAGE 1.3.1 | [ Permanent Problem - Interaction with Call Control or MO short message control by USIM ] |
| 8 | ME🡪 E-USS/NB-SS | The ME does not send the Short Message |  |

Expected Sequence 1.13 (MO SM CONTROL BY USIM over SG in E-UTRAN, with user SMS, Not allowed)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 1 | USER 🡪 ME | The user makes a SMS with the user data "Test Message" and sends it to +012345678. | [The data entered and the ME settings shall lead to the same SMS-TPDU as defined in SMS-PP (SEND SHORT MESSAGE) Message 1.10. |
| 2 | ME 🡪 UICC | ENVELOPE: MO SHORT MESSAGE CONTROL 1.10.1 |  |
| 3 | UICC 🡪 ME | MO SM CONTROL RESULT 1.3.1 | [ "Not allowed"] |
| 4 | ME 🡪 E-USS/NB-SS | The ME does not send the Short Message |  |

Expected Sequence 1.14 (MO SM CONTROL BY USIM over SG in E-UTRAN, with Proactive command, Allowed with modifications)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 1 | UICC 🡪 ME | PROACTIVE COMMAND PENDING: SEND SHORT MESSAGE 1.1.1 |  |
| 2 | ME 🡪 UICC | FETCH |  |
| 3 | UICC 🡪 ME | PROACTIVE COMMAND: SEND SHORT MESSAGE 1.1.1 | Send SMS to "+012345678" |
| 4 | ME 🡪 USER | Display "Send SM" | [Alpha Identifier] |
| 5 | ME 🡪 UICC | ENVELOPE: MO SHORT MESSAGE CONTROL 1.10.1 |  |
| 6 | UICC 🡪 ME | MO SM CONTROL RESULT 1.5.1 | ["Allowed with modifications"] |
| 7 | ME 🡪 E-USS/NB-SS | Send SMS-PP Message 1.14 | [The ME sends the SM containing SMS-PP (SEND SHORT MESSAGE) Message 1.14 with the data provided by the UICC to the changed Service Center Address "+112233445566779" ] |
| 8 | E-USS/NB-SS 🡪 ME | RP-ACK |  |
| 9 | ME 🡪UICC | TERMINAL RESPONSE: SEND SHORT MESSAGE 1.5.1 |  |

SMS-PP (SEND SHORT MESSAGE) Message 1.14

Logically:

SMS TPDU

TP-MTI SMS-SUBMIT

TP-RD Instruct the SC to accept an SMS-SUBMIT for a SM

TP-VPF TP-VP field not present

TP-RP TP-Reply-Path is not set in this SMS-SUBMIT

TP-UDHI The TP-UD field contains only the short message

TP-SRR A status report is not requested

TP-MR "01"

TP-DA

TON International number

NPI "ISDN / telephone numbering plan"

Address value "012345679"

TP-PID Short message type 0

TP-DCS

Message coding 8-bit data

Message class class 0

TP-UDL 12

TP-UD "Test Message"

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Coding | 00 | 09 | 91 | 11 | 22 | 33 | 44 | 55 | 66 | 77 | F9 | 18 |
|  | 01 | 01 | 09 | 91 | 10 | 32 | 54 | 76 | F9 | 40 | F4 | 0C |
|  | 54 | 65 | 73 | 74 | 20 | 4D | 65 | 73 | 73 | 61 | 67 | 65 |

Expected Sequence 1.15 (MO SM CONTROL BY USIM over SG in E-UTRAN, with user SMS, Allowed with modifications)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 1 | USER 🡪 ME | The user makes a SMS with the user data "Test Message" and sends it to +012345678. | [The data entered and the ME settings shall lead to the same SMS-TPDU as defined in SMS-PP (SEND SHORT MESSAGE) Message 1.15. |
| 2 | ME 🡪 UICC | ENVELOPE: MO SHORT MESSAGE CONTROL 1.10.1 |  |
| 3 | UICC 🡪 ME | MO SM CONTROL RESULT 1.5.1 | [ "Allowed with modifications"] |
| 4 | ME🡪 E-USS/NB-SS | Send SMS-PP Message 1.15 | [The ME sends the SM containing SMS-PP (SEND SHORT MESSAGE) Message 1.15 with the data provided by the UICC to the changed Service Center Address "+112233445566779"] |
| 5 | E-USS/NB-SS 🡪 ME | RP-ACK |  |

SMS-PP (SEND SHORT MESSAGE) Message 1.15

Logically:

SMS TPDU

TP-MTI SMS-SUBMIT

TP-RD value shall not be verified

TP-VPF value shall not be verified

TP-RP value shall not be verified

TP-UDHI value shall not be verified

TP-SRR value shall not be verified

TP-MR "01"

TP-DA

TON International number

NPI "ISDN / telephone numbering plan"

Address value "012345679"

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Coding | 00 | 09 | 91 | 11 | 22 | 33 | 44 | 55 | 66 | 77 | F9 | Note 1 |
|  | Note 2 | 01 | 09 | 91 | 10 | 32 | 54 | 76 | F9 | Note 3 |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |

Note 1: Octet shall not be verified.

Note 2: Only the TP-MTI bits shall be verified.

Note 3: The remaining octets shall not be verified.

Expected Sequence 1.16 (MO SM CONTROL BY USIM over SG in E-UTRAN, with Proactive command, the USIM responds with '90 00', Allowed, no modification)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 1 | UICC 🡪 ME | PROACTIVE COMMAND PENDING: SEND SHORT MESSAGE 1.1.1 |  |
| 2 | ME 🡪 UICC | FETCH |  |
| 3 | UICC 🡪 ME | PROACTIVE COMMAND: SEND SHORT MESSAGE 1.1.1 | Send SMS to "+012345678" |
| 4 | ME 🡪 USER | Display "Send SM" | [Alpha Identifier] |
| 5 | ME 🡪 UICC | ENVELOPE: MO SHORT MESSAGE CONTROL 1.10.1 |  |
| 6 | UICC 🡪 ME | 90 00 |  |
| 7 | ME 🡪 E-USS/NB-SS | Send SMS-PP | [The ME sends the SM containing SMS-PP (SEND SHORT MESSAGE) Message 1.10 without modification] |
| 8 | E-USS/NB-SS 🡪 ME | RP-ACK |  |
| 9 | ME 🡪 UICC | TERMINAL RESPONSE: SEND SHORT MESSAGE 1.1.1 |  |

Expected Sequence 1.17 (MO SM CONTROL BY USIM over SG in E-UTRAN, Send Short Message attempt by user, the USIM responds with '90 00', Allowed, no modification)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 1 | User 🡪 ME | The user makes a SMS with the user data "Test Message" and sends it to +012345678. | [The data entered and the ME settings shall lead to the same SMS-TPDU as defined in SMS-PP (SEND SHORT MESSAGE) Message 1.11. |
| 2 | ME 🡪 UICC | ENVELOPE: MO SHORT MESSAGE CONTROL 1.10.1 |  |
| 3 | UICC 🡪 ME | 90 00 |  |
| 4 | ME 🡪 E-USS/NB-SS | Send SMS-PP | [The ME sends the SM containing SMS-PP (SEND SHORT MESSAGE) Message 1.11 without modification] |
| 5 | E-USS/NB-SS 🡪 ME | RP-ACK |  |

#### 27.22.8.5 Test requirement

The ME shall operate in the manner defined in expected sequences 1.1 to 1.17.

### 27.22.9 Handling of command number

#### 27.22.9.1 Definition and applicability

See clause 3.2.2.

#### 27.22.9.2 Conformance requirement

The ME shall support the facility as defined in TS 31.111 [15] clause 6.5.1, clause 6.8 and clause 8.6

#### 27.22.9.3 Test purpose

To verify that the ME sends a Terminal Response with the Command number equivalent to the value in the corresponding proactive command.

#### 27.22.9.4 Method of tests

##### 27.22.9.4.1 Initial conditions

The ME is connected to the USIM Simulator.

The elementary files are coded as Toolkit default.

Prior to this test the ME shall have been powered on and performed the PROFILE DOWNLOAD procedure.

The ME screen shall be in its normal stand-by display.

The ME shall support the DISPLAY TEXT command.

##### 27.22.9.4.2 Procedure

Expected Sequence 1.1 (DISPLAY TEXT normal priority, Unpacked 8 bit data for Text String, successful)

See ETSI TS 102 384 [26] in clause 27.22.9.4.2, Expected Sequence 1.1.

#### 27.22.9.5 Test requirement

The ME shall operate in the manner defined in expected sequence 1.1

### 27.22.10 CALL CONTROL on EPS PDN Connection

#### 27.22.10.1 Procedure for Mobile Originated calls

##### 27.22.10.1.1 Definition and applicability

See clause 3.2.2.

##### 27.22.10.1.2 Conformance requirement

The ME shall support the CALL CONTROL facility as defined in:

- TS 31.111 [15] clause 7.3.1.6, clause 7.3.1.8, clause 8.98,

- TS 24.301 [32], clause 6.4.1 and clause 6.5.1.

- TS 36.508 [33], clause 6.6.1.

##### 27.22.10.1.3 Test purpose

To verify that when the service "call control on EPS PDN connection by USIM" is available in the USIM Service Table, then for all EPS PDN connection activation (including those resulting from a OPEN CHANNEL proactive UICC command where E-UTRAN is selected), the ME shall first pass the corresponding PDN Connectivity Request message to the UICC, using the ENVELOPE (CALL CONTROL) command. The ME shall also pass to the UICC in the ENVELOPE (CALL CONTROL) command the current serving cell.

To verify that the ME interpret the UICC returns response correctly.

##### 27.22.10.1.4 Method of tests

27.22.10.1.4.1 Initial conditions

The ME is connected to the USIM Simulator and the E-USS/NB-SS. Prior to this test the ME shall have been powered on and performed the PROFILE DOWNLOAD procedure.

The default E-UTRAN/EPC UICC, the default E-UTRAN parameters and the following parameters are used:

Network access name: TestGp.rs

User login: UserLog

User password: UserPwd

UICC/ME interface transport level

Transport format: TCP

Port number: 44444

Data destination address: 01.01.01.01 (as an example)

The E-USS parameters of the system simulator are:

- Mobile Country Code (MCC) = 001;

- Mobile Network Code (MNC) = 01;

- Tracking Area Code (TAC) = 0001;

- E-UTRAN Cell Id = 0001.

The NB-SS parameters of the system simulator are:

- Mobile Country Code (MCC) = 001;

- Mobile Network Code (MNC) = 01;

- Tracking Area Code (TAC) = 0001;

- NB-IoT Cell Id = 0001.

The system simulator should accept connections requests for APNs: TestGp.rs, Test12.rs and Test13.rs.

The elementary files are coded as USIM Application Toolkit default with the following exceptions:

- The call control on EPS PDN connection by USIM service is available in the USIM Service Table.

27.22.10.1.4.2 Procedure

Expected Sequence 1.1 (CALL CONTROL on EPS PDN for E-UTRAN – default PDN connection activation, allowed without modification)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 0 | USER → ME | Set and configure APN "TestGp.rs" in the terminal configuration if required | [see initial conditions] |
| 1 | ME 🡪 UICC | ENVELOPE CALL CONTROL 1.1.1 | For default PDN establishment during ATTACH procedure |
| 2 | UICC 🡪 ME | CALL CONTROL RESULT 1.1.1 | [Call control result: "Allowed", no modification] |
| 3 | ME 🡪 E-USS/NB-SS | The PDN connection is established successfully without modification | Same EPS PDN activation parameters used by the ME within the ENVELOPE CALL CONTROL 1.1.1 are used to establish the PDN connection |

ENVELOPE CALL CONTROL 1.1.1

Logically:

Device identities

Source device: ME

Destination device: UICC

EPS PDN connection activation parameters

Protocol Discriminator: EPS session management messages

EPS bearer identity: No EPS bearer identity assigned

Procedure Transaction Identity: 1

PDN connectivity request message identity: PDN connectivity request

Request type: Initial request

PDN Type: IPv4 and/or IPv6

Access Point Name: TestGp.rs

Protocol configuration options:

Protocol config. optional contents: content not checked

Capability configuration parameters 1

This parameter is optional. If present, the contents shall not be checked.

Location Information

Mobile Country Codes (MCC) : 001

Mobile Network Codes (MNC): 01

Tracking Area Code (TAC): 0001

E-UTRAN Cell Identifier (ECI): 000000001

Capability configuration parameters 2

This parameter is optional. If present, the contents shall not be checked.

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D4 | Note1 | 02 | 02 | 82 | 81 | 7C | Note 2 | 02 | 01 | D0 | X1 Note 3 |
|  | D1 | 28 | 0A | 09 | 54 | 65 | 73 | 74 | 47 | 70 | 2E | 72 |
|  | 73 | Note 4 | 13 | 09 | 00 | F1 | 10 | 00 | 01 | 00 | 00 | 00 |
|  | 1F |  |  |  |  |  |  |  |  |  |  |  |

Note 1: The length of the BER-TLV is present here.

Note 2: Length of EPS PDN connection activation parameters, dependent of optional fields.

Note 3: X is the PDN Type.

Note 4: Optional fields.

CALL CONTROL RESULT 1.1.1

Logically:

Call control result: '00' = Allowed, no modification

Coding:

|  |  |  |
| --- | --- | --- |
| BER-TLV: | 00 | 00 |

Expected Sequence 1.2 (CALL CONTROL on EPS PDN for E-UTRAN – default PDN connection activation, not allowed)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 0 | USER → ME | Set and configure APN "TestGp.rs" in the terminal configuration if required | [see initial conditions] |
| 1 | ME  UICC | ENVELOPE CALL CONTROL 1.1.1 | For default PDN establishment during ATTACH procedure |
| 2 | UICC  ME | CALL CONTROL RESULT 1.2.1 | [Call control result: " not Allowed"].  The ME may retry to send the command. |
| 3 | ME 🡪 E-USS/NB-SS | The ME shall not send the PDN Connectivity Request message. |  |

CALL CONTROL RESULT 1.2.1

Logically:

Call control result: '01' = not Allowed

Coding:

|  |  |  |
| --- | --- | --- |
| BER-TLV: | 01 | 00 |

Expected Sequence 1.3 (CALL CONTROL on EPS PDN for E-UTRAN – default PDN connection activation, allowed with modification)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 0 | USER → ME | Set and configure APN "TestGp.rs" in the terminal configuration if required | [see initial conditions] |
| 1 | ME 🡪 UICC | ENVELOPE CALL CONTROL 1.1.1 | For default PDN establishment during ATTACH procedure. |
| 2 | UICC 🡪 ME | CALL CONTROL RESULT 1.3.1 | [Call control result: "Allowed with modifications"] |
| 3 | ME 🡪 E-USS/NB-SS | The PDN connection is established successfully with modification | Same EPS PDN activation parameters returned by the UICC in the CALL CONTROL RESULT 1.3.1 are used to establish the PDN connection. |

CALL CONTROL RESULT 1.3.1

Logically:

Call control result: '02' = Allowed with modifications

EPS PDN connection activation parameters

Protocol Discriminator: EPS session management messages

EPS bearer identity: No EPS bearer identity assigned

Procedure Transaction Identity: 1

PDN connectivity request message identity: PDN connectivity request

Request type: Initial request

PDN Type: same PDN Type in ENVELOPE CALL CONTROL 1.1.1

Access Point Name: Test12.rs

Coding:

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 02 | Note 1 | 7C | Note 2 | 02 | 01 | D0 | X1 Note 3 | 28 | 0A |
|  | 09 | 54 | 65 | 73 | 74 | 31 | 32 | 2E | 72 | 73 |
|  | Note 4 |  |  |  |  |  |  |  |  |  |

Note 1: The length of the BER-TLV is present here.

Note 2: Length of EPS PDN context activation parameters, dependent of optional fields.

Note 3: X is the PDN Type.

Note 4: Optional fields, same as in ENVELOPE CALL CONTROL 1.1.1.

Expected Sequence 1.4 (CALL CONTROL on EPS PDN for E-UTRAN – PDN connection triggered by user, UICC sends 90 00)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 0 | USER → ME | Set and configure APN "TestGp.rs" in the terminal configuration if required | [see initial conditions] |
| 1 | ME → UICC | ENVELOPE CALL CONTROL 1.1.1 | For default PDN establishment during ATTACH procedure. |
| 2 | UICC → ME | 90 00 |  |
| 3 | ME 🡪 E-USS | The PDN connection is established successfully without modification | Same EPS PDN activation parameters used by the ME within the ENVELOPE CALL CONTROL 1.1.1 are used to establish the PDN connection. |
| 4 | USER → ME | Set and configure APN "Test12.rs" in the terminal configuration if required, and trigger the ME to establish a PDN connection | [see initial conditions] |
| 5 | ME  UICC | ENVELOPE CALL CONTROL 1.4.1 |  |
| 6 | UICC  ME | 90 00 |  |
| 7 | ME → E-USS | PDN CONNECTIVITY REQUEST |  |
| 8 | E-USS → ME | ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST | [The E-UTRAN parameters are used] |
| 9 | ME → E-USS | ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT |  |
| 10 | ME 🡪 E-USS | The PDN connection is established successfully without modification | Same EPS PDN activation parameters used by the ME within the ENVELOPE CALL CONTROL 1.4.1 are used to establish the PDN connection. |

ENVELOPE CALL CONTROL 1.4.1

Logically:

Device identities

Source device: ME

Destination device: UICC

EPS PDN connection activation parameters

Protocol Discriminator: EPS session management messages

EPS bearer identity: No EPS bearer identity assigned

Procedure Transaction Identity: 2

PDN connectivity request message identity: PDN connectivity request

Request type: Initial request

PDN Type: IPv4 and/or IPv6

Access Point Name: Test12.rs

Protocol configuration options:

Protocol config. options contents: not checked

Location Information

Mobile Country Codes (MCC) 001

Mobile Network Codes (MNC) 01

Tracking Area Code (TAC): 0001

E-UTRAN Cell Identifier (ECI): 000000001

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D4 | Note 1 | 02 | 02 | 82 | 81 | 7C | Note 2 | 02 | 01 | D0 | Note 3 |
|  | D1 | 28 | 0A | 09 | 54 | 65 | 73 | 74 | 31 | 32 | 2E | 72 |
|  | 73 |  | Note 4 | 13 | 09 | 00 | F1 | 10 | 00 | 01 | 00 | 01 |
|  | 00 | 01 |  |  |  |  |  |  |  |  |  |  |

Note 1: The length of the BER-TLV is present here.

Note 2: Length of EPS PDN connection activation parameters, dependent of optional fields.

Note 3: X is the PDN Type.

Note 4: Optional fields.

Expected Sequence 1.5 (CALL CONTROL on EPS PDN for E-UTRAN – PDN connection triggered by user, UICC sends 93 00)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 1 | ME 🡪 UICC | ENVELOPE CALL CONTROL 1.1.1 | For default PDN establishment during ATTACH procedure. |
| 2 | UICC  ME | 90 00 |  |
| 3 | ME 🡪 E-USS | The PDN connection is established successfully without modification | Same EPS PDN activation parameters used by the ME within the ENVELOPE CALL CONTROL 1.1.1 are used to establish the PDN connection. |
| 4 | USER → ME | Set and configure APN "Test12.rs" in the terminal configuration if required, and trigger the ME to establish a PDN connection | [see initial conditions] |
| 5 | ME 🡪 UICC | ENVELOPE CALL CONTROL 1.4.1 |  |
| 6 | UICC  ME | 93 00 | The ME may retry to send the command. |
| 7 | ME 🡪 E-USS | The ME shall not send the PDN Connectivity Request message. |  |

Expected Sequence 1.6 (CALL CONTROL on EPS PDN for E-UTRAN – PDN connection triggered by user, allowed with modification)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 0 | USER → ME | Set and configure APN "TestGp.rs" in the terminal configuration if required | [see initial conditions] |
| 1 | ME 🡪 UICC | ENVELOPE CALL CONTROL 1.1.1 | For default PDN establishment during ATTACH procedure. |
| 2 | UICC 🡪 ME | 90 00 |  |
| 3 | ME 🡪 E-USS | The PDN connection is established successfully without modification | Same EPS PDN activation parameters used by the ME within the ENVELOPE CALL CONTROL 1.1.1 are used to establish the PDN connection. |
| 4 | USER → ME | Set and configure APN "Test12.rs" in the terminal configuration if required, and trigger the ME to establish a PDN connection | [see initial conditions] |
| 5 | ME 🡪 UICC | ENVELOPE CALL CONTROL 1.4.1 |  |
| 6 | UICC 🡪 ME | CALL CONTROL RESULT 1.6.1 | [Call control result: "Allowed with modifications", ] |
| 7 | ME → E-USS | PDN CONNECTIVITY REQUEST |  |
| 8 | E-USS → ME | ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST | [The E-UTRAN parameters are used] |
| 9 | ME → E-USS | ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT |  |
| 10 | ME 🡪 E-USS | The PDN connection is established successfully with modification | Same EPS PDN activation parameters returned by the UICC in the CALL CONTROL RESULT 1.6.1 are used to establish the PDN connection. |

CALL CONTROL RESULT 1.6.1

Logically:

Call control result: '02' = Allowed with modifications

EPS PDN connection activation parameters

Protocol Discriminator: EPS session management messages

EPS bearer identity: No EPS bearer identity assigned

Procedure Transaction Identity: 2

PDN connectivity request message identity: PDN connectivity request

Request type: Initial request

PDN Type: same PDN Type in CALL CONTROL RESULT 1.6.1

Access Point Name: Test13.rs

Coding:

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 02 | Note 1 | 7C | Note 2 | 02 | 02 | D0 | X1  Note 3 | 28 | 0A |
|  | 09 | 54 | 65 | 73 | 74 | 31 | 33 | 2E | 72 | 73 |
|  | Note 4 |  |  |  |  |  |  |  |  |  |

Note 1: The length of the BER-TLV is present here.

Note 2: Length of EPS PDN context activation parameters, dependent of optional fields.

Note 3: X is the PDN Type.

Note 4: Optional fields, same as in ENVELOPE CALL CONTROL 1.4.1.

Expected Sequence 1.7 (CALL CONTROL on EPS PDN - PDN connection activation from OPEN CHANNEL command)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 0 | USER → ME | Set and configure APN "TestGp.rs" in the terminal configuration if required | [see initial conditions] |
| 1 | ME → UICC | ENVELOPE CALL CONTROL 1.1.1 | For default PDN establishment during ATTACH procedure. |
| 2 | UICC → ME | 90 00 |  |
| 3 | ME 🡪 E-USS | The PDN connection is established successfully without modification | Same EPS PDN activation parameters used by the ME within the ENVELOPE CALL CONTROL 1.1.1 are used to establish the PDN connection. |
| 4 | USER → ME | Set and configure APN "Test12.rs" in the terminal configuration if required | [see initial conditions] |
| 5 | UICC → ME | PROACTIVE COMMAND PENDING: OPEN CHANNEL 1.1.1 |  |
| 6 | ME → UICC | FETCH |  |
| 7 | UICC → ME | PROACTIVE COMMAND: OPEN CHANNEL 1.1.1 |  |
| 8 | ME → USER | The ME may display channel opening information |  |
| 9 | ME  UICC | ENVELOPE CALL CONTROL 1.4.1 |  |
| 10 | UICC  ME | 90 00 |  |
| 11 | ME → E-USS | PDN CONNECTIVITY REQUEST | The UE may request IPv4 or IPv4v6 as PDN type |
| 12 | E-USS → ME | ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST | [The E-UTRAN parameters are used] |
| 13 | ME → E-USS | ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT |  |
| 14 | ME → UICC | TERMINAL RESPONSE: OPEN CHANNEL 1.1.1A  OR  TERMINAL RESPONSE: OPEN CHANNEL 1.1.1B | [Command performed successfully  OR  Command performed with modifications] |
| 15 | ME 🡪 E-USS | The PDN connection is established successfully without modification | Same EPS PDN activation parameters returned by the ME within the ENVELOPE CALL CONTROL 1.4.1 are used to establish the PDN connection. |

PROACTIVE COMMAND: OPEN CHANNEL 1.1.1

Logically:

Command details

Command number: 1

Command type: OPEN CHANNEL

Command qualifier: immediate link establishment

Device identities

Source device: UICC

Destination device: ME

Bearer

Bearer type: GPRS / UTRAN packet service / E-UTRAN

Precedence Class: 03

Delay Class: 04

Reliability Class: 02

Peak throughput class: 09

Mean throughput class: 31

Packet data protocol: 02 (IP)

Buffer

Buffer size: 1400

Network access name: Test12.rs

Text String: "UserLog" (User login)

Text String: "UserPwd" (User password)

UICC/ME interface transport level

Transport format: TCP

Port number: 44444

Data destination address 01.01.01.01

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D0 | 42 | 81 | 03 | 01 | 40 | 01 | 82 | 02 | 81 | 82 | 35 |
|  | 07 | 02 | 03 | 04 | 02 | 09 | 1F | 02 | 39 | 02 | 05 | 78 |
|  | 47 | 0A | 06 | 54 | 65 | 73 | 74 | 30 | 32 | 02 | 72 | 73 |
|  | 0D | 08 | F4 | 55 | 73 | 65 | 72 | 4C | 6F | 67 | 0D | 08 |
|  | F4 | 55 | 73 | 65 | 72 | 50 | 77 | 64 | 3C | 03 | 02 | AD |
|  | 9C | 3E | 05 | 21 | 01 | 01 | 01 | 01 |  |  |  |  |

TERMINAL RESPONSE: OPEN CHANNEL 1.1.1A

Logically:

Command details

Command number: 1

Command type: OPEN CHANNEL

Command qualifier: immediate link establishment

Device identities

Source device: ME

Destination device: UICC

Result

General Result: Command performed successfully

Channel status Channel identifier 1 and link established or PDP context activated

Bearer description

Bearer type: GPRS / UTRAN packet service / E-UTRAN

Bearer parameter:

Precedence Class: 03

Delay Class: 04

Reliability Class: 02

Peak throughput class: 09

Mean throughput class: 31

Packet data protocol: 02 (IP)

Buffer

Buffer size: 1400

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 81 | 03 | 01 | 40 | 01 | 82 | 02 | 82 | 81 | 83 | 01 | 00 |
|  | 38 | 02 | 81 | 00 | 35 | 07 | 02 | 03 | 04 | 02 | 09 | 1F |
|  | 02 | 39 | 02 | 05 | 78 |  |  |  |  |  |  |  |

TERMINAL RESPONSE: OPEN CHANNEL 1.1.1B

Logically:

Command details

Command number: 1

Command type: OPEN CHANNEL

Command qualifier: immediate link establishment

Device identities

Source device: ME

Destination device: UICC

Result

General Result: Command performed with modifications

Channel status Channel identifier 1 and link established or PDP context activated

Bearer description

Bearer type: GPRS / UTRAN packet service / E-UTRAN

Bearer parameter:

Precedence Class: 03

Delay Class: 04

Reliability Class: 02

Peak throughput class: 09

Mean throughput class: 31

Packet data protocol: 02 (IP)

Buffer

Buffer size: 1400

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 81 | 03 | 01 | 40 | 01 | 82 | 02 | 82 | 81 | 83 | 01 | 07 |
|  | 38 | 02 | 81 | 00 | 35 | 07 | 02 | 03 | 04 | 02 | 09 | 1F |
|  | 02 | 39 | 02 | 05 | 78 |  |  |  |  |  |  |  |

##### 27.22.10.1.5 Test requirement

The ME shall operate in the manner defined in expected sequences 1.1 to 1.7.

### 27.22.11 CALL CONTROL on PDP Context Activation

#### 27.22.11.1 Procedure for Mobile Originated calls

##### 27.22.11.1.1 Definition and applicability

See clause 3.2.2.

##### 27.22.11.1.2 Conformance requirement

The ME shall support the CALL CONTROL for PDP Context Activation facility as defined in:

- TS 31.111 [15] clause 7.3, clause 7.3.1.7, clause 8.72.

- TS 24.008 [10], clause 6.1.3.3, clause 9.5.7 and clause 9.5.8.

- TS 36.508 [33], clause 4.8.4.

##### 27.22.11.1.3 Test purpose

To verify that when the service "call control on GPRS by USIM" is available in the USIM Service Table, then for all PS PDP Context Activation (including those resulting from an OPEN CHANNEL proactive UICC command where UTRAN is selected), the ME shall first pass the corresponding Activate PDP Context message to the UICC, using the ENVELOPE (CALL CONTROL) command. The ME shall also pass to the UICC in the ENVELOPE (CALL CONTROL) command the current serving cell.

To verify that the ME interpret the UICC returns response correctly.

##### 27.22.11.1.4 Method of tests

27.22.11.1.4.1 Initial conditions

The ME is connected to the USIM Simulator and the USS/SS. Prior to this test the ME shall have been powered on and performed the PROFILE DOWNLOAD procedure.

The default GERAN/UTRAN/EPC UICC, the default GERAN/UTRAN parameters and the following parameters are used:

Network access name: TestGp.rs

User login: UserLog

User password: UserPwd

UICC/ME interface transport level

Transport format: TCP

Port number: 44444

Data destination address: 01.01.01.01 (as an example)

The GERAN/UTRAN parameters of the system simulator are:

- Mobile Country Code (MCC) = 001;

- Mobile Network Code (MNC) = 01;

- Location Area Code (LAC) = 0001;- Cell Identity Value = 0001;

- The simulator must accept connections requests for APNs: TestGp.rs, Test12.rs and Test13.rs

The elementary files are coded as USIM Application Toolkit default with the following exceptions:

- The call control on GPRS by USIM service is available in the USIM Service Table.

##### 27.22.11.4.2 Procedure

Expected Sequence 1.1 (CALL CONTROL on PDP Context Activation – default PDP connection activation, allowed without modification)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 0 | USER 🡪 ME | Set and configure APN "TestGp.rs" in the terminal configuration if required. | [see initial conditions] |
| 1 | ME 🡪 UICC | ENVELOPE CALL CONTROL 1.1.1 | For default PDP establishment during ATTACH procedure |
| 2 | UICC 🡪 ME | CALL CONTROL RESULT 1.1.1 | [Call control result: "Allowed", no modification] |
| 3 | ME 🡪 USS/SS | The PDP connection is established successfully without modification | Same PDP activation parameters used by the ME within the ENVELOPE CALL CONTROL 1.1.1 are used to establish the PDP connection |

ENVELOPE CALL CONTROL 1.1.1

Logically:

Device identities

Source device: ME

Destination device: UICC

PDP Context Activation parameters

Protocol Discriminator: GPRS session management messages

Transaction Identifier: 0

Request PDP context activation message identity: Activate PDP context request

Requested NSAPI: NSAPI 5

Requested LLC SAPI: SAPI 3

Requested QoS: Subscribed QoS parameters

Requested PDP address:

PDP type organisation: as declared by the ME

PDP type: as declared by the ME

Address: as declared by the ME

Access point name: 06 54 65 73 74 47 70 02 72 73 ("TestGp.rs")

Protocol configuration options:

Protocol config. optional contents: content not checked

Location Information

MCC: 001

MNC: 01

Location Area Code: 0001

Cell Identity Value: 0001

Extended Cell Identity Value: RNC-id value (for Rel-4 onwards), see also Note 6

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV | D4 | Note1 | 02 | 02 | 82 | 81 | 52 | Note2 | 0A | 41 | 05 | 03 | 0E |
|  | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
|  | 00 | Note3 | 28 | 0A | 06 | 54 | 65 | 73 | 74 | 47 | 70 | 02 | 72 |
|  | 73 | Note4 | 13 | Note5 | 00 | F1 | 10 | 00 | 01 | 00 | 01 | Note6 |  |

Note1: Length of BER-TLV, dependent of optional fields.

Note2: Length of PDP context activation parameters, dependent of optional fields.

Note3: Requested PDP Address.

Note4: Optional fields.

Note5: Depending on the presence of the Extended Cell Identity Value the length is '07' or '09'.

Note6: The Extended Cell Identity Value is present in Rel-4 and onwards implementations, the values of the two bytes shall not be verified.

CALL CONTROL RESULT 1.1.1

Logically:

Call control result: '00' = Allowed, no modification

Coding:

|  |  |  |
| --- | --- | --- |
| BER-TLV: | 00 | 00 |

Expected Sequence 1.2 (CALL CONTROL on PDP Context Activation – default PDP connection activation, not allowed)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 0 | USER  ME | Set and configure APN "Test.Gp.rs" in the terminal configuration if required | [see initial conditions] |
| 1 | ME  UICC | ENVELOPE CALL CONTROL 1.1.1 | For default PDP establishment during ATTACH procedure |
| 2 | UICC  ME | CALL CONTROL RESULT 1.2.1 | [Call control result: " not Allowed"].  The ME may retry to send the command. |
| 3 | ME  USS/SS | The ME shall not send the Activate PDP Context Request message. |  |

CALL CONTROL RESULT 1.2.1

Logically:

Call control result: '01' = not Allowed

Coding:

|  |  |  |
| --- | --- | --- |
| BER-TLV: | 01 | 00 |

Expected Sequence 1.3 (CALL CONTROL on PDP Context Activation – default PDP connection activation, allowed with modification)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 0 | USER → ME | Set and configure APN "TestGp.rs" in the terminal configuration if required | [see initial conditions] |
| 1 | ME 🡪 UICC | ENVELOPE CALL CONTROL 1.1.1 | For default PDP establishment during ATTACH procedure |
| 2 | UICC 🡪 ME | CALL CONTROL RESULT 1.3.1 | [Call control result: "Allowed with modifications"] |
| 3 | ME 🡪 USS/SS | The PDP connection is established successfully with modification | Same PDP activation parameters returned by the UICC within the CALL CONTROL RESULT 1.3.1 are used to establish the PDP connection |

CALL CONTROL RESULT 1.3.1

Logically:

Call control result: '02' = Allowed with modifications

Address:

PDP Context Activation parameters

Protocol Discriminator: GPRS session management messages

Transaction Identifier: 0

Request PDP context activation message identity: Activate PDP context request

Requested NSAPI: NSAPI 5

Requested LLC SAPI: SAPI 3

Requested QoS: Subscribed QoS parameters

Requested PDP address:

PDP type organisation: as declared by the ME

PDP type: as declared by the ME

Address: as declared by the ME

Access point name: 06 54 65 73 74 31 32 02 72 73 ("Test12.rs")

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 02 | Note1 | 52 | Note2 | 0A | 41 | 05 | 03 | 0E | 00 | 00 | 00 |
|  | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | Note3 |
|  | 28 | 0A | 06 | 54 | 65 | 73 | 74 | 31 | 32 | 02 | 72 | 73 |
|  | Note4 |  |  |

Note1: Length of BER-TLV, dependent on optional fields.

Note2: Length dependent on optional fields.

Note3: Requested PDP Address.

Note4: Optional fields.

Expected Sequence 1.4 (CALL CONTROL on PDP Context Activation – PDP connection triggered by user, UICC sends 90 00)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 0 | USER → ME | Set and configure APN "Test.Gp.rs" in the terminal configuration if required | [see initial conditions] |
| 1 | ME → UICC | ENVELOPE CALL CONTROL 1.1.1 | For default PDP establishment during ATTACH procedure. |
| 2 | UICC → ME | 90 00 |  |
| 3 | ME 🡪 USS/SS | The PDP connection is established successfully without modification | Same PDP activation parameters used by the ME within the ENVELOPE CALL CONTROL 1.1.1 are used to establish the PDP connection. |
| 4 | USER → ME | Set and configure APN "Test12.rs" in the terminal configuration if required, and trigger the ME to perform a PS call to Activate PDP Context Request connection | [see initial conditions] |
| 5 | ME → UICC | ENVELOPE CALL CONTROL 1.4.1 |  |
| 6 | UICC → ME | 90 00 |  |
| 7 | ME → USS/SS | ACTIVATE DEFAULT PDP CONTEXT REQUEST | [The UTRAN parameters are used] |
| 8 | USS/SS → ME | ACTIVATE DEFAULT PDP CONTEXT ACCEPT |  |
| 9 | ME 🡪 USS/SS | The PDP connection is established successfully without modification | Same PDP activation parameters used by the ME within the ENVELOPE CALL CONTROL 1.4.1 are used to establish the PDP connection |

ENVELOPE CALL CONTROL 1.4.1

Logically:

Device identities

Source device: ME

Destination device: UICC

PS PDP connection activation parameters

Protocol Discriminator: GPRS session management messages

Transaction Identifier: 0

Request PDP context activation message identity: Activate PDP context request

Requested NSAPI: NSAPI 5

Requested LLC SAPI: SAPI 3

Requested QoS: Subscribed QoS parameter

Requested PDP address:

PDP type organisation: as declared by the ME

PDP type: as declared by the ME

Address: as declared by the ME

Access Point Name: 06 54 65 73 74 31 32 02 72 73 ( "Test12.rs")

Protocol configuration options:

Protocol config. options contents: not checked

Location Information

MCC: 001

MNC: 01

Location Area Code: 0001

Cell Identity Value: 0001

Extended Cell Identity Value: RNC-id value (for Rel-4 onwards), see also Note 6

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV | D4 | Note1 | 02 | 02 | 82 | 81 | 52 | Note2 | 0A | 41 | 05 | 03 |
|  | 0E | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
|  | 00 | 00 | 00 | Note3 | 28 | 0A | 06 | 54 | 65 | 73 | 74 | 31 |
|  | 32 | 02 | 72 | 73 | Note4 | 13 | Note5 | 00 | F1 | 10 | 00 | 01 |
|  | 00 | 01 | Note6 |

Note1: Length of BER-TLV, dependent on optional fields.

Note2: Length of PDP context activation parameters, dependent on optional fields.

Note3: Requested PDP address.

Note4: Optional fields.

Note5: Depending on the presence of the Extended Cell Identity Value the length is '07' or '09'.

Note6: The Extended Cell Identity Value is present in Rel-4 and onwards implementations, the values of the two bytes shall not be verified.

Expected Sequence 1.5 (CALL CONTROL on PDP Context Activation – PDP connection triggered by user, UICC sends 93 00)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 0 | USER → ME | Set and configure APN "Test.Gp.rs" in the terminal configuration if required | [see initial conditions] |
| 1 | ME 🡪 UICC | ENVELOPE CALL CONTROL 1.1.1 | For default PDP establishment during ATTACH procedure. |
| 2 | UICC → ME | 90 00 |  |
| 3 | ME 🡪 USS/SS | The PDP connection is established successfully without modification | Same PDP activation parameters used by the ME within the ENVELOPE CALL CONTROL 1.1.1 are used to establish the PDP connection. |
| 4 | USER → ME | Set and configure APN "Test12.rs" in the terminal configuration if required, and trigger the ME to perform a PS call to Activate PDP Context Request connection | [see initial conditions] |
| 5 | ME 🡪 UICC | ENVELOPE CALL CONTROL 1.4.1 |  |
| 6 | UICC → ME | 93 00 | The ME may retry to send the command. |
| 7 | ME 🡪 USS/SS | The ME shall not send the Activate PDP Context Request message. |  |

Expected Sequence 1.6 (CALL CONTROL on PDP Context Activation – PDP connection triggered by user, allowed with modification)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 0 | USER → ME | Set and configure APN "TestGp.rs" in the terminal configuration if required | [see initial conditions] |
| 1 | ME 🡪 UICC | ENVELOPE CALL CONTROL 1.1.1 | For default PDP establishment during ATTACH procedure. |
| 2 | UICC 🡪 ME | 90 00 |  |
| 3 | ME 🡪 USS/SS | The PDP connection is established successfully without modification | Same PDP activation parameters used by the ME within the ENVELOPE CALL CONTROL 1.1.1 are used to establish the PDP connection. |
| 4 | USER → ME | Set and configure APN "Test12.rs" in the terminal configuration if required, and trigger the ME to perform a PS call to Activate PDP Context Request connection. | [see initial conditions] |
| 5 | ME 🡪 UICC | ENVELOPE CALL CONTROL 1.4.1 |  |
| 6 | UICC 🡪 ME | CALL CONTROL RESULT 1.6.1 | [Call control result: "Allowed with modifications", ] |
| 7 | ME 🡪 USS/SS | ACTIVATE PDP CONTEXT REQUEST | [The UTRAN parameters are used] |
| 8 | USS/SS → ME | ACTIVATE PDP CONTEXT ACCEPT |  |
| 9 | ME 🡪 USS/SS | The PDP connection is established successfully with modification | Same PDP parameters returned by the UICC within the CALL CONTROL RESULT 1.6.1 are used to establish the PDP connection. |

CALL CONTROL RESULT 1.6.1

Logically:

Call control result: '02' = Allowed with modifications

PDP Context Activation parameters

Protocol Discriminator: GPRS session management messages

Transaction Identifier: 0

Request PDP context activation message identity: Activate PDP context request

Requested NSAPI: NSAPI 5

Requested LLC SAPI: SAPI 3

Requested QoS: Subscribed QoS parameters

Requested PDP address:

PDP type organisation: as declared by the ME

PDP type: as declared by the ME

Address: as declared by the ME

Access point name: 06 54 65 73 74 31 33 02 72 73 ( "Test13.rs")

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 02 | Note1 | 52 | Note2 | 0A | 41 | 05 | 03 | 0E | 00 | 00 |
|  | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
|  | 00 | Note3 | 28 | 0A | 06 | 54 | 65 | 73 | 74 | 31 | 33 |
|  | 02 | 72 | 73 | Note4 |

Note1: Length of BER-TLV, dependent on optional fields.

Note2: Length dependent on optional fields.

Note3: Requested PDP address.

Note4: Optional fields.

Expected Sequence 1.7 (CALL CONTROL on PDP Context Activation - PDP connection activation from OPEN CHANNEL command)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | Message / Action | Comments |
| 0 | USER → ME | Set and configure APN "TestGp.rs" in the terminal configuration if required | [see initial conditions] |
| 1 | UICC → ME | PROACTIVE COMMAND PENDING: OPEN CHANNEL 1.1.1 |  |
| 2 | ME → UICC | FETCH |  |
| 3 | UICC → ME | PROACTIVE COMMAND: OPEN CHANNEL 1.1.1 |  |
| 4 | ME → USER | The ME may display channel opening information |  |
| 5 | ME → UICC | ENVELOPE CALL CONTROL 1.4.1 |  |
| 6 | UICC → ME | 90 00 |  |
| 7 | ME → USS/SS | ACTIVATE DEFAULT PDP CONTEXT REQUEST | [The UTRAN parameters are used] |
| 8 | USS/SS → ME | ACTIVATE DEFAULT PDP CONTEXT ACCEPT |  |
| 9 | ME → UICC | TERMINAL RESPONSE: OPEN CHANNEL 1.1.1A  OR  TERMINAL RESPONSE: OPEN CHANNEL 1.1.1B | [Command performed successfully  OR  Command performed with modifications] |
| 10 | ME 🡪 USS/SS | The PDP connection is established successfully without modification | Same PDP parameters used by the ME within the ENVELOPE CALL CONTROL 1.4.1 are used to establish the PDP connection. |

PROACTIVE COMMAND: OPEN CHANNEL 1.1.1

Logically:

Command details

Command number: 1

Command type: OPEN CHANNEL

Command qualifier: immediate link establishment

Device identities

Source device: UICC

Destination device: ME

Bearer

Bearer type: GPRS / UTRAN packet service / E-UTRAN

Precedence Class: 03

Delay Class: 04

Reliability Class: 02

Peak throughput class: 09

Mean throughput class: 31

Packet data protocol: 02 (IP)

Buffer

Buffer size: 1400

Network access name: TestGp.rs

Text String: "UserLog" (User login)

Text String: "UserPwd" (User password)

UICC/ME interface transport level

Transport format: TCP

Port number: 44444

Data destination address 01.01.01.01

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D0 | 42 | 81 | 03 | 01 | 40 | 01 | 82 | 02 | 81 | 82 | 35 |
|  | 07 | 02 | 03 | 04 | 02 | 09 | 1F | 02 | 39 | 02 | 05 | 78 |
|  | 47 | 0A | 06 | 54 | 65 | 73 | 74 | 47 | 70 | 02 | 72 | 73 |
|  | 0D | 08 | F4 | 55 | 73 | 65 | 72 | 4C | 6F | 67 | 0D | 08 |
|  | F4 | 55 | 73 | 65 | 72 | 50 | 77 | 64 | 3C | 03 | 02 | AD |
|  | 9C | 3E | 05 | 21 | 01 | 01 | 01 | 01 |  |  |  |  |

TERMINAL RESPONSE: OPEN CHANNEL 1.1.1A

Logically:

Command details

Command number: 1

Command type: OPEN CHANNEL

Command qualifier: immediate link establishment

Device identities

Source device: ME

Destination device: UICC

Result

General Result: Command performed successfully

Channel status Channel identifier 1 and link established or PDP context activated

Bearer description

Bearer type: GPRS / UTRAN packet service / E-UTRAN

Bearer parameter: IP (Internet Protocol, IETF STD 5)

Precedence Class: 03

Delay Class: 04

Reliability Class: 02

Peak throughput class: 09

Mean throughput class: 31

Packet data protocol: 02 (IP)

Buffer

Buffer size: 1400

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 81 | 03 | 01 | 40 | 01 | 82 | 02 | 82 | 81 | 83 | 01 | 00 |
|  | 38 | 02 | 81 | 00 | 35 | 07 | 02 | 03 | 04 | 02 | 09 | 1F |
|  | 02 | 39 | 02 | 05 | 78 |  |  |  |  |  |  |  |

TERMINAL RESPONSE: OPEN CHANNEL 1.1.1B

Logically:

Command details

Command number: 1

Command type: OPEN CHANNEL

Command qualifier: immediate link establishment

Device identities

Source device: ME

Destination device: UICC

Result

General Result: Command performed with modifications

Channel status Channel identifier 1 and link established or PDP context activated

Bearer description

Bearer type: GPRS / UTRAN packet service / E-UTRAN

Bearer parameter: IP (Internet Protocol, IETF STD 5)

Precedence Class: 03

Delay Class: 04

Reliability Class: 02

Peak throughput class: 09

Mean throughput class: 31

Packet data protocol: 02 (IP)

Buffer

Buffer size: 1400

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 81 | 03 | 01 | 40 | 01 | 82 | 02 | 82 | 81 | 83 | 01 | 07 |
|  | 38 | 02 | 81 | 00 | 35 | 07 | 02 | 03 | 04 | 02 | 09 | 1F |
|  | 02 | 39 | 02 | 05 | 78 |  |  |  |  |  |  |  |

27.22.11.5 Test requirement

The ME shall operate in the manner defined in expected sequences 1.1 to 1.7.

### 27.22.12 Change eCall mode

#### 27.22.12.1 Definition and applicability

See clause 3.2.2.

#### 27.22.12.2 Conformance requirement

The UE shall support eCall feature on the USIM and is able to change the eCall mode as specified in:

- TS 31.102 [14] clause 5.3.40.

#### 27.22.12.3 Test purpose

To verify that the ME is able to change the eCall mode after the re-configuration of the USIM from eCall only support to eCall and Normal call support, or vice versa, by changing the content of the USIM Service Table, and/or by changing the content of the EFEST, where the ME shall be notified of the changes by using the REFRESH proactive command.

#### 27.22.12.4 Method of test

##### 27.22.12.4.1 Initial conditions

The ME is connected to the USIM Simulator and connected to the E-USS or USS.

For test sequences 1.1 – 1.3 the E-UTRAN parameters of the E-USS are:

- Mobile Country Code (MCC) = 246;

- Mobile Network Code (MNC) = 81;

- Tracking Area Code (TAC) = 0001.

For test sequences 1.4 and 1.5 the GERAN or UTRAN parameters of the USS are:

Mobile Country Code (MCC) = 246;

- Mobile Network Code (MNC) = 81;

- Location Area Code (LAC) = 0001.

The elementary files are coded as the default E-UTRAN/EPC UICC, with the following exceptions:

For test sequences 1.1, 1.4:

- EFUST the services (Service n°2) Fixed Dialling Numbers (FDN), (Service n°4) Service Dialling Numbers (SDN) and (Service n°89) eCall Data are available

- EFEST has the Service n°2 Fixed Dialling Numbers (FDN) is enabled

- EFFDN contains only two entries: eCall test number (123) and eCall reconfiguration number (345)

- EFSDN the last two entriescontains two entries: eCall test number (456) and eCall reconfiguration number (678)

For test sequences 1.2, and 1.5:

- EFUST the services (Service n°2) Fixed Dialling Numbers (FDN), (Service n°4) Service Dialling Numbers (SDN) and (Service n°89) eCall Data are available

- EFEST has the Service n°2 Fixed Dialling Numbers (FDN) disabled

- EFFDN contains only two entries: eCall test number (123) and eCall reconfiguration number (345)

- EFSDN the last two entriescontains two entries: eCall test number (456) and eCall reconfiguration number (678)

For test sequence 1.3:

- EFUST the services (Service n°2) Fixed Dialling Numbers (FDN), (Service n°4) Service Dialling Numbers (SDN), (Service n°99) URI support by UICC and (Service n°112) eCall Data over IMS are available.

- EFEST has the Service n°2 Fixed Dialling Numbers (FDN) enabled

- EFFDNURI contains only two entries: eCall test number (123) and eCall reconfiguration number (345)

- EFSDNURI the last two entriescontains two entries: eCall test number (456) and eCall reconfiguration number (678)

PIN of the USIM is disabled.

Prior to this test the ME shall have been powered on, performed the PROFILE DOWNLOAD procedure and registered to the network.

##### 27.22.12.4.2 Procedure

**Expected Sequence 1.1 (REFRESH after change eCall mode, disable FDN in EFEST, E-UTRAN)**

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | MESSAGE / Action | Comments |
| 1 | User 🡪 ME ME 🡪 E-USS | Set up an eCall | [Call is established using the number in EFFDN] |
| 2 | User 🡪 ME | Call is terminated after a few seconds. |  |
| 3 | User 🡪 ME | Set up a normal call to "54321" | Steps 3 – 4 apply only if the ME supports A.1/87 AND A.1/85, else these steps should be skipped. |
| 4 | ME 🡪 User | Call set up not allowed |  |
| 5 | E-USS 🡪 ME | SMS-PP Data Download |  |
| 6 | ME 🡪 UICC | ENVELOPE: SMS-PP DOWNLOAD 1.1.1 |  |
| 7 | UICC → ME | SMS-PP Data Download UICC Acknowledgement | [SW '90 00'] |
| 8 | ME 🡪 E-USS | SMS-PP Data Download UICC acknowledgement (RP-ACK) message. |  |
| 9 | UICC | EFEST contents state FDN is disabled | [New EFEST value: 00] |
| 10 | UICC 🡪 ME | PROACTIVE COMMAND PENDING: REFRESH 1.1.1 |  |
| 11 | ME 🡪 UICC | FETCH |  |
| 12 | UICC 🡪 ME | PROACTIVE COMMAND: REFRESH 1.1.1 |  |
| 13 | ME → UICC | TERMINAL RESPONSE: REFRESH 1.1.1A or  TERMINAL RESPONSE: REFRESH 1.1.1B | [additional EFs read] |
| 14 | User 🡪 ME ME→ E-USS | Set up an eCall | [Call is established using the number located in EFSDN] |
| 15 | User 🡪 ME | Call is terminated after a few seconds. |  |
| 16 | User 🡪 ME | Set up a normal call to "54321" | Steps 16 – 18 apply only if the ME supports A.1/87 AND A.1/85, else these steps should be skipped. |
| 17 | ME 🡪 E-USS | Setup | Call is established |
| 18 | User 🡪 ME | Call is terminated after a few seconds |  |

SMS-PP (Data Download) Message 1.1.1

Logically:

SMS TPDU

TP-MTI SMS-DELIVER

TP-MMS No more messages waiting for the MS in this SC

TP-RP TP-Reply-Path is not set in this SMS-DELIVER

TP-UDHI TP-UD field contains only the short message

TP-SRI A status report will not be returned to the SME

TP-OA

TON International number

NPI "ISDN / telephone numbering plan"

Address value "1234"

TP-PID (U)SIM Data download

TP-DCS

Coding Group General Data Coding

Compression Text is uncompressed

Message Class Class 2 (U)SIM Specific Message

Alphabet 8 bit data

TP-SCTS: 01/01/98 00:00:00 +0

TP-UDL 13

TP-UD "Short Message"

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Coding | 04 | 04 | 91 | 21 | 43 | 7F | 16 | 89 | 10 | 10 | 00 | 00 |
|  | 00 | 00 | 0D | 53 | 68 | 6F | 72 | 74 | 20 | 4D | 65 | 73 |
|  | 73 | 61 | 67 | 65 |  |  |  |  |  |  |  |  |

ENVELOPE: SMS-PP DOWNLOAD 1.1.1

Logically:

SMS-PP Download

Device identities

Source device: Network

Destination device: UICC

Address

TON International number

NPI "ISDN / telephone numbering plan"

Dialling number string "112233445566778"

SMS TPDU

TP-MTI SMS-DELIVER

TP-MMS No more messages waiting for the MS in this SC

TP-RP TP-Reply-Path is not set in this SMS-DELIVER

TP-UDHI TP-UD field contains only the short message

TP-SRI A status report will not be returned to the SME

TP-OA

TON International number

NPI "ISDN / telephone numbering plan"

Address value "1234"

TP-PID (U)SIM Data download

TP-DCS

Coding Group General Data Coding

Compression Text is uncompressed

Message Class Class 2 (U)SIM Specific Message

Alphabet 8 bit data

TP-SCTS: 01/01/98 00:00:00 +0

TP-UDL 13

TP-UD "Short Message"

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D1 | 2D | 82 | 02 | 83 | 81 | 06 | 09 | 91 | 11 | 22 | 33 |
|  | 44 | 55 | 66 | 77 | F8 | 8B | 1C | 04 | 04 | 91 | 21 | 43 |
|  | 7F | 16 | 89 | 10 | 10 | 00 | 00 | 00 | 00 | 0D | 53 | 68 |
|  | 6F | 72 | 74 | 20 | 4D | 65 | 73 | 73 | 61 | 67 | 65 |  |

PROACTIVE COMMAND: REFRESH 1.1.1

Logically:

Command details

Command number: 1

Command type: REFRESH

Command qualifier: USIM Initialization and File Change Notification

Device identities

Source device: UICC

Destination device: ME

File List: EF EST

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D0 | 12 | 81 | 03 | 01 | 01 | 02 | 82 | 02 | 81 | 82 | 92 |
|  | 07 | 01 | 3F | 00 | 7F | FF | 6F | 56 |  |  |  |  |

TERMINAL RESPONSE: REFRESH 1.1.1A

Logically:

Command details

            Command number:        1

            Command type:             REFRESH

            Command qualifier:      USIM Initialization and File Change Notification

Device identities

            Source device:               ME

            Destination device:       UICC

Result

            General Result:              Command performed successfully

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 81 | 03 | 01 | 01 | 02 | 82 | 02 | 82 | 81 | 83 | 01 | 00 |

TERMINAL RESPONSE: REFRESH 1.1.1B

Logically:

Command details

            Command number:        1

            Command type:             REFRESH

            Command qualifier:      USIM Initialization and File Change Notification

Device identities

            Source device:               ME

            Destination device:       UICC

Result

            General Result:              REFRESH performed with additional EFs read

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 81 | 03 | 01 | 01 | 02 | 82 | 02 | 82 | 81 | 83 | 01 | 03 |

Expected Sequence 1.2 (REFRESH after change eCall mode, enable FDN in EFEST, E-UTRAN)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | MESSAGE / Action | Comments |
| 1 | User 🡪 ME ME 🡪 E-USS | Set up an eCall | [Call is established and maintained using the number in EFSDN] |
| 2 | User 🡪 ME | Call is terminated after a few seconds. |  |
| 3 | User 🡪 ME | Set up a normal call to "54321" | Steps 3 – 5 apply only if the ME supports A.1/87 AND A.1/85, else these steps should be skipped. |
| 4 | ME 🡪 E-USS | Setup | Call is established |
| 5 | User 🡪 ME | Call is terminated after a few seconds |  |
| 6 | E-USS 🡪 ME | SMS-PP Data Download |  |
| 7 | ME 🡪 UICC | ENVELOPE: SMS-PP DOWNLOAD 1.1.1 |  |
| 8 | UICC → ME | SMS-PP Data Download UICC Acknowledgement | [SW '90 00'] |
| 9 | ME 🡪 E-USS | SMS-PP Data Download UICC Acknowledgement (RP-ACK) message. |  |
| 10 | UICC | EFEST contents state FDN is enabled | [New EFEST value: 01] |
| 11 | UICC 🡪 ME | PROACTIVE COMMAND PENDING: REFRESH 1.2.1 |  |
| 12 | ME 🡪 UICC | FETCH |  |
| 13 | ME → UICC | USIM Initialization including send STATUS[P1='01'] | [ME performs USIM initialization in accordance with TS 31.111 [15] clause 6.4.7] |
| 14 | UICC 🡪 ME | PROACTIVE COMMAND: REFRESH 1.2.1 |  |
| 15 | ME → UICC | TERMINAL RESPONSE: REFRESH 1.2.1A or  TERMINAL RESPONSE: REFRESH 1.2.1B | [additional EFs read] |
| 16 | ME→ E-USS | Set up an eCall | [Call is established using the number located in EFFDN] |
| 17 | User 🡪 ME | Call is terminated after a few seconds. |  |
| 18 | User 🡪 ME | Set up a normal call to "54321" | Steps 18 – 19 apply only if the ME supports A.1/87 AND A.1/85, else these steps should be skipped. |
| 19 | ME 🡪 User | Call set up not allowed |  |

PROACTIVE COMMAND: REFRESH 1.2.1

Logically:

Command details

Command number: 1

Command type: REFRESH

Command qualifier: USIM Initialization and Full File Change Notification

Device identities

Source device: UICC

Destination device: ME

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D0 | 09 | 81 | 03 | 01 | 01 | 00 | 82 | 02 | 81 | 82 |

TERMINAL RESPONSE: REFRESH 1.2.1A

Logically:

Command details

Command number: 1

Command type: REFRESH

Command qualifier: USIM Initialization and Full file Change Notification

Device identities

Source device: ME

Destination device: UICC

Result

General Result: Command performed successfully

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 81 | 03 | 01 | 01 | 00 | 82 | 02 | 82 | 81 | 83 | 01 | 00 |

TERMINAL RESPONSE: REFRESH 1.2.1B

Logically:

Command details

Command number: 1

Command type: REFRESH

Command qualifier: USIM Initialization and full File change Notification

Device identities

Source device: ME

Destination device: UICC

Result

General Result: REFRESH performed with additional EFs read

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 81 | 03 | 01 | 01 | 00 | 82 | 02 | 82 | 81 | 83 | 01 | 03 |

Expected Sequence 1.3 (REFRESH after changing eCall mode, disable FDN in EFEST, IMS Emergency Services in E-UTRAN)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | MESSAGE / Action | Comments |
| 1 | User 🡪 ME ME 🡪 E-USS | Set up an eCall | [Call is established using the number in EFFDNURI] |
| 2 | User 🡪 ME | Call is terminated after a few seconds. |  |
| 3 | User 🡪 ME | Set up a normal call to "54321" | Steps 3 – 4 apply only if the ME supports A.1/87 AND A.1/85, else these steps should be skipped. |
| 4 | ME 🡪 User | Call set up not allowed |  |
| 5 | E-USS 🡪 ME | SMS-PP Data Download |  |
| 6 | ME 🡪 UICC | ENVELOPE: SMS-PP DOWNLOAD 1.1.1 |  |
| 7 | UICC → ME | SMS-PP Data Download UICC Acknowledgement | [SW '90 00'] |
| 8 | ME 🡪 E-USS | SMS-PP Data Download UICC acknowledgement (RP-ACK) message. |  |
| 9 | UICC | EFEST contents state FDN is disabled | New EFEST value: 00 |
| 10 | UICC 🡪 ME | PROACTIVE COMMAND PENDING: REFRESH 1.1.1 |  |
| 11 | ME 🡪 UICC | FETCH |  |
| 12 | UICC 🡪 ME | PROACTIVE COMMAND: REFRESH 1.1.1 |  |
| 13 | ME → UICC | TERMINAL RESPONSE: REFRESH 1.1.1A or  TERMINAL RESPONSE: REFRESH 1.1.1B | [additional EFs read] |
| 14 | User 🡪 ME ME→ E-USS | Set up an eCall | [Call is established using the number located in EFSDNURI] |
| 15 |  |  |  |
| 16 | User 🡪 ME | Call is terminated after a few seconds. |  |
| 17 | User 🡪 ME | Set up a normal call to "54321" | Steps 17 – 19 apply only if the ME supports A.1/87 AND A.1/85, else these steps should be skipped. |
| 18 | ME 🡪 E-USS | Setup | Call is established |
| 19 | User 🡪 ME | Call is terminated after a few seconds |  |

Expected Sequence 1.4 (REFRESH after changing eCall mode, disable FDN in EFEST, UTRAN/GERAN)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | MESSAGE / Action | Comments |
| 1 | User 🡪 ME ME 🡪 USS | Set up an eCall | [Call is established using the number in EFFDN] |
| 2 | User 🡪 ME | Call is terminated after a few seconds |  |
| 3 | User 🡪 ME | Set up a normal call to "54321" | Steps 3 – 4 apply only if the ME supports A.1/87 AND A.1/85, else these steps should be skipped. |
| 4 | ME 🡪 User | Call set up not allowed |  |
| 5 | USS 🡪 ME | SMS-PP Data Download |  |
| 6 | ME 🡪 UICC | ENVELOPE: SMS-PP DOWNLOAD 1.1.1 |  |
| 7 | UICC → ME | SMS-PP Data Download UICC Acknowledgement | [SW '90 00'] |
| 8 | ME 🡪 USS | SMS-PP Data Download UICC acknowledgement (RP-ACK) message. |  |
| 9 | UICC | EFEST contents state FDN is disabled | [New EFEST value: 00] |
| 10 | UICC 🡪 ME | PROACTIVE COMMAND PENDING: REFRESH 1.1.1 |  |
|  | ME 🡪 UICC | FETCH |  |
| 11 |  |  |  |
| 12 | UICC 🡪 ME | PROACTIVE COMMAND: REFRESH 1.1.1 |  |
| 13 | ME → UICC | TERMINAL RESPONSE: REFRESH 1.1.1A or  TERMINAL RESPONSE: REFRESH 1.1.1B | [additional EFs read] |
| 14 | User 🡪 ME ME→ USS | Set up an eCall | [Call is established using the number located in EFSDN] |
| 15 | User 🡪 ME | Call is terminated after a few seconds. |  |
| 16 | User 🡪 ME | Set up a normal call to "54321" | Steps 16 – 18 apply only if the ME supports A.1/87 AND A.1/85, else these steps should be skipped. |
| 17 | ME 🡪 E-USS | Setup | Call is established |
| 18 | User 🡪 ME | Call is terminated after a few seconds |  |

Expected Sequence 1.5 (REFRESH after change eCall mode, enable FDN in EFEST, UTRAN/GERAN)

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | MESSAGE / Action | Comments |
| 1 | User 🡪 ME ME 🡪 USS | Set up an eCall | [Call is established and maintained using the number in EFSDN.] |
| 2 | User 🡪 ME | Call is terminated after a few seconds. |  |
| 3 | User 🡪 ME | Set up a normal call to "54321" | Steps 3 – 5 apply only if the ME supports A.1/87 AND A.1/85, else these steps should be skipped. |
| 4 | ME 🡪 E-USS | Setup | Call is established |
| 5 | User 🡪 ME | Call is terminated after a few seconds |  |
| 6 | USS 🡪 ME | SMS-PP Data Download |  |
| 7 | ME 🡪 UICC | ENVELOPE: SMS-PP DOWNLOAD 1.1.1 |  |
| 8 | UICC → ME | SMS-PP Data Download UICC Acknowledgement | [SW '90 00'] |
| 9 | ME 🡪 USS | SMS-PP Data Download UICC Acknowledgement (RP-ACK) message. |  |
| 10 | UICC | EFEST contents state FDN is enabled | [New EFEST value: 01] |
| 11 | UICC 🡪 ME | PROACTIVE COMMAND PENDING: REFRESH 1.2.1 |  |
| 12 | ME 🡪 UICC | FETCH |  |
| 13 | ME → UICC | USIM Initialization including send STATUS[P1='01'] | [ME performs USIM initialization in accordance with TS 31.111 [15] clause 6.4.7] |
| 14 | UICC 🡪 ME | PROACTIVE COMMAND: REFRESH 1.2.1 |  |
| 15 | ME → UICC | TERMINAL RESPONSE: REFRESH 1.2.1A or  TERMINAL RESPONSE: REFRESH 1.2.1B | [additional EFs read] |
| 16 | ME→ USS | Set up an eCall | [Call is established using the number located in EFFDN.] |
| 17 | User 🡪 ME | Call is terminated after a few seconds. |  |
| 18 | User 🡪 ME | Set up a normal call to "54321" | Steps 18 – 19 apply only if the ME supports A.1/87 AND A.1/85, else these steps should be skipped. |
| 19 | ME 🡪 User | Call set up not allowed |  |

##### 27.22.12.4.3 Test requirement

The ME shall operate in the manner defined in expected sequence 1.1 to 1.5.

### 27.22.13 CALL CONTROL on PDU Session Establishment for NG-RAN

#### 27.22.13.1 Procedure for Mobile Originated calls

##### 27.22.13.1.1 Definition and applicability

See clause 3.2.2.

##### 27.22.13.1.2 Conformance requirement

The ME shall support the CALL CONTROL facility as defined in:

- 3GPP TS 31.111 [15] clause 7.3.1.6, clause 7.3.1.10, clause 8.143.

- 3GPP TS 24.501 [40] clause 6.4.1, clause 8.3.1, clause 9.11.4.6 and clause 9.11.4.15.

##### 27.22.13.1.3 Test purpose

To verify that when the service 128 "Call Control on PDU Session by USIM" is available in the USIM Service Table, then for all PDU Session Establishment Requests (including those resulting from an OPEN CHANNEL proactive command where NG-RAN is selected), the ME shall first pass the corresponding PDU Session Establishment Request message to the UICC, using the ENVELOPE (CALL CONTROL) command. The ME shall also pass to the UICC in the ENVELOPE (CALL CONTROL) command the current serving cell.

To verify the PDU Session Establishment Request parameters are used in the ENVELOPE (CALL CONTROL), as defined in 3GPP TS 24.501 [40].

To verify UICC/ME CALL CONTROL modify only the following parameters:

- SM PDU DN request container; and

- operator specific parameters in Extended Protocol configuration options,

included in the PDU SESSION ESTABLISHMENT REQUEST message

To verify that the ME interpret the UICC returns response correctly.

##### 27.22.13.1.4 Method of tests

27.22.13.1.4.1 Initial conditions

The ME is connected to the USIM Simulator and the NG-SS. Prior to this test the ME shall have been powered on and performed the PROFILE DOWNLOAD procedure.

The default NG-RAN UICC and the following parameters are used:

PDU session:

DNN: TestGp.rs

PDU Session Type: IPv4v6

UICC/ME interface transport level

Transport format: TCP

Port number: 44444

Data destination address: 01.01.01.01 (as an example)

The ME shall be configured with following URSP rules.

Rule Precedence =1

Traffic Descriptor:

DNN=TestGp.rs

Route Selection Descriptor:

Precedence=1

Network Slice Selection, S-NSSAI: 01 01 01 01 (ST: MBB, SD: 010101)

SSC Mode Selection: SSC Mode 1

Access Type preference: 3GPP access

Rule Precedence = 2

Traffic Descriptor:

DNN= Test12.rs

Route Selection Descriptor:

Precedence =1

Network Slice Selection, S-NSSAI: 01 01 01 02 (ST: MBB, SD: 010102)

SSC Mode Selection: SSC Mode 1  
  
Access Type preference: 3GPP access

The NG-RAN parameters of the system simulator are:

- Mobile Country Code (MCC) = 001;

- Mobile Network Code (MNC) = 01;

- Tracking Area Code (TAC) = 000001;

- NG-RAN Cell Id = 0001 (36 bits).

The Allowed S-NSSAI list is configured in NG-SS as '01 01 01 01' and '01 01 01 02'.

The system simulator should accept connections requests for DNNs: TestGp.rs, Test12.rs.

The elementary files are coded as USIM Application Toolkit default with the following exceptions:

- The call control on PDU session by USIM service is available in the USIM Service Table.

27.22.13.1.4.2 Procedure

**Expected Sequence 1.1 (CALL CONTROL on PDU Session for NG-RAN, PDU Session Establishment, allowed without modification)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Direction** | **Message / Action** | **Comments** |
| 0 | USER → ME | Set and configure the URSP rules and DNN "TestGp.rs" in the terminal configuration as defined in the initial conditions. | [see initial conditions] |
| 1 | ME 🡪 UICC | ENVELOPE CALL CONTROL 1.1.1 | For PDU Session establishment |
| 2 | UICC 🡪 ME | CALL CONTROL RESULT 1.1.1 | [Call control result: "Allowed", no modification] |
| 3 | ME 🡪 NG-SS | The PDU Session is established successfully without modification. | Same PDU Session Establishment parameters used by the ME within the ENVELOPE CALL CONTROL 1.1.1 are used to establish the PDU Session. |

ENVELOPE CALL CONTROL 1.1.1

Logically:

Device identities:

Source device: ME

Destination device: UICC

PDU Session Establishment parameters:

DNN: TestGp.rs

Extended Protocol Discriminator: 5GS Session Management messages (2E)

PDU Session identity: Any valid value in the range of 1 to 15

Procedure Transaction Identity: Any valid value in the range of 1 to 254

5GS Session message identity: PDU session establishment request (C1)

PDU Session Type: IPv4v6

Extended Protocol configuration options:

Extended Protocol config. optional contents: content not checked

Location Information:

Mobile Country Codes (MCC): 001

Mobile Network Codes (MNC): 01

Tracking Area Code (TAC): 000001

NG-RAN Cell Identifier (NCI): 0001 (36 bits)

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D4 | Note 1 | 02 | 02 | 82 | 81 | 0C | Note 2 | 25 | 0A | 06 | 54 |
|  | 65 | 73 | 74 | 47 | 70 | 02 | 72 | 73 | 2E | Note 5 | Note 6 | C1 |
| Note 3 | Note 3 | 93 | Note 4 | 13 | 0B | 00 | F1 | 10 | 00 | 00 | 01 |
| 00 | 00 | 00 | 00 | 1F |

Note 1: The length of the BER-TLV is present here.

Note 2: Length of PDU session establishment parameters, dependent of optional fields.

Note 3: Integrity protection maximum data rate.

Note 4: Optional fields / extended protocol configuration options (byte 27 to 27+n if available).

Note 5: PDU session identity.

Note 6: Procedure transaction identity.

CALL CONTROL RESULT 1.1.1

Logically:

Call control result: '00' = Allowed, no modification

Coding:

|  |  |  |
| --- | --- | --- |
| BER-TLV: | 00 | 00 |

**Expected Sequence 1.2 (CALL CONTROL on PDU Session for NG-RAN, PDU Session Establishment, Not allowed)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Direction** | **Message / Action** | **Comments** |
| 0 | USER → ME | Set and configure the URSP rules and DNN "TestGp.rs" in the terminal configuration as defined in the initial conditions. | [see initial conditions] |
| 1 | ME 🡪 UICC | ENVELOPE CALL CONTROL 1.1.1 | For PDU Session establishment |
| 2 | UICC 🡪 ME | CALL CONTROL RESULT 1.2.1 | [Call control result: "Not Allowed"] |
| 3 | ME 🡪 NG-SS | ME shall not send PDU Session Establishment Request. | No PDU Session is established. |

CALL CONTROL RESULT 1.2.1

Logically:

Call control result: '01' = Not Allowed

Coding:

|  |  |  |
| --- | --- | --- |
| BER-TLV: | 01 | 00 |

**Expected Sequence 1.3 (CALL CONTROL on PDU Session for NG-RAN, PDU Session Establishment triggered by user, UICC sends 90 00)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Direction** | **Message / Action** | **Comments** |
| 0 | USER → ME | Set and configure the URSP rules and DNN "TestGp.rs" in the terminal configuration as defined in the initial conditions. | [see initial conditions] |
| 1 | ME → UICC | ENVELOPE CALL CONTROL 1.1.1 | For PDU Session establishment |
| 2 | UICC → ME | 90 00 |  |
| 3 | ME 🡪 NG-SS | The PDU Session is established successfully without modification. | Same PDU Session Establishment parameters used by the ME within the ENVELOPE CALL CONTROL 1.1.1 are used to establish the PDU Session. |
| 4 | USER → ME | Set and configure DNN as "Test12.rs" in the terminal configuration for a new PDU Session if required and trigger ME to establish the PDU Session. | [PDU Session triggered by the user] |
| 5 | ME  UICC | ENVELOPE CALL CONTROL 1.3.1 |  |
| 6 | UICC  ME | 90 00 |  |
| 7 | ME → NG-SS | PDU SESSION ESTABLISHMENT REQUEST | Same PDU Session Establishment parameters within the ENVELOPE CALL CONTROL 1.3.1 are used to establish the PDU Session. |
| 8 | NG-SS → ME | PDU SESSION ESTABLISHMENT ACCEPT |  |
| 9 | ME 🡪 NG-SS | The PDU Session is established successfully without modification |  |

ENVELOPE CALL CONTROL 1.3.1

Logically:

Device identities:

Source device: ME

Destination device: UICC

PDU Session Establishment parameters:

DNN: Test12.rs

Extended Protocol Discriminator: 5GS Session Management messages (2E)

PDU Session identity: Any valid value in the range of 1 to 15

Procedure Transaction Identity: Any valid value in the range of 1 to 254

5GS Session message identity: PDU session establishment request (C1)

PDU Session Type: IPv4v6

Extended Protocol configuration options:

Extended Protocol config. optional contents: content not checked

Location Information:

Mobile Country Codes (MCC): 001

Mobile Network Codes (MNC): 01

Tracking Area Code (TAC): 000001

NG-RAN Cell Identifier (NCI): 0001 (36 bits)

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D4 | Note 1 | 02 | 02 | 82 | 81 | 0C | Note 2 | 25 | 0A | 06 | 54 |
|  | 65 | 73 | 74 | 31 | 32 | 02 | 72 | 73 | 2E | Note 5 | Note 6 | C1 |
| Note 3 | Note 3 | 93 | Note 4 | 13 | 0B | 00 | F1 | 10 | 00 | 00 | 01 |
| 00 | 00 | 00 | 00 | 1F |

Note 1: The length of the BER-TLV is present here.

Note 2: Length of PDU session establishment parameters, dependent of optional fields.

Note 3: Integrity protection maximum data rate.

Note 4: Optional fields / extended protocol configuration options (byte 27 to 27+n if available).

Note 5: PDU session identity.

Note 6: Procedure transaction identity.

**Expected Sequence 1.4 (CALL CONTROL on PDU Session for NG-RAN, PDU Session Establishment triggered by user, UICC sends 93 00)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Direction** | **Message / Action** | **Comments** |
| 0 | USER → ME | Set and configure the URSP rules and DNN "TestGp.rs" in the terminal configuration as defined in the initial conditions. | [see initial conditions] |
| 1 | ME → UICC | ENVELOPE CALL CONTROL 1.1.1 | For PDU Session establishment |
| 2 | UICC → ME | 90 00 |  |
| 3 | ME 🡪 NG-SS | The PDU Session is established successfully without modification. | Same PDU Session Establishment parameters used by the ME within the ENVELOPE CALL CONTROL 1.1.1 are used to establish the PDU Session. |
| 4 | USER → ME | Set and configure DNN as "Test12.rs" in the terminal configuration for a new PDU Session if required and trigger ME to establish the PDU Session. | [PDU Session triggered by the user] |
| 5 | ME  UICC | ENVELOPE CALL CONTROL 1.3.1 |  |
| 6 | UICC  ME | 93 00 |  |
| 7 | ME 🡪 NG-SS | ME shall not sent PDU SESSION ESTABLISHMENT REQUEST | The ME may retry to send the command. |

**Expected Sequence 1.5 (CALL CONTROL on PDU Session for NG-RAN, PDU Session Establishment triggered by user, allowed with modification of SM PDU DN request container)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Direction** | **Message / Action** | **Comments** |
| 0 | USER → ME | Set and configure the URSP rules and DNN "TestGp.rs" in the terminal configuration as defined in the initial conditions. | [see initial conditions] |
| 1 | ME → UICC | ENVELOPE CALL CONTROL 1.1.1 | [For PDU Session establishment] |
| 2 | UICC → ME | 90 00 |  |
| 3 | ME 🡪 NG-SS | The PDU Session is established successfully without modification. | Same PDU Session Establishment parameters used by the ME within the ENVELOPE CALL CONTROL 1.1.1 are used to establish the PDU Session. |
| 4 | USER → ME | Set and configure DNN as "Test12.rs" and DN-Specific Identity as 0123456789@Test.org in the terminal configuration for a new PDU Session if required and trigger ME to establish the PDU Session. | [PDU Session triggered by the user] |
| 5 | ME  UICC | ENVELOPE CALL CONTROL 1.5.1 |  |
| 6 | UICC  ME | CALL CONTROL RESULT 1.5.1 | [Call control result: "Allowed with modifications", DN-Specific Identity is modified to [0123456789@Test3gpp.org](mailto:0123456789@Test3gpp.org)] |
| 7 | ME → NG-SS | PDU SESSION ESTABLISHMENT REQUEST | [The modified SM PDU DN request container and rest of the same PDU Session Establishment parameters within the ENVELOPE CALL CONTROL 1.5.1 are used to establish the PDU Session.] |
| 8 | NG-SS → ME | PDU SESSION ESTABLISHMENT ACCEPT |  |
| 9 | ME 🡪 NG-SS | The PDU Session is established successfully with modified SM PDU DN request container (DN-Specific Identity). |  |

ENVELOPE CALL CONTROL 1.5.1

Logically:

Device identities:

Source device: ME

Destination device: UICC

PDU Session Establishment parameters:

DNN: Test12.rs

Extended Protocol Discriminator: 5GS Session Management messages (2E)

PDU Session identity: Any valid value in the range of 1 to 15

Procedure Transaction Identity: Any valid value in the range of 1 to 254

5GS Session message identity: PDU session establishment request (C1)

PDU Session Type: IPv4v6

SM PDU DN request container 0123456789@Test.org

Extended Protocol configuration options:

Extended Protocol config. optional contents: content not checked

Location Information:

Mobile Country Codes (MCC): 001

Mobile Network Codes (MNC): 01

Tracking Area Code (TAC): 000001

NG-RAN Cell Identifier (NCI): 0001 (36 bits)

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D4 | Note 1 | 02 | 02 | 82 | 81 | 0C | Note 2 | 25 | 0A | 06 | 54 |
|  | 65 | 73 | 74 | 31 | 32 | 02 | 72 | 73 | 2E | Note5 | Note 6 | C1 |
| Note 3 | Note3 | 93 | Note 4 | 39 | 13 | 30 | 31 | 32 | 33 | 34 | 35 |
| 36 | 37 | 38 | 39 | 40 | 54 | 65 | 73 | 74 | 2E | 6F | 72 |
| 67 | Note 4 | 13 | 0B | 00 | F1 | 10 | 00 | 00 | 01 | 00 | 00 |
| 00 | 00 | 1F |

Note 1: The length of the BER-TLV is present here.

Note 2: Length of PDU session establishment parameters, dependent of optional fields.

Note 3: Integrity protection maximum data rate

Note 4: Optional fields / extended protocol configuration options (byte 27 to 27+n if available, second Note 4 is handled accordingly).

Note 5: PDU session identity.

Note 6: Procedure transaction identity.

CALL CONTROL RESULT 1.5.1

Logically:

Call control result: '02' = Allowed, with modification

PDU Session Establishment parameters:

DNN: Test12.rs

Extended Protocol Discriminator: 5GS Session Management messages (2E)

PDU Session identity: Same PSI as used in ENVELOPE CALL CONTROL 1.5.1

Procedure Transaction Identity: Same PTI as used in ENVELOPE CALL CONTROL 1.5.1

5GS Session message identity: PDU session establishment request (C1)

PDU Session Type: IPv4v6

SM PDU DN request container: 0123456789@Test3gpp.org

Extended Protocol configuration options:

Extended Protocol config. optional contents: content not checked

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 02 | Note 1 | 0C | Note 2 | 25 | 0A | 06 | 54 | 65 | 73 | 74 | 31 |
|  | 32 | 02 | 72 | 73 | 2E | Note 6 | Note 7 | C1 | Note 3 | Note 3 | 93 | Note 4 |
| 39 | 17 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
| 40 | 54 | 65 | 73 | 74 | 33 | 67 | 70 | 70 | 2E | 6F | 72 |
|  | 67 | Note 5 |

Note 1: The length of the BER-TLV is present here.

Note 2: Length of PDU session establishment parameters, dependent of optional fields.

Note 3: Integrity protection maximum data rate (same as received in ENVELOPE).

Note 4: Optional fields / extended protocol configuration options (same as received in ENVELOPE).

Note 5: Optional fields (if available in ENVELOPE).

Note 6: PDU session identity (same as received in ENVELOPE).

Note 7: Procedure transaction identity (same as received in ENVELOPE).

**Expected Sequence 1.6 (CALL CONTROL on PDU Session for NG-RAN, PDU Session Establishment triggered by user, allowed with modification of ePCO)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Direction** | **Message / Action** | **Comments** |
| 0 | USER → ME | Set and configure the URSP rules and DNN "TestGp.rs" in the terminal configuration for as defined in the initial conditions. | [see initial conditions] |
| 1 | ME → UICC | ENVELOPE CALL CONTROL 1.1.1 | [For PDU Session establishment] |
| 2 | UICC → ME | 90 00 |  |
| 3 | ME 🡪 NG-SS | The PDU Session is established successfully without modification. | Same PDU Session Establishment parameters used by the ME within the ENVELOPE CALL CONTROL 1.1.1 are used to establish the PDU Session. |
| 4 | USER → ME | Set and configure DNN as "Test12.rs" and the terminal is configured to include any ePCO containers in PDU Session Establishment if required and trigger ME to establish the PDU Session. | [PDU Session triggered by the user] |
| 5 | ME  UICC | ENVELOPE CALL CONTROL 1.6.1 |  |
| 6 | UICC  ME | CALL CONTROL RESULT 1.6.1 | [Call control result: "Allowed with modifications", include rfc1877\_primary\_dns\_server IPv4 Address as 192.168.3.3 in IPCP container] |
| 7 | ME → NG-SS | PDU SESSION ESTABLISHMENT REQUEST | [The modified ePCO container and rest of the same PDU Session Establishment parameters within the ENVELOPE CALL CONTROL 1.6.1 are used to establish the PDU Session.] |
| 8 | NG-SS → ME | PDU SESSION ESTABLISHMENT ACCEPT |  |
| 9 | ME 🡪 NG-SS | The PDU Session is established successfully with modified ePCO as included in the CALL\_CONTROL\_RESULT 1.6.1. |  |

ENVELOPE CALL CONTROL 1.6.1

Logically:

Device identities

Source device: ME

Destination device: UICC

PDU Session Establishment parameters

DNN: Test12.rs

Extended Protocol Discriminator: 5GS Session Management messages (2E)

PDU Session identity: Any valid value in the range of 1 to 15

Procedure Transaction Identity: Any valid value in the range of 1 to 254

5GS Session message identity: PDU session establishment request (C1)

PDU Session Type: IPv4v6

Extended Protocol configuration options:

Extended Protocol config. optional contents: content not checked

Location Information:

Mobile Country Codes (MCC): 001

Mobile Network Codes (MNC): 01

Tracking Area Code (TAC): 000001

NG-RAN Cell Identifier (NCI): 0001 (36 bits)

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D4 | Note 1 | 02 | 02 | 82 | 81 | 0C | Note 2 | 25 | 0A | 06 | 54 |
|  | 65 | 73 | 74 | 31 | 32 | 02 | 72 | 73 | 2E | Note 7 | Note 8 | C1 |
| Note 3 | Note 3 | 93 | Note 4 | 7B | Note 5 | Note 5 | Note 6 | Note 4 | 13 | 0B | 00 |
| F1 | 10 | 00 | 00 | 01 | 00 | 00 | 00 | 00 | 1F |

Note 1: The length of the BER-TLV is present here.

Note 2: Length of PDU session establishment parameters, dependent on optional fields.

Note 3: Integrity protection maximum data rate.

Note 4: Optional fields / extended protocol configuration options (byte 27 to 27+n if available, second Note 4 is handled accordingly).

Note 5: Length of the ePCO (2 bytes).

Note 6: Data of extended protocol configuration fields.

Note 7: PDU session identity.

Note 8: Procedure transaction identity.

CALL CONTROL RESULT 1.6.1

Logically:

Call control result: '02' = Allowed, with modification

PDU Session Establishment parameters:

DNN: Test12.rs

Extended Protocol Discriminator: 5GS Session Management messages (2E)

PDU Session identity: Same value as used in ENVELOPE CALL CONTROL 1.6.1

Procedure Transaction Identity: Same value as used in ENVELOPE CALL CONTROL 1.6.1

5GS Session message identity: PDU session establishment request (C1)

PDU Session Type: IPv4v6

Extended Protocol configuration options:

Protocol or Container: IPCP

rfc1332\_conf\_req

rfc1877\_primary\_dns\_server\_IPv4\_address: 192.168.3.3

Additional protocol and container data as provided in ENVELOPE

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 02 | Note 1 | 0C | Note 2 | 25 | 0A | 06 | 54 | 65 | 73 | 74 | 31 |
|  | 32 | 02 | 72 | 73 | 2E | Note 9 | Note 10 | C1 | Note 3 | Note 3 | 93 | Note 4 |
| 7B | Note 5 | Note 5 | 80 | 80 | 21 | Note 6 | 01 | 00 | Note 7 | Note 7 | 81 |
| 06 | C0 | A8 | 03 | 03 | Note 8 |

Note 1: The length of the BER-TLV is present here.

Note 2: Length of PDU session establishment parameters, dependent of optional fields.

Note 3: Integrity protection maximum data rate (same as received in ENVELOPE).

Note 4: Optional fields / extended protocol configuration options.

Note 5: Length of the ePCO (2 bytes).

Note 6: Length of the IPCP content.

Note 7: Length of rfc1332\_conf\_req.

Note 8: Additional protocol and container data as provided in ENVELOPE.

Note 9: PDU session identity (same as received in ENVELOPE).

Note 10: Procedure transaction identity (same as received in ENVELOPE).

**Expected Sequence 1.7 (CALL CONTROL on PDU Session for NG-RAN, PDU Session Establishment triggered by OPEN CHANNEL, UICC sends 90 00)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Direction** | **Message / Action** | **Comments** |
| 0 | USER → ME | Set and configure the URSP rules and DNN "TestGp.rs" in the terminal configuration as defined in the initial conditions. | [see initial conditions] |
| 1 | ME → UICC | ENVELOPE CALL CONTROL 1.1.1 | For PDU Session establishment |
| 2 | UICC → ME | 90 00 |  |
| 3 | ME 🡪 NG-SS | The PDU Session is established successfully without modification. | Same PDU Session Establishment parameters used by the ME within the ENVELOPE CALL CONTROL 1.1.1 are used to establish the PDU Session. |
| 4 | USER → ME | Set and configure DNN as "Test12.rs" in the terminal configuration for a new PDU Session by the OPEN CHANNEL if required. |  |
| 5 | UICC → ME | PROACTIVE COMMAND PENDING: OPEN CHANNEL 1.7.1 | [PDU Session triggered by the proactive command OPEN CHANNEL with Bearer Type 0x0C] |
| 6 | ME → UICC | FETCH |  |
| 7 | UICC → ME | PROACTIVE COMMAND: OPEN CHANNEL 1.7.1 |  |
| 8 | ME → USER | The ME may display channel opening information |  |
| 9 | ME  UICC | ENVELOPE CALL CONTROL 1.3.1 |  |
| 10 | UICC  ME | 90 00 |  |
| 11 | ME → NG-SS | PDU SESSION ESTABLISHMENT REQUEST | Same PDU Session Establishment parameters within the ENVELOPE CALL CONTROL 1.3.1 are used to establish the PDU Session. |
| 12 | NG-SS → ME | PDU SESSION ESTABLISHMENT ACCEPT |  |
| 13 | ME → UICC | TERMINAL RESPONSE: OPEN CHANNEL 1.7.1 | [Command performed successfully] |
| 14 | ME 🡪 NG-SS | The PDU Session is established successfully without modification |  |

PROACTIVE COMMAND: OPEN CHANNEL 1.7.1

Logically:

Command details:

Command number: 1

Command type: OPEN CHANNEL

Command qualifier: immediate link establishment

Device identities:

Source device: UICC

Destination device: ME

Bearer description:

Bearer type: NG-RAN

Bearer parameter:

PDU Session Type: IPv4v6

Buffer:

Buffer size: 1400

Network access name: Test12.rs

Text String: "UserLog" (User login)

Text String: "UserPwd" (User password)

UICC/ME interface transport level

Transport format: TCP

Port number: 44444

Data destination address 01.01.01.01

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D0 | 3D | 81 | 03 | 01 | 40 | 01 | 82 | 02 | 81 | 82 | 35 |
|  | 02 | 0C | 93 | 39 | 02 | 05 | 78 | 47 | 0A | 06 | 54 | 65 |
|  | 73 | 74 | 31 | 32 | 02 | 72 | 73 | 0D | 08 | F4 | 55 | 73 |
|  | 65 | 72 | 4C | 6F | 67 | 0D | 08 | F4 | 55 | 73 | 65 | 72 |
|  | 50 | 77 | 64 | 3C | 03 | 02 | AD | 9C | 3E | 05 | 21 | 01 |
|  | 01 | 01 | 01 |

TERMINAL RESPONSE: OPEN CHANNEL 1.7.1

Logically:

Command details:

Command number: 1

Command type: OPEN CHANNEL

Command qualifier: immediate link establishment

Device identities:

Source device: ME

Destination device: UICC

Result:

General Result: Command performed successfully

Channel status Channel identifier 1 and link established, or PDP context activated or PDU Session established

Bearer description:

Bearer type: NG-RAN

Bearer parameter:

PDU Session Type: IPv4v6

Buffer:

Buffer size: 1400

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 81 | 03 | 01 | 40 | 01 | 82 | 02 | 82 | 81 | 83 | 01 | 00 |
|  | 38 | 02 | 81 | 00 | 35 | 02 | 0C | 93 | 39 | 02 | 05 | 78 |

##### 27.22.13.1.5 Test requirement

The ME shall operate in the manner defined in expected sequences 1.1 to 1.7.

### 27.22.14 ENVELOPE SMS-PP Data Download on NAS messages

#### 27.22.14.1 Routing Indicator Data update via DL NAS TRANSPORT messages

##### 27.22.14.1.1 Definition and applicability

See clause 3.2.2.

##### 27.22.14.1.2 Conformance requirement

The ME shall support the Proactive UICC: SMS-PP Data Download facility as defined in the following technical specifications:

- 3GPP TS 31.111 [15] clause 5, clause 7.1, clause 8.1, clause 8.7, clause 8.13 and clause 11.

- 3GPP TS 31.115 [28] clause 4.

- 3GPP TS 23.038 [7] clause 4.

The ME shall support the Procedure for SMS-PP data download via DL NAS TRANSPORT messages as defined in the following technical specifications:

- 3GPP TS 31.111 [15] clause 7.1.1.1a.

##### 27.22.14.1.3 Test purpose

To verify that when:

- the service "data download via SMS Point-to-point" is available in the USIM Service Table

and

- the ME receives a DL NAS TRANSPORT message that includes

- a UE parameters update transparent container containing a UE parameters update data set with UE parameters update data set type with value "1"=Routing Indicator update data

- containing a secure packet constructed as an SMS-Deliver (as specified in 3GPP TS 23.040  [5]) with:

- protocol identifier = SIM data download; and

- data coding scheme = class 2 message

- and the integrity check of the message was successful

then

- the ME shall

- pass the message transparently to the UICC using the ENVELOPE (SMS-PP DOWNLOAD) command as defined in TS 31.111 [15] clause 7.1.1.2

- the ME shall not display or alert the user

- the secure packet is coded as a Command Packet formatted as Short Message Point to Point (as specified in 3GPP TS 31.115  [28]).

To verify that the ME interprets the UICC returns response correctly.

##### 27.22.14.1.4 Method of Test

27.22.14.1.4.1 Initial conditions

The ME is connected to the USIM Simulator and the NG-SS.

The ME is connected to NG-SS and it has performed the Registration procedure.

The default NG-RAN UICC and the following parameters.

The NG-RAN UICC parameters are:

* one OTA Key Set with:

Key Version: 01

1st key

Key Index (Kic): 01

Key value: 000102030405060708090A0B0C0D0E0F

2nd key

Key Index (Kid): 02

Key value: 000102030405060708090A0B0C0D0E0F

3rd key

Key Index (Kik): 03

Key value: 000102030405060708090A0B0C0D0E0F

The default NG-RAN parameters and the following parameters are used:

The NG-RAN parameters of the system simulator are:

- Mobile Country Code (MCC) = 001;

- Mobile Network Code (MNC) = 01;

- Tracking Area Code (TAC) = 000001;

- NG-RAN Cell Id = 0001 (36 bits).

The elementary files are coded as USIM Application Toolkit default with the following exceptions:

- The "data download via SMS Point-to-point" service is available in the USIM Service Table.

Prior to this test the ME shall have been powered on and performed the PROFILE DOWNLOAD procedure.

27.22.14.1.4.2 Procedure

Expected Sequence 1.1 (SMS-PP Data Download after UE parameters update data (Routing Indicator Data) via DL NAS TRANSPORT message "acknowledgement not requested" and "re-registration not requested")

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | MESSAGE / Action | Comments |
| 1 | USER → ME | The ME is switched on | ME will perform Profile Download and USIM initialisation |
| 2 | ME → NG-SS | ME successfully REGISTER with NG-RAN cell. |  |
| 3 | NG-SS → ME | NG-SS send to ME DL NAS TRANSPORT message 1.1.1 with  acknowledgement not requested  re-registration not requested | UE parameters update header with:  ACK set to "acknowledgement not requested"  REG set to "re-registration not requested" |
| 4 | ME→ UICC | ENVELOPE: SMS-PP DOWNLOAD 1.1.1 | the ME shall pass the message transparently to the UICC using the ENVELOPE (SMS-PP DOWNLOAD) command as specified in TS 31.111 [15] clause 7.1.1.1a |
| 5 | UICC → ME | SW1/SW2 91 XX |  |
| 6 | UICC | EFRouting\_Indicator contents updated correctly | New EFRouting\_Indicator value "00550000" |
| 7 | ME→ UICC | FETCH |  |
| 8 | UICC → ME | PROACTIVE COMMAND: REFRESH 1.1.1 [File Change Notification] |  |
| 9 | ME→ UICC | TERMINAL RESPONSE: REFRESH 1.1.1A or  TERMINAL RESPONSE: REFRESH 1.1.1B |  |
| 10 | UICC→ ME | PROACTIVE UICC SESSION ENDED |  |
| 11 | NG-SS → ME | NG-SS shall send IDENTITY REQUEST for SUCI and verify if UE sends SUCI with newly updated Routing Indicator. |  |

DL NAS TRANSPORT message 1.1.1

Logically:

Message details (referring to 3GPP TS 24.501 Table 9.11.3.53A.1)

Payload container type IE: "0110" (UE parameters update transparent container)

UE parameters update header:

UPU data type: "0" (UE parameters update transparent container carries a UE parameters update list)

ACK: "0" (acknowledgment not requested)

REG: "0" (re-registration not requested)

UE parameters update list: includes one UE parameters update data set with UE parameters update data set type "0001" (Routing indicator update data)

Corresponding UE parameters update data set:

Secured packet: as specified in 3GPP TS 31.111 [15] clause 7.1.1.1a – TPDU Command Packet

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 40 | 00 | 91 | 7F | F6 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 4E | 02 | 70 | 00 | 00 | 49 | 15 | 02 | 00 | 10 | 10 | B0 |
| 01 | 40 | 00 | 00 | 00 | 00 | 00 | 00 | 0F | 13 | 8E | 84 |
| E8 | D6 | F8 | 01 | AA | 31 | 22 | 07 | 00 | A4 | 00 | 04 |
| 02 | 5F | C0 | 22 | 07 | 00 | A4 | 00 | 04 | 02 | 4F | 0A |
| 22 | 07 | 00 | D6 | 00 | 00 | 02 | 00 | 55 | 81 | 14 | 81 |
| 03 | 01 | 01 | 01 | 82 | 02 | 81 | 82 | 12 | 09 | 01 | 3F |
| 00 | 7F | FF | 5F | C0 | 4F | 0A |

ENVELOPE: SMS-PP DOWNLOAD 1.1.1

Logically:

SMS-PP Download:

Device identities:

Source device: Network

Destination device: UICC

SMS TPDU: Contents of Secured Packet from DL NAS TRANSPORT message 1.1.1

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D1 | 61 | 82 | 02 | 83 | 81 | 8B | 5B | 40 | 00 | 91 | 7F |
|  | F6 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 4E | 02 | 70 | 00 |
|  | 00 | 49 | 15 | 02 | 00 | 10 | 10 | B0 | 01 | 40 | 00 | 00 |
|  | 00 | 00 | 00 | 00 | 0F | 13 | 8E | 84 | E8 | D6 | F8 | 01 |
|  | AA | 31 | 22 | 07 | 00 | A4 | 00 | 04 | 02 | 5F | C0 | 22 |
|  | 07 | 00 | A4 | 00 | 04 | 02 | 4F | 0A | 22 | 07 | 00 | D6 |
|  | 00 | 00 | 02 | 00 | 55 | 81 | 14 | 81 | 03 | 01 | 01 | 01 |
|  | 82 | 02 | 81 | 82 | 12 | 09 | 01 | 3F | 00 | 7F | FF | 5F |
|  | C0 | 4F | 0A |  |  |  |  |  |  |  |  |  |

PROACTIVE COMMAND: REFRESH 1.1.1

Logically:

Command details

Command number: 1

Command type: REFRESH

Command qualifier: File Change Notification

Device identities

Source device: UICC

Destination device: ME

File List: EFRouting\_Indicator

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D0 | 14 | 81 | 03 | 01 | 01 | 01 | 82 | 02 | 81 | 82 | 12 |
|  | 09 | 01 | 3F | 00 | 7F | FF | 5F | C0 | 4F | 0A |  |  |

TERMINAL RESPONSE: REFRESH 1.1.1A

Logically:

Command details

Command number: 1

Command type: REFRESH

Command qualifier: File Change Notification

Device identities

Source device: ME

Destination device: UICC

Result

General Result: Command performed successfully

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 81 | 03 | 01 | 01 | 01 | 82 | 02 | 82 | 81 | 83 | 01 | 00 |

TERMINAL RESPONSE: REFRESH 1.1.1B

Logically:

Command details

Command number: 1

Command type: REFRESH

Command qualifier: File Change Notification

Device identities

Source device: ME

Destination device: UICC

Result

General Result: REFRESH performed with additional EFs read

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 81 | 03 | 01 | 01 | 01 | 82 | 02 | 82 | 81 | 83 | 01 | 03 |

Expected Sequence 1.2 (SMS-PP Data Download after UE parameters update data (Routing Indicator Data) via DL NAS TRANSPORT message "acknowledgement not requested" and "re-registration requested")

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | MESSAGE / Action | Comments |
| 1 | USER → ME | The ME is switched on | ME will perform Profile Download and USIM initialisation |
| 2 | ME → NG-SS | ME successfully REGISTER with NG-RAN cell. |  |
| 3 | NG-SS → ME | NG-SS send to ME DL NAS TRANSPORT message 1.2.1 with  acknowledgement not requested  re-registration requested | UE parameters update header with:  ACK set to "acknowledgement not requested"  REG set to "re-registration requested" |
| 4 | ME→ UICC | ENVELOPE: SMS-PP DOWNLOAD 1.1.1 | the ME shall pass the message transparently to the UICC using the ENVELOPE (SMS-PP DOWNLOAD) command as specified in TS 31.111 [15] clause 7.1.1.1a |
| 5 | UICC → ME | SW1/SW2 91 XX |  |
| 6 | UICC | EFRouting\_Indicator contents updated correctly | New EFRouting\_Indicator value "00550000" |
| 7 | ME→ UICC | FETCH |  |
| 8 | UICC → ME | PROACTIVE COMMAND: REFRESH 1.1.1 [File Change Notification] |  |
| 9 | ME→ UICC | TERMINAL RESPONSE: REFRESH 1.1.1A or  TERMINAL RESPONSE: REFRESH 1.1.1B |  |
| 10 | UICC → ME | PROACTIVE UICC SESSION ENDED |  |
| 11 | ME | Enter in 5GMM-IDLE | NG-SS shall send RRC Release |
| 12 | ME | ME performs a de-registration procedure, delete its 5G-GUTI and initiate a registration procedure for initial registration  Verify if UE sends SUCI with newly updated Routing Indicator in the REGISTRATION REQUEST. | As specified in TS 24.501 [40] clause 5.4.5.3.3 clause i.1.i.C1 |

DL NAS TRANSPORT message 1.2.1

Logically:

Message details (referring to 3GPP TS 24.501 Table 9.11.3.53A.1)

Payload container type IE: "0110" (UE parameters update transparent container)

UE parameters update header:

UPU data type: "0" (UE parameters update transparent container carries a UE parameters update list)

ACK: "0" (acknowledgment not requested)

REG: "1" (re-registration requested)

UE parameters update list: includes one UE parameters update data set with UE parameters update data set type "0001" (Routing indicator update data)

Corresponding UE parameters update data set:

Secured packet: as specified in 3GPP TS 31.111 [15] clause 7.1.1.1a – TPDU Command Packet

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 40 | 00 | 91 | 7F | F6 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 4E | 02 | 70 | 00 | 00 | 49 | 15 | 02 | 00 | 10 | 10 | B0 |
| 01 | 40 | 00 | 00 | 00 | 00 | 00 | 00 | 0F | 13 | 8E | 84 |
| E8 | D6 | F8 | 01 | AA | 31 | 22 | 07 | 00 | A4 | 00 | 04 |
| 02 | 5F | C0 | 22 | 07 | 00 | A4 | 00 | 04 | 02 | 4F | 0A |
| 22 | 07 | 00 | D6 | 00 | 00 | 02 | 00 | 55 | 81 | 14 | 81 |
| 03 | 01 | 01 | 01 | 82 | 02 | 81 | 82 | 12 | 09 | 01 | 3F |
| 00 | 7F | FF | 5F | C0 | 4F | 0A |

Expected Sequence 1.3 (SMS-PP Data Download after UE parameters update data (Routing Indicator Data) via DL NAS TRANSPORT message "acknowledgement requested" and "re-registration requested")

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | MESSAGE / Action | Comments |
| 1 | USER → ME | The ME is switched on | ME will perform Profile Download and USIM initialisation |
| 2 | ME → NG-SS | ME successfully REGISTER with NG-RAN cell. |  |
| 3 | NG-SS → ME | NG-SS send to ME DL NAS TRANSPORT message 1.3.1 with  acknowledgement requested  re-registration requested | UE parameters update header with:  ACK set to "acknowledgement requested"  REG set to "re-registration requested" |
| 4 | ME→ UICC | ENVELOPE: SMS-PP DOWNLOAD 1.1.1 | the ME shall pass the message transparently to the UICC using the ENVELOPE (SMS-PP DOWNLOAD) command as specified in TS 31.111 [15] clause 7.1.1.1a |
| 5 | UICC → ME | SW1/SW2 91 XX |  |
| 6 | ME → NG-SS | ME sends to NG-SS an acknowledgement in the Payload container IE of an UL NAS TRANSPORT message with Payload type IE set to "UE parameters update transparent container". | Note 1: this step can be performed in parallel or after step 8. |
| 7 | UICC | EFRouting\_Indicator contents updated correctly | New EFRouting\_Indicator value "00550000" |
| 8 | ME→ UICC | FETCH |  |
| 9 | UICC → ME | PROACTIVE COMMAND: REFRESH 1.1.1 [File Change Notification] |  |
| 10 | ME→ UICC | TERMINAL RESPONSE: REFRESH 1.1.1A or  TERMINAL RESPONSE: REFRESH 1.1.1B | ME shall have sent by now an acknowledgement in the Payload container IE of an UL NAS TRANSPORT message as specified in TS 24.501 [40] clause 5.4.5.3.3 clause i.1.i.B |
| 11 | UICC → ME | PROACTIVE UICC SESSION ENDED |  |
| 12 | ME | Enter in 5GMM-IDLE | NG-SS shall send RRC Release |
| 13 | ME | ME performs a de-registration procedure, delete its 5G-GUTI and initiate a registration procedure for initial registration  Verify if UE sends SUCI with newly updated Routing Indicator in the REGISTRATION REQUEST. | As specified in TS 24.501 [40] clause 5.4.5.3.3 clause i.1.i.C1 |

DL NAS TRANSPORT message 1.3.1

Logically:

Message details (referring to 3GPP TS 24.501 Table 9.11.3.53A.1)

Payload container type IE: "0110" (UE parameters update transparent container)

UE parameters update header:

UPU data type: "0" (UE parameters update transparent container carries a UE parameters update list)

ACK: "1" (acknowledgment requested)

REG: "1" (re-registration requested)

UE parameters update list: includes one UE parameters update data set with UE parameters update data set type "0001" (Routing indicator update data)

Corresponding UE parameters update data set:

Secured packet: as specified in 3GPP TS 31.111 [15] clause 7.1.1.1a – TPDU Command Packet

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 40 | 00 | 91 | 7F | F6 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 4E | 02 | 70 | 00 | 00 | 49 | 15 | 02 | 00 | 10 | 10 | B0 |
| 01 | 40 | 00 | 00 | 00 | 00 | 00 | 00 | 0F | 13 | 8E | 84 |
| E8 | D6 | F8 | 01 | AA | 31 | 22 | 07 | 00 | A4 | 00 | 04 |
| 02 | 5F | C0 | 22 | 07 | 00 | A4 | 00 | 04 | 02 | 4F | 0A |
| 22 | 07 | 00 | D6 | 00 | 00 | 02 | 00 | 55 | 81 | 14 | 81 |
| 03 | 01 | 01 | 01 | 82 | 02 | 81 | 82 | 12 | 09 | 01 | 3F |
| 00 | 7F | FF | 5F | C0 | 4F | 0A |

Expected Sequence 1.4 (SMS-PP Data Download after UE parameters update data (Routing Indicator Data) via DL NAS TRANSPORT message "acknowledgement requested" and "re-registration not requested")

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Direction | MESSAGE / Action | Comments |
| 1 | USER → ME | The ME is switched on | ME will perform Profile Download and USIM initialisation |
| 2 | ME → NG-SS | ME successfully REGISTER with NG-RAN cell. |  |
| 3 | NG-SS → ME | NG-SS send to ME DL NAS TRANSPORT message 1.4.1 with  acknowledgement requested  re-registration not requested | UE parameters update header with:  ACK set to "acknowledgement requested"  REG set to "re-registration not requested" |
| 4 | ME→ UICC | ENVELOPE: SMS-PP DOWNLOAD 1.1.1 | the ME shall pass the message transparently to the UICC using the ENVELOPE (SMS-PP DOWNLOAD) command as specified in TS 31.111 [15] clause 7.1.1.1a |
| 5 | UICC → ME | SW1/SW2 91 XX |  |
| 6 | ME → NG-SS | ME sends to NG-SS an acknowledgement in the Payload container IE of an UL NAS TRANSPORT message with Payload type IE set to "UE parameters update transparent container". | Note 1: this step can be performed in parallel or after step 8. |
| 7 | UICC | EFRouting\_Indicator contents updated correctly | New EFRouting\_Indicator value "00550000" |
| 8 | ME→ UICC | FETCH |  |
| 9 | UICC → ME | PROACTIVE COMMAND: REFRESH 1.1.1 [File Change Notification] |  |
| 10 | ME→ UICC | TERMINAL RESPONSE: REFRESH 1.1.1A or  TERMINAL RESPONSE: REFRESH 1.1.1B | ME shall have sent by now an acknowledgement in the Payload container IE of an UL NAS TRANSPORT message as specified in TS 24.501 [40] clause 5.4.5.3.3 clause i.1.i.B |
| 11 | UICC → ME | PROACTIVE UICC SESSION ENDED |  |
| 12 | NG-SS → ME | NG-SS shall send IDENTITY REQUEST for SUCI and verify if UE sends SUCI with newly updated Routing Indicator. |  |

DL NAS TRANSPORT message 1.4.1

Logically:

Message details (referring to 3GPP TS 24.501 Table 9.11.3.53A.1)

Payload container type IE: "0110" (UE parameters update transparent container)

UE parameters update header:

UPU data type: "0" (UE parameters update transparent container carries a UE parameters update list)

ACK: "1" (acknowledgment requested)

REG: "0" (re-registration not requested)

UE parameters update list: includes one UE parameters update data set with UE parameters update data set type "0001" (Routing indicator update data)

Corresponding UE parameters update data set:

Secured packet: as specified in 3GPP TS 31.111 [15] clause 7.1.1.1a – TPDU Command Packet

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 40 | 00 | 91 | 7F | F6 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 4E | 02 | 70 | 00 | 00 | 49 | 15 | 02 | 00 | 10 | 10 | B0 |
| 01 | 40 | 00 | 00 | 00 | 00 | 00 | 00 | 0F | 13 | 8E | 84 |
| E8 | D6 | F8 | 01 | AA | 31 | 22 | 07 | 00 | A4 | 00 | 04 |
| 02 | 5F | C0 | 22 | 07 | 00 | A4 | 00 | 04 | 02 | 4F | 0A |
| 22 | 07 | 00 | D6 | 00 | 00 | 02 | 00 | 55 | 81 | 14 | 81 |
| 03 | 01 | 01 | 01 | 82 | 02 | 81 | 82 | 12 | 09 | 01 | 3F |
| 00 | 7F | FF | 5F | C0 | 4F | 0A |

##### 27.22.14.1.5 Test requirement

The ME shall operate in the manner defined in expected sequences 1.1 to 1.4.

#### 27.22.14.2 Steering of Roaming via DL NAS TRANSPORT message

##### 27.22.14.2.1 Definition and applicability

See clause 3.2.2.

##### 27.22.14.2.2 Conformance requirement

The ME shall support the Proactive UICC: SMS-PP Data Download facility as defined in the following technical specifications:

- 3GPP TS 31.111 [15] clause 5, clause 7.1, clause 8.1, clause 8.7, clause 8.13 and clause 11.

- 3GPP TS 31.115 [28] clause 4.

- 3GPP TS 23.038 [7] clause 4.

The ME shall support the Procedure for SMS-PP data download via DL NAS TRANSPORT messages as defined in the following technical specifications:

- 3GPP TS 31.111 [15] clause 7.1.1.1a.

The ME shall support the steering of roaming procedure as defined in:

- 3GPP TS 23.122 [29] clause 4.4.6.

##### 27.22.14.2.3 Test purpose

To verify that when the service "data download via SMS Point-to-point" is available in the USIM Service Table and the ME receives a DL NAS TRANSPORT message that includes:

- a SOR transparent container information element with list type with value "0"= secured packet, containing a secured packet constructed as an SMS-Deliver (as specified in TS 23.040 [8]) with:

- protocol identifier = SIM data download;

- data coding scheme = class 2 message;

and the integrity check of the message was successful, then the ME shall:

- pass the message transparently to the UICC using the ENVELOPE (SMS-PP DOWNLOAD) command as defined in 3GPP TS 31.111 [15] clause 7.1.1.2;

- not display or alert the user.

Where the secured packet is coded as a Command Packet formatted as Short Message Point to Point (as specified in TS 31.115 [28]).

For sequence 2.1:

To verify that when the ME receives a USAT REFRESH command qualifier of type "Steering of Roaming", it (as specified in 3GPP TS 23.122 [29], clause 4.4.6):

- deletes formerly forbidden PLMNs provided as allowed in the REFRESH command from the Forbidden PLMN list and from the Forbidden PLMNs for GPRS service list. This includes any information stored in the UICC.

For sequence 2.3:

To verify that when ME receives a USAT REFRESH command qualifier of type "Steering of Roaming", it (as specified in 3GPP TS 23.122 [29], clause 4.4.6):

- replaces the highest priority entries in the "Operator Controlled PLMN Selector with Access Technology" list stored in the ME with the list provided in the REFRESH command;

Note: This requirement is implicitly verified when the ME attempts to obtain service on a higher priority PLMN.

- deletes formerly forbidden PLMNs provided as allowed in the REFRESH command from the Forbidden PLMN list and from the Forbidden PLMNs for GPRS service list. This includes any information stored in the UICC;

- considers new information provided in subsequent attempts to access a higher priority PLMN;

and

- attempts to obtain service on a higher priority PLMN as specified in 3GPP TS 23.122 [29], clause 4.4.3.3 by acting as if timer T that controls periodic attempts has expired.

##### 27.22.14.2.4 Method of Test

27.22.14.2.4.1 Initial conditions

The ME is connected to the USIM Simulator and the NG-SS.

The default NG-RAN UICC with the following exceptions is used:

**EFUST (USIM Service Table)**

Logically:

|  |  |  |
| --- | --- | --- |
| Service n°42 | Operator controlled PLMN selector with Access Technology | available |

Coding:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Byte:** | **B1** |  | **B6** |  | **B16** |
| Binary: | xxxx xxxx | … | xxxx xx1x | …. | xxxx xxxx |

The NG-RAN UICC parameters are:

- one OTA Key Set with:

Key Version: 01

1st key

Key Index (Kic): 01

Key Algorithm: Triple DES

Key value: 000102030405060708090A0B0C0D0E0F

2nd key

Key Index (Kid): 02

Key Algorithm: Triple DES

Key value: 000102030405060708090A0B0C0D0E0F

3rd key

Key Index (Kik): 03

Key Algorithm: Triple DES

Key value: 000102030405060708090A0B0C0D0E0F

For sequences 2.1:

The NG-RAN parameters of the system simulator are:

* Mobile Country Code (MCC) = 001;
* Mobile Network Code (MNC) = 01;
* Tracking Area Code (TAC) = 000001;
* NG-RAN Cell Id = 0001 (36 bits).

For sequence 2.3:

**EFFPLMN**

Logically:

PLMN1: 254 002 (MCC MNC)

PLMN2: 254 003

PLMN3: 254 004

PLMN4: 234 004

PLMN5: 234 005

PLMN6: 234 006

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Coding:** | **B1** | **B2** | **B3** | **B4** | **B5** | **B6** | **B7** | **B8** | **B9** | **B10** | **B11** | **B12** |
| Hex | 52 | 24 | 00 | 52 | 34 | 00 | 52 | 44 | 00 | 32 | 44 | 00 |
|  | **B13** | **B14** | **B15** | **B16** | **B17** | **B18** |  |  |  |  |  |  |
|  | 32 | 54 | 00 | 32 | 64 | 00 |  |  |  |  |  |  |

**EFOPLMNwACT:**

Logically:

1st PLMN: 254 001 (MCC MNC)

1st ACT: NG-RAN

2nd PLMN: 254 001

2nd ACT: E-UTRAN

3rd PLMN: 274 002

3rd ACT: NG-RAN

4th PLMN: 274 003

4th ACT: E-UTRAN

5th PLMN: 274 004

5th ACT: E-UTRAN

6th PLMN: 274 005

6th ACT: E-UTRAN

7th PLMN: 274 006

7th ACT: E-UTRAN

8th PLMN: 274 007

8th ACT: UTRAN

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Coding:** | **B1** | **B2** | **B3** | **B4** | **B5** | **B6** | **B7** | **B8** | **B9** | **B10** | **B11** | **B12** |
| Hex | 52 | 14 | 00 | 08 | 00 | 52 | 14 | 00 | 40 | 00 | 72 | 24 |
|  | **B13** | **B14** | **B15** | **B16** | **B17** | **B18** | **B19** | **B20** | **B21** | **B22** | **B23** | **B24** |
|  | 00 | 08 | 00 | 72 | 34 | 00 | 40 | 00 | 72 | 44 | 00 | 40 |
|  | **B25** | **B26** | **B27** | **B28** | **B29** | **B30** | **B31** | **B32** | **B33** | **B34** | **B35** | **B36** |
|  | 00 | 72 | 54 | 00 | 40 | 00 | 72 | 64 | 00 | 40 | 00 | 72 |
|  | **B37** | **B38** | **B39** | **B40** |  |  |  |  |  |  |  |  |
|  | 74 | 00 | 80 | 00 |  |  |  |  |  |  |  |  |

**EFHPPLMN (Higher Priority PLMN Search period)**

Logically: set to 6 minutes

Coding:

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

NG-RAN Cell 1:

- Mobile Country Code (MCC) = 254;

- Mobile Network Code (MNC) = 001;

- Tracking Area Code (TAC) = 000001;

- NG-RAN Cell Id = 0001 (36 bits).

NG-RAN Cell 2:

- Mobile Country Code (MCC) = 254;

- Mobile Network Code (MNC) = 003;

- Tracking Area Code (TAC) = 000001;

- NG-RAN Cell Id = 0001 (36 bits).

27.22.14.2.4.2 Procedure

**Expected Sequence 2.1 (SMS-PP Data Download after Steering of Roaming via DL NAS TRANSPORT message with REFRESH command [Steering of Roaming])**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Direction** | **MESSAGE / Action** | **Comments** |
| 1 | USER → ME | The ME is switched on | ME will perform Profile Download and USIM initialisation |
| 2 | ME → NG-SS | ME successfully REGISTER with NG-RAN cell. |  |
| 3 | NG-SS → ME | NG-SS send to ME DL NAS TRANSPORT message 2.1.1 with  acknowledgement not requested  List Type is secured packet | SOR header with:  ACK set to "acknowledgement not requested"  List Type set to "secured packet" |
| 4 | ME→ UICC | ENVELOPE: SMS-PP DOWNLOAD 2.1.1 | the ME shall pass the message transparently to the UICC using the ENVELOPE (SMS-PP DOWNLOAD) command as specified in 3GPP TS 31.111 [15] clause 7.1.1.1a |
| 5 | UICC → ME | SW1/SW2 91 XX |  |
| 6 | ME→ UICC | FETCH |  |
| 7 | UICC → ME | PROACTIVE COMMAND: REFRESH 2.1.1 [Steering of Roaming] |  |
| 8 | ME→ UICC | TERMINAL RESPONSE: REFRESH 2.1.1 |  |
| 9 | UICC → ME | PROACTIVE UICC SESSION ENDED |  |
| 10 | ME | Steering of Roaming procedure | As specified in TS 23.122 [29] clause 4.4.6  Note: The SoR procedure cannot be verified completely in this step. A verification of the complete SoR procedure is done in Expected Sequence 2.3 |

DL NAS TRANSPORT message 2.1.1

Logically:

Message details (referring to 3GPP TS 24.501 Figure 9.11.3.51.1)

Payload container type IE: "0100" (SOR transparent container)

SOR header:

SOR data type: "0" (SOR transparent container carries steering of roaming information)

List indication: "1" (list of preferred PLMN/access technology combinations is provided)

List type: "0" (The list type is a secured packet.)

ACK: "0" (acknowledgment not requested)

Secured packet: as specified in 3GPP TS 31.111 [15] clause 7.1.1.1a – TPDU Command Packet

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 40 | 00 | 91 | 7F | F6 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 4E | 02 | 70 | 00 | 00 | 49 | 15 | 02 | 00 | 10 | 10 | B0 |
| 01 | 40 | 00 | 00 | 00 | 00 | 00 | 00 | 93 | 8A | B4 | 08 |
| 49 | 71 | 14 | 29 | AA | 31 | 22 | 07 | 00 | A4 | 00 | 04 |
| 02 | 6F | 61 | 22 | 0F | 00 | D6 | 00 | 00 | 0A | 52 | 34 |
| 00 | 80 | 00 | 52 | 44 | 00 | 00 | 80 | 81 | 15 | 81 | 03 |
| 01 | 01 | 07 | 82 | 02 | 81 | 82 | 72 | 0A | 52 | 34 | 00 |
| 80 | 00 | 52 | 44 | 00 | 00 | 80 |

ENVELOPE: SMS-PP DOWNLOAD 2.1.1

Logically:

SMS-PP Download:

Device identities:

Source device: Network

Destination device: UICC

SMS TPDU: Contents of Secured Packet from DL NAS TRANSPORT message 2.1.1

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D1 | 61 | 82 | 02 | 83 | 81 | 8B | 5B | 40 | 00 | 91 | 7F |
|  | F6 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 4E | 02 | 70 | 00 |
|  | 00 | 49 | 15 | 02 | 00 | 10 | 10 | B0 | 01 | 40 | 00 | 00 |
|  | 00 | 00 | 00 | 00 | 93 | 8A | B4 | 08 | 49 | 71 | 14 | 29 |
|  | AA | 31 | 22 | 07 | 00 | A4 | 00 | 04 | 02 | 6F | 61 | 22 |
|  | 0F | 00 | D6 | 00 | 00 | 0A | 52 | 34 | 00 | 80 | 00 | 52 |
|  | 44 | 00 | 00 | 80 | 81 | 15 | 81 | 03 | 01 | 01 | 07 | 82 |
|  | 02 | 81 | 82 | 72 | 0A | 52 | 34 | 00 | 80 | 00 | 52 | 44 |
|  | 00 | 00 | 80 |  |  |  |  |  |  |  |  |  |

PROACTIVE COMMAND: REFRESH 2.1.1

Logically:

Command details:

Command number: 1

Command type: REFRESH

Command qualifier: Steering of Roaming

Device identities:

Source device: UICC

Destination device: ME

PLMNwAcT List:

1stPLMN: 254/003

1stACT: UTRAN

2ndPLMN: 254/004

2ndACT: GERAN

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D0 | 15 | 81 | 03 | 01 | 01 | 07 | 82 | 02 | 81 | 82 | 72 |
|  | 0A | 52 | 34 | 00 | 80 | 00 | 52 | 44 | 00 | 00 | 80 |

TERMINAL RESPONSE: REFRESH 2.1.1

Logically:

Command details:

Command number: 1

Command type: REFRESH

Command qualifier: Steering of Roaming

Device identities:

Source device: ME

Destination device: UICC

Result:

General Result: Command performed successfully

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 81 | 03 | 01 | 01 | 07 | 82 | 02 | 82 | 81 | 83 | 01 | 00 |

**Expected Sequence 2.2 Void**

**Expected Sequence 2.3: (Steering of Roaming via DL NAS TRANSPORT message with "Acknowledgement requested" and REFRESH command [Steering of Roaming])**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Direction** | **MESSAGE / Action** | **Comments** |
| 1 | NG-SS | NG-RAN Cell 1 and NG‑RAN Cell 2 transmit BCCH. |  |
| 2 | USER → ME | The ME is switched on | ME will perform Profile Download and USIM initialisation |
| 3 | UICC → ME | PROACTIVE COMMAND PENDING: SET UP EVENT LIST 2.3.1 | If programmable non-removable UICC with a Test Applet is used (as defined in clause 27.0), the TERMINAL RESPONSE cannot be verified by the Test Applet and that the LOCATION STATUS Event has been successfully registered in the device after step 5 is implicitly verified at steps 8 and 19. |
| 4 | ME → UICC | FETCH |
| 5 | UICC → ME | PROACTIVE COMMAND; SET UP EVENT LIST 2.3.1 |
| 6a | ME → UICC | TERMINAL RESPONSE; SET UP EVENT LIST 2.3.1 |
| 6b | ME → UICC | ENVELOPE: EVENT DOWNLOAD - Location Status 2.3.0 | This step is optional and applies in case the ME did not successfully register to NG-RAN cell 1 yet. |
| 7 | ME → NG-SS | The ME successfully registers to NG-RAN cell 1 |  |
| 8 | ME UICC | ENVELOPE: EVENT DOWNLOAD - Location Status 2.3.1 |  |
| 9 | NG-SS → ME | DL NAS TRANSPORT message 2.3.1 | SOR header with:   * ACK set to "acknowledgement requested" * List Type set to "secured packet" |
| 10 | ME → UICC | ENVELOPE: SMS-PP DOWNLOAD 2.3.1 | the ME shall pass the message transparently to the UICC using the ENVELOPE (SMS-PP DOWNLOAD) command as specified in TS 31.111 [15] clause 7.1.1.1a |
| 11 | UICC → ME | SW1/SW2 '91 XX' |  |
| 12 | ME → NG-SS | ME sends to NG-SS an acknowledgement in the Payload container IE of an UL NAS TRANSPORT message with Payload type IE set to "Steering of Roaming transparent container". | Note: this step can be performed in parallel or any point after step 13 and before step 18.  [SOR transparent container 2.3.1 with Acknowledgement] |
| 13 | ME → UICC | FETCH |  |
| 14 | UICC → ME | PROACTIVE COMMAND: REFRESH 2.3.1 [Steering of Roaming] |  |
| 15 | ME → UICC | Update of EFFPLMN | [Deletion of the entry with PLMN 254/003] |
| 16 | ME → UICC | TERMINAL RESPONSE: REFRESH 2.3.1 |  |
| 17 | UICC → ME | Proactive UICC session is terminated |  |
| 18 | ME → NG-SS | The ME successfully registers to NG-RAN cell 2 within 6 minutes | Note: The ME might have registered to the Cell 2 before this step |
| 19 | ME → UICC | ENVELOPE: EVENT DOWNLOAD - Location Status 2.3.2 | PLMN MCC/MNC 254/003, Normal service |

DL NAS TRANSPORT message 2.3.1

Logically:

Message details (referring to TS 24.501, Figure 9.11.3.51.1)

Payload container type IE: "0100" (SOR transparent container)

SOR header:

SOR data type: "0" (SOR transparent container carries steering of roaming information)

List indication: "1" (list of preferred PLMN/access technology combinations is provided)

List type: "0" (The list type is a secured packet.)

ACK: "1" (acknowledgment requested)

Secured packet: as specified in TS 31.111 [15] clause 7.1.1.1a – TPDU Command Packet

Coding: (Security payload with 254/003 and 254/004 included in the NG-RAN PLMN List)

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 40 | 00 | 91 | 7F | F6 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 4E | 02 | 70 | 00 | 00 | 49 | 15 | 02 | 00 | 10 | 10 | B0 |
| 01 | 40 | 00 | 00 | 00 | 00 | 00 | 00 | 64 | D8 | 5D | E1 |
| 35 | EB | A6 | BF | AA | 31 | 22 | 07 | 00 | A4 | 00 | 04 |
| 02 | 6F | 61 | 22 | 0F | 00 | D6 | 00 | 00 | 0A | 52 | 34 |
| 00 | 08 | 00 | 52 | 44 | 00 | 08 | 00 | 81 | 15 | 81 | 03 |
| 01 | 01 | 07 | 82 | 02 | 81 | 82 | 72 | 0A | 52 | 34 | 00 |
| 08 | 00 | 52 | 44 | 00 | 08 | 00 |

SOR Transparent container in REGISTRATION REQUEST (Acknowledgement) 2.3.1

Logically:

Payload container details (referring to TS 24.501 Figure 9.11.3.51.4 and 9.11.3.51.6)

Payload container type IE: "0100" (SOR transparent container)

SOR header:

SOR data type: "1" (The SOR transparent container carries acknowledgement of successful

reception of the steering of roaming information)

ENVELOPE: SMS-PP DOWNLOAD 2.3.1

Logically:

SMS-PP Download

Device identities:

Source device: Network

Destination device: UICC

SMS TPDU: Contents of Secured Packet from DL NAS TRANSPORT message 2.3.1

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D1 | 61 | 82 | 02 | 83 | 81 | 8B | 5B | 40 | 00 | 91 | 7F |
|  | F6 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 4E | 02 | 70 | 00 |
|  | 00 | 49 | 15 | 02 | 00 | 10 | 10 | B0 | 01 | 40 | 00 | 00 |
|  | 00 | 00 | 00 | 00 | 64 | D8 | 5D | E1 | 35 | EB | A6 | BF |
|  | AA | 31 | 22 | 07 | 00 | A4 | 00 | 04 | 02 | 6F | 61 | 22 |
|  | 0F | 00 | D6 | 00 | 00 | 0A | 52 | 34 | 00 | 08 | 00 | 52 |
|  | 44 | 00 | 08 | 00 | 81 | 15 | 81 | 03 | 01 | 01 | 07 | 82 |
|  | 02 | 81 | 82 | 72 | 0A | 52 | 34 | 00 | 08 | 00 | 52 | 44 |
|  | 00 | 08 | 00 |

PROACTIVE COMMAND: SET UP EVENT LIST 2.3.1

Logically:

Command details:

Command number: 1

Command type: SET UP EVENT LIST

Command qualifier: '00'

Device identities

Source device: UICC

Destination device: ME

Event List:

Event 1: Location status

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D0 | 0C | 81 | 03 | 01 | 05 | 00 | 82 | 02 | 81 | 82 | 99 |
|  | 01 | 03 |

TERMINAL RESPONSE: SET UP EVENT LIST 2.3.1

Logically:

Command details:

Command number: 1

Command type: SET UP EVENT LIST

Command qualifier: '00'

Device identities:

Source device: ME

Destination device: UICC

Result:

General Result: Command performed successfully

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 81 | 03 | 01 | 05 | 00 | 82 | 02 | 82 | 81 | 83 | 01 | 00 |

PROACTIVE COMMAND: REFRESH 2.3.1

Logically:

Command details:

Command number: 1

Command type: REFRESH

Command qualifier: Steering of Roaming

Device identities

Source device: UICC

Destination device: ME

PLMNwAcT List:

1st PLMN: 254/003

1st ACT: NG-RAN

2nd PLMN: 254/004

2nd ACT: NG-RAN

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D0 | 15 | 81 | 03 | 01 | 01 | 07 | 82 | 02 | 81 | 82 | 72 |
|  | 0A | 52 | 34 | 00 | 08 | 00 | 52 | 44 | 00 | 08 | 00 |  |

TERMINAL RESPONSE: REFRESH 2.3.1

Logically:

Command details:

Command number: 1

Command type: REFRESH

Command qualifier: Steering of Roaming

Device identities:

Source device: ME

Destination device: UICC

Result:

General Result: Command performed successfully

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 81 | 03 | 01 | 01 | 07 | 82 | 02 | 82 | 81 | 83 | 01 | 00 |

ENVELOPE: EVENT DOWNLOAD - LOCATION STATUS 2.3.0

Logically:

Event list: Location status

Device identities

Source device: ME

Destination device: UICC

Location status: no service

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D6 | 0A | 19 | 01 | 03 | 82 | 02 | 82 | 81 | 9B | 01 | 02 |

ENVELOPE: EVENT DOWNLOAD - LOCATION STATUS 2.3.1

Logically:

Event list: Location status

Device identities

Source device: ME

Destination device: UICC

Location status: normal service

Location Information:

MCC & MNC: the mobile country and network code (MCC = 254, MNC = 001)

TAC: the tracking area code (000001)

NG-SS cell id: the cell identity value (0001 (36 bits))

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D6 | 17 | 19 | 01 | 03 | 82 | 02 | 82 | 81 | 1B | 01 | 00 |
|  | 13 | 0B | 52 | 14 | 00 | 00 | 00 | 01 | 00 | 00 | 00 | 00 |
|  | 1F |

ENVELOPE: EVENT DOWNLOAD - LOCATION STATUS 2.3.2

Logically:

Event list: Location status

Device identities

Source device: ME

Destination device: UICC

Location status: normal service

Location Information:

MCC & MNC: the mobile country and network code (MCC = 254, MNC = 003)

TAC: the tracking area code (000001)

NG-SS cell id: the cell identity value (0001 (36 bits))

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D6 | 17 | 19 | 01 | 03 | 82 | 02 | 82 | 81 | 1B | 01 | 00 |
|  | 13 | 0B | 52 | 34 | 00 | 00 | 00 | 01 | 00 | 00 | 00 | 00 |
|  | 1F |

**Expected Sequence 2.4 (SMS-PP Data Download in several ENVELOPE commands after Steering of Roaming via DL NAS TRANSPORT long message with REFRESH command [Steering of Roaming])**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Direction** | **MESSAGE / Action** | **Comments** |
| 1 | USER → ME | The ME is switched on | ME will perform Profile Download and USIM initialisation |
| 2 | ME → NG-SS | ME successfully REGISTER with NG-RAN cell. |  |
| 3 | NG-SS → ME | NG-SS send to ME DL NAS TRANSPORT long message 2.4.1 with  acknowledgement not requested  List Type is secured packet | SOR header with:  ACK set to "acknowledgement not requested"  List Type set to "secured packet" |
| 4 | ME→ UICC | ENVELOPE: SMS-PP DOWNLOAD 2.4.1 | the ME shall pass the message transparently to the UICC using the ENVELOPE (SMS-PP DOWNLOAD) command as specified in TS 31.111 [15] clause 7.1.1.1a  Note: Message is too long for one ENVELOPE command then it is cut in several ENVELOPE commands.  1st part of message |
| 5 | UICC → ME | SW1/SW2 90 00 |  |
| 6 | ME→ UICC | ENVELOPE: SMS-PP DOWNLOAD 2.4.2 | 2nd part of message |
| 7 | UICC → ME | SW1/SW2 90 00 |  |
| 8 | ME→ UICC | ENVELOPE: SMS-PP DOWNLOAD 2.4.3 | 3rd and last part of message |
| 9 | UICC → ME | SW1/SW2 91 XX |  |
| 10 | ME→ UICC | FETCH |  |
| 11 | UICC → ME | PROACTIVE COMMAND: REFRESH 2.4.1 [Steering of Roaming] |  |
| 12 | ME→ UICC | TERMINAL RESPONSE: REFRESH 2.4.1 |  |
| 13 | UICC → ME | PROACTIVE UICC SESSION ENDED |  |
| 14 | ME | Steering of Roaming procedure | As specified in TS 23.122 [29] clause 4.4.6  Note: The SoR procedure cannot be verified completely in this step. A verification of the complete SoR procedure is done in Expected Sequence 2.3 |

DL NAS TRANSPORT message 2.4.1

Logically:

Message details (referring to TS 24.501 Table 9.11.3.51.1)

Payload container type IE: "0100" (SOR transparent container)

SOR header:

SOR data type: "0" (SOR transparent container carries steering of roaming information)

List indication: "1" (list of preferred PLMN/access technology combinations is provided)

List type: "0" (The list type is a secured packet.)

ACK: "0" (acknowledgment not requested)

Secured packet as specified in TS 31.111 [15] clause 7.1.1.1a:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 40 | 00 | 91 | 7F | F6 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 8C | 07 | 00 | 03 | 1C | 03 | 01 | 70 | 00 | 01 | 48 | 15 |
| 02 | 00 | 10 | 10 | B0 | 01 | 40 | 00 | 00 | 00 | 00 | 00 |
| 00 | 02 | 99 | 54 | A1 | DC | 40 | 46 | 7B | AA | 82 | 01 |
| 2E | 22 | 07 | 00 | A4 | 00 | 04 | 02 | 6F | 61 | 22 | 81 |
| 8C | 00 | D6 | 00 | 00 | 87 | 52 | 14 | 00 | 00 | 80 | 52 |
| 24 | 00 | 80 | 00 | 52 | 34 | 00 | 08 | 00 | 52 | 44 | 00 |
| 00 | 80 | 52 | 54 | 00 | 80 | 00 | 52 | 64 | 00 | 08 | 00 |
| 52 | 74 | 00 | 00 | 80 | 52 | 84 | 00 | 80 | 00 | 52 | 94 |
| 00 | 08 | 00 | 52 | 19 | 00 | 00 | 80 | 52 | 29 | 00 | 80 |
| 00 | 52 | 39 | 00 | 08 | 00 | 52 | 49 | 00 | 00 | 80 | 52 |
| 59 | 00 | 80 | 00 | 52 | 69 | 00 | 08 | 00 | 52 | 79 | 00 |
| 00 | 80 | 52 | 89 | 00 | 80 | 00 | 52 | 99 | 40 | 00 | 91 |
| 7F | F6 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 8C | 05 | 00 |
| 03 | 1C | 03 | 02 | 00 | 08 | 00 | 52 | 11 | 00 | 00 | 80 |
| 52 | 21 | 00 | 80 | 00 | 52 | 31 | 00 | 08 | 00 | 52 | 41 |
| 00 | 00 | 80 | 52 | 51 | 00 | 80 | 00 | 52 | 61 | 00 | 08 |
| 00 | 52 | 71 | 00 | 00 | 80 | 52 | 81 | 00 | 80 | 00 | 52 |
| 91 | 00 | 08 | 00 | 81 | 81 | 93 | 81 | 03 | 01 | 01 | 07 |
| 82 | 02 | 81 | 82 | 72 | 81 | 87 | 52 | 14 | 00 | 00 | 80 |
| 52 | 24 | 00 | 80 | 00 | 52 | 34 | 00 | 08 | 00 | 52 | 44 |
| 00 | 00 | 80 | 52 | 54 | 00 | 80 | 00 | 52 | 64 | 00 | 08 |
| 00 | 52 | 74 | 00 | 00 | 80 | 52 | 84 | 00 | 80 | 00 | 52 |
| 94 | 00 | 08 | 00 | 52 | 19 | 00 | 00 | 80 | 52 | 29 | 00 |
| 80 | 00 | 52 | 39 | 00 | 08 | 00 | 52 | 49 | 00 | 00 | 80 |
| 52 | 59 | 00 | 80 | 00 | 52 | 44 | 00 | 91 | 7F | F6 | 00 |
| 00 | 00 | 00 | 00 | 00 | 00 | 46 | 05 | 00 | 03 | 1C | 03 |
| 03 | 69 | 00 | 08 | 00 | 52 | 79 | 00 | 00 | 80 | 52 | 89 |
| 00 | 80 | 00 | 52 | 99 | 00 | 08 | 00 | 52 | 11 | 00 | 00 |
| 80 | 52 | 21 | 00 | 80 | 00 | 52 | 31 | 00 | 08 | 00 | 52 |
| 41 | 00 | 00 | 80 | 52 | 51 | 00 | 80 | 00 | 52 | 61 | 00 |
| 08 | 00 | 52 | 71 | 00 | 00 | 80 | 52 | 81 | 00 | 80 | 00 |
| 52 | 91 | 00 | 08 | 00 |  |  |  |  |  |  |  |

ENVELOPE: SMS-PP DOWNLOAD 2.4.1

Logically:

SMS-PP Download

Device identities

Source device: Network

Destination device: UICC

SMS TPDU 1st part of Secured Packet from DL NAS TRANSPORT message 2.4.1

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D1 | 81 | A0 | 02 | 02 | 83 | 81 | 0B | 81 | 99 | 40 | 00 |
|  | 91 | 7F | F6 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 8C | 07 |
|  | 00 | 03 | 1C | 03 | 01 | 70 | 00 | 01 | 48 | 15 | 02 | 00 |
|  | 10 | 10 | B0 | 01 | 40 | 00 | 00 | 00 | 00 | 00 | 00 | 02 |
|  | 99 | 54 | A1 | DC | 40 | 46 | 7B | AA | 82 | 01 | 2E | 22 |
|  | 07 | 00 | A4 | 00 | 04 | 02 | 6F | 61 | 22 | 81 | 8C | 00 |
|  | D6 | 00 | 00 | 87 | 52 | 14 | 00 | 00 | 80 | 52 | 24 | 00 |
|  | 80 | 00 | 52 | 34 | 00 | 08 | 00 | 52 | 44 | 00 | 00 | 80 |
|  | 52 | 54 | 00 | 80 | 00 | 52 | 64 | 00 | 08 | 00 | 52 | 74 |
|  | 00 | 00 | 80 | 52 | 84 | 00 | 80 | 00 | 52 | 94 | 00 | 08 |
|  | 00 | 52 | 19 | 00 | 00 | 80 | 52 | 29 | 00 | 80 | 00 | 52 |
|  | 39 | 00 | 08 | 00 | 52 | 49 | 00 | 00 | 80 | 52 | 59 | 00 |
|  | 80 | 00 | 52 | 69 | 00 | 08 | 00 | 52 | 79 | 00 | 00 | 80 |
|  | 52 | 89 | 00 | 80 | 00 | 52 | 99 |  |  |  |  |  |

ENVELOPE: SMS-PP DOWNLOAD 2.4.2

Logically:

SMS-PP Download

Device identities

Source device: Network

Destination device: UICC

SMS TPDU 2nd part of Secured Packet from DL NAS TRANSPORT message 2.4.1

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D1 | 81 | A0 | 02 | 02 | 83 | 81 | 0B | 81 | 99 | 40 | 00 |
|  | 91 | 7F | F6 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 8C | 05 |
|  | 00 | 03 | 1C | 03 | 02 | 00 | 08 | 00 | 52 | 11 | 00 | 00 |
|  | 80 | 52 | 21 | 00 | 80 | 00 | 52 | 31 | 00 | 08 | 00 | 52 |
|  | 41 | 00 | 00 | 80 | 52 | 51 | 00 | 80 | 00 | 52 | 61 | 00 |
|  | 08 | 00 | 52 | 71 | 00 | 00 | 80 | 52 | 81 | 00 | 80 | 00 |
|  | 52 | 91 | 00 | 08 | 00 | 81 | 81 | 93 | 81 | 03 | 01 | 01 |
|  | 07 | 82 | 02 | 81 | 82 | 72 | 81 | 87 | 52 | 14 | 00 | 00 |
|  | 80 | 52 | 24 | 00 | 80 | 00 | 52 | 34 | 00 | 08 | 00 | 52 |
|  | 44 | 00 | 00 | 80 | 52 | 54 | 00 | 80 | 00 | 52 | 64 | 00 |
|  | 08 | 00 | 52 | 74 | 00 | 00 | 80 | 52 | 84 | 00 | 80 | 00 |
|  | 52 | 94 | 00 | 08 | 00 | 52 | 19 | 00 | 00 | 80 | 52 | 29 |
|  | 00 | 80 | 00 | 52 | 39 | 00 | 08 | 00 | 52 | 49 | 00 | 00 |
|  | 80 | 52 | 59 | 00 | 80 | 00 | 52 |  |  |  |  |  |

ENVELOPE: SMS-PP DOWNLOAD 2.4.3

Logically:

SMS-PP Download

Device identities

Source device: Network

Destination device: UICC

SMS TPDU 3rd part of Secured Packet from DL NAS TRANSPORT message 2.4.1

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D1 | 59 | 02 | 02 | 83 | 81 | 0B | 53 | 44 | 00 | 91 | 7F |
|  | F6 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 46 | 05 | 00 | 03 |
|  | 1C | 03 | 03 | 69 | 00 | 08 | 00 | 52 | 79 | 00 | 00 | 80 |
|  | 52 | 89 | 00 | 80 | 00 | 52 | 99 | 00 | 08 | 00 | 52 | 11 |
|  | 00 | 00 | 80 | 52 | 21 | 00 | 80 | 00 | 52 | 31 | 00 | 08 |
|  | 00 | 52 | 41 | 00 | 00 | 80 | 52 | 51 | 00 | 80 | 00 | 52 |
|  | 61 | 00 | 08 | 00 | 52 | 71 | 00 | 00 | 80 | 52 | 81 | 00 |
|  | 80 | 00 | 52 | 91 | 00 | 08 | 00 |  |  |  |  |  |

PROACTIVE COMMAND: REFRESH 2.4.1

Logically:

Command details

Command number: 1

Command type: REFRESH

Command qualifier: Steering of Roaming

Device identities

Source device: UICC

Destination device: ME

PLMNwAcT List (27 entries)

1st PLMN: 254/001 1st ACT: GERAN

2nd PLMN: 254/002 2nd ACT: UTRAN

3rd PLMN: 254/003 3rd ACT: NG-RAN

4th PLMN: 254/004 4th ACT: GERAN

5th PLMN: 254/005 5th ACT: UTRAN

6th PLMN: 254/006 6th ACT: NG-RAN

7th PLMN: 254/007 7th ACT: GERAN

8th PLMN: 254/008 8th ACT: UTRAN

9th PLMN: 254/009 9th ACT: NG-RAN

10th PLMN: 259/001 10th ACT: GERAN

11th PLMN: 259/002 11th ACT: UTRAN

12th PLMN: 259/003 12th ACT: NG-RAN

13th PLMN: 259/004 13th ACT: GERAN

14th PLMN: 259/005 14th ACT: UTRAN

15th PLMN: 259/006 15th ACT: NG-RAN

16th PLMN: 259/007 16th ACT: GERAN

17th PLMN: 259/008 17th ACT: UTRAN

18th PLMN: 259/009 18th ACT: NG-RAN

19th PLMN: 251/001 19th ACT: GERAN

20th PLMN: 251/002 20th ACT: UTRAN

21st PLMN: 251/003 21st ACT: NG-RAN

22nd PLMN: 251/004 22nd ACT: GERAN

23rd PLMN: 251/005 23rd ACT: UTRAN

24th PLMN: 251/006 24th ACT: NG-RAN

25th PLMN: 251/007 25th ACT: GERAN

26th PLMN: 251/008 26th ACT: UTRAN

27th PLMN: 251/009 27th ACT: NG-RAN

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D0 | 81 | 93 | 81 | 03 | 01 | 01 | 07 | 82 | 02 | 81 | 82 |
|  | 72 | 81 | 87 | 52 | 14 | 00 | 00 | 80 | 52 | 24 | 00 | 80 |
|  | 00 | 52 | 34 | 00 | 08 | 00 | 52 | 44 | 00 | 00 | 80 | 52 |
|  | 54 | 00 | 80 | 00 | 52 | 64 | 00 | 08 | 00 | 52 | 74 | 00 |
|  | 00 | 80 | 52 | 84 | 00 | 80 | 00 | 52 | 94 | 00 | 08 | 00 |
|  | 52 | 19 | 00 | 00 | 80 | 52 | 29 | 00 | 80 | 00 | 52 | 39 |
|  | 00 | 08 | 00 | 52 | 49 | 00 | 00 | 80 | 52 | 59 | 00 | 80 |
|  | 00 | 52 | 69 | 00 | 08 | 00 | 52 | 79 | 00 | 00 | 80 | 52 |
|  | 89 | 00 | 80 | 00 | 52 | 99 | 00 | 08 | 00 | 52 | 11 | 00 |
|  | 00 | 80 | 52 | 21 | 00 | 80 | 00 | 52 | 31 | 00 | 08 | 00 |
|  | 52 | 41 | 00 | 00 | 80 | 52 | 51 | 00 | 80 | 00 | 52 | 61 |
|  | 00 | 08 | 00 | 52 | 71 | 00 | 00 | 80 | 52 | 81 | 00 | 80 |
|  | 00 | 52 | 91 | 00 | 08 | 00 |  |  |  |  |  |  |

TERMINAL RESPONSE: REFRESH 2.4.1

Logically:

Command details

Command number: 1

Command type: REFRESH

Command qualifier: Steering of Roaming

Device identities

Source device: ME

Destination device: UICC

Result

General Result: Command performed successfully

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 81 | 03 | 01 | 01 | 07 | 82 | 02 | 82 | 81 | 83 | 01 | 00 |

##### 27.22.14.2.5 Test requirement

The ME shall operate in the manner defined in expected sequence 2.1 to 2.4.

#### 27.22.14.3 Steering of Roaming via REGISTRATION ACCEPT message

##### 27.22.14.3.1 Definition and applicability

See clause 3.2.2.

##### 27.22.14.3.2 Conformance requirement

The ME shall support the Proactive UICC: SMS-PP Data Download facility as defined in the following technical specifications:

- TS 31.111 [15] clause 5, clause 7.1, clause 8.1, clause 8.7, clause 8.13 and clause 11.

- TS 31.115 [28] clause 4.

- TS 23.038 [7] clause 4.

The ME shall support the Procedure for SMS-PP data download via REGISTRATION ACCEPT messages as defined in the following technical specifications:

- TS 31.111 [15] clause 7.1.1.1a.

The ME shall support the steering of roaming procedure as defined in:

- TS 23.122 [29] clause 4.4.6.

##### 27.22.14.3.3 Test purpose

To verify that when the service "data download via SMS Point-to-point" is available in the USIM Service Table and the ME receives a REGISTRATION ACCEPT message that includes:

- a SOR transparent container information element with list type with value "0"= secure packet containing a secure packet constructed as an SMS-Deliver (as specified in TS 23.040 [5] with:

- protocol identifier = SIM data download;

- data coding scheme = class 2 message;

and the integrity check of the message was successful then the ME shall:

- pass the message transparently to the UICC using the ENVELOPE (SMS-PP DOWNLOAD) command as defined in TS 31.111 [15] clause 7.1.1.2;

- not display or alert the user;

Where the secure packet is coded as a Command Packet formatted as Short Message Point to Point (as specified in TS 31.115 [41])).

To verify that the ME interprets the UICC returns response correctly.

##### 27.22.14.3.4 Method of Test

27.22.14.3.4.1 Initial conditions

The ME is connected to the USIM Simulator and the NG-SS.

The ME is connected to NG-SS and it has performed the Registration procedure.

The default NG-RAN UICC and the following parameters are used:

**EFUST (USIM Service Table)**

EFUST shall be configured as defined in 27.22.2D.1 with the exception that Service n°42 "Operator controlled PLMN selector with Access Technology" and Service n°127 "Control plane-based steering of UE in VPLMN" are available.

The NG-RAN UICC parameters are:

* one OTA Key Set for Remote Management with:
  + Key Version: 01
    - 1st key
      * Key Index (Kic): 01
      * Key Algorithm: Triple DES
      * Key value: 000102030405060708090A0B0C0D0E0F
    - 2nd key
      * Key Index (Kid): 02
      * Key Algorithm: Triple DES
      * Key value: 000102030405060708090A0B0C0D0E0F
    - 3rd key
      * Key Index (Kik): 03
      * Key Algorithm: Triple DES
      * Key value: 000102030405060708090A0B0C0D0E0F

The NG-RAN parameters of the system simulator are:

- Mobile Country Code (MCC) = 001;

- Mobile Network Code (MNC) = 02;

- Tracking Area Code (TAC) = 000001;

- NG-RAN Cell Id = 0001 (36 bits).

The elementary files are coded as USIM Application Toolkit default with the following exceptions:

- The "data download via SMS Point-to-point" service is available in the USIM Service Table.

Prior to this test, the ME shall have been powered on and performed the PROFILE DOWNLOAD procedure.

27.22.14.3.4.2 Procedure

**Expected Sequence 3.1 (SMS-PP Data Download after Steering of Roaming via REGISTRATION ACCEPT message with REFRESH command [Steering of Roaming])**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Direction** | **MESSAGE / Action** | **Comments** |
| 1 | USER → ME | The ME is switched on | ME will perform Profile Download and USIM initialisation |
| 2 | ME → NG-SS | ME initiates registration to NG-RAN cell. |  |
| 3 | NG-SS → ME | ME is successfully registered to NG-RAN  NG-SS sends REGISTRATION ACCEPT message 3.1.1 with  SOR transparent container | SOR header with:  ACK set to "acknowledgement not requested"  List Type set to "secured packet" |
| 4 | ME→ UICC | ENVELOPE: SMS-PP DOWNLOAD 3.1.1 | the ME shall pass the message transparently to the UICC using the ENVELOPE (SMS-PP DOWNLOAD) command as specified in TS 31.111 [15] clause 7.1.1.1a |
| 5 | UICC → ME | SW1/SW2 91 XX |  |
| 6 | ME→ UICC | FETCH |  |
| 7 | UICC → ME | PROACTIVE COMMAND: REFRESH 3.1.1 [Steering of Roaming] |  |
| 8 | ME→ UICC | TERMINAL RESPONSE: REFRESH 3.1.1 |  |
| 9 | UICC → ME | PROACTIVE UICC SESSION ENDED |  |
| 10 | ME | Steering of Roaming procedure | As specified in TS 23.122 [29] clause 4.4.6  Note: the complete SOR procedure cannot be verified. |

REGISTRATION ACCEPT message 3.1.1

Logically:

Including SOR transparent container IEI 73 (referring to TS 24.501 Table 8.2.7.1.1) defined as below

Message details (referring to TS 24.501 Figure 9.11.3.51.1)

SOR header:

SOR data type: "0" (SOR transparent container carries steering of roaming information)

List indication: "1" (list of preferred PLMN/access technology combinations is provided)

List type: "0" (The list type is a secured packet.)

ACK: "0" (acknowledgment not requested)

Secured packet as specified in TS 31.111 [15] clause 7.1.1.1a – TPDU Command Packet

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 40 | 00 | 91 | 7F | F6 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 4E | 02 | 70 | 00 | 00 | 49 | 15 | 02 | 00 | 10 | 10 | B0 |
| 01 | 40 | 00 | 00 | 00 | 00 | 00 | 00 | 93 | 8A | B4 | 08 |
| 49 | 71 | 14 | 29 | AA | 31 | 22 | 07 | 00 | A4 | 00 | 04 |
| 02 | 6F | 61 | 22 | 0F | 00 | D6 | 00 | 00 | 0A | 52 | 34 |
| 00 | 80 | 00 | 52 | 44 | 00 | 00 | 80 | 81 | 15 | 81 | 03 |
| 01 | 01 | 07 | 82 | 02 | 81 | 82 | 72 | 0A | 52 | 34 | 00 |
| 80 | 00 | 52 | 44 | 00 | 00 | 80 |  |  |  |  |  |

ENVELOPE: SMS-PP DOWNLOAD 3.1.1

Logically:

SMS-PP Download

Device identities

Source device: Network

Destination device: UICC

SMS TPDU Contents of Secured Packet from REGISTRATION ACCEPT message 3.1.1

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D1 | 61 | 82 | 02 | 83 | 81 | 8B | 5B | 40 | 00 | 91 | 7F |
|  | F6 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 4E | 02 | 70 | 00 |
|  | 00 | 49 | 15 | 02 | 00 | 10 | 10 | B0 | 01 | 40 | 00 | 00 |
|  | 00 | 00 | 00 | 00 | 93 | 8A | B4 | 08 | 49 | 71 | 14 | 29 |
|  | AA | 31 | 22 | 07 | 00 | A4 | 00 | 04 | 02 | 6F | 61 | 22 |
|  | 0F | 00 | D6 | 00 | 00 | 0A | 52 | 34 | 00 | 80 | 00 | 52 |
|  | 44 | 00 | 00 | 80 | 81 | 15 | 81 | 03 | 01 | 01 | 07 | 82 |
|  | 02 | 81 | 82 | 72 | 0A | 52 | 34 | 00 | 80 | 00 | 52 | 44 |
|  | 00 | 00 | 80 |  |  |  |  |  |  |  |  |  |

PROACTIVE COMMAND: REFRESH 3.1.1

Logically:

Command details

Command number: 1

Command type: REFRESH

Command qualifier: Steering of Roaming

Device identities

Source device: UICC

Destination device: ME

PLMNwAcT List:

1stPLMN: 254/003

1stACT: UTRAN

2ndPLMN: 254/004

2ndACT: GERAN

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D0 | 15 | 81 | 03 | 01 | 01 | 07 | 82 | 02 | 81 | 82 | 72 |
|  | 0A | 52 | 34 | 00 | 80 | 00 | 52 | 44 | 00 | 00 | 80 |  |

TERMINAL RESPONSE: REFRESH 3.1.1

Logically:

Command details

Command number: 1

Command type: REFRESH

Command qualifier: Steering of Roaming

Device identities

Source device: ME

Destination device: UICC

Result

General Result: Command performed successfully

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 81 | 03 | 01 | 01 | 07 | 82 | 02 | 82 | 81 | 83 | 01 | 00 |

**Expected Sequence 3.2 Void**

**Expected Sequence 3.3 (SMS-PP Data Download in several ENVELOPE commands after Steering of Roaming via REGISTRATION ACCEPT long message with REFRESH command [Steering of Roaming])**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Direction** | **MESSAGE / Action** | **Comments** |
| 1 | USER → ME | The ME is switched on | ME will perform Profile Download and USIM initialisation |
| 2 | ME → NG-SS | ME initiates registration to NG-RAN |  |
| 3 | NG-SS → ME | ME is successfully registered to NG-RAN  NG-SS sends REGISTRATION ACCEPT long message 3.3.1 with  acknowledgement not requested  List Type is secured packet | SOR header with:  ACK set to "acknowledgement not requested"  List Type set to "secured packet" |
| 4 | ME → UICC | ENVELOPE: SMS-PP DOWNLOAD 3.3.1 | the ME shall pass the message transparently to the UICC using the ENVELOPE (SMS-PP DOWNLOAD) command as specified in TS 31.111 [15] clause 7.1.1.1a  Note: Message is too long for one ENVELOPE command then it is cut in several ENVELOPE commands.  1st part of message |
| 5 | UICC → ME | SW1/SW2 90 00 |  |
| 6 | ME → UICC | ENVELOPE: SMS-PP DOWNLOAD 3.3.2 | 2nd part of message |
| 7 | UICC → ME | SW1/SW2 90 00 |  |
| 8 | ME → UICC | ENVELOPE: SMS-PP DOWNLOAD 3.3.3 | 3rd and last part of message |
| 9 | UICC → ME | SW1/SW2 91 XX |  |
| 10 | ME → UICC | FETCH |  |
| 11 | UICC → ME | PROACTIVE COMMAND: REFRESH 3.3.1 [Steering of Roaming] |  |
| 12 | ME → UICC | TERMINAL RESPONSE: REFRESH 3.3.1 |  |
| 13 | UICC → ME | PROACTIVE UICC SESSION ENDED |  |
| 14 | ME | Steering of Roaming procedure | As specified in TS 23.122 [29] clause 4.4.6  Note: the complete SOR procedure cannot be verified. |

REGISTRATION ACCEPT message 3.3.1

Logically:

Including SOR transparent container IEI 73 (refering to TS 24.501 Table 8.2.7.1.1) defined as below

Message details (refering to TS 24.501 Table 9.11.3.51.1)

SOR header:

SOR data type: "0" (SOR transparent container carries steering of roaming information)

List indication: "1" (list of preferred PLMN/access technology combinations is provided)

List type: "0" (The list type is a secured packet.)

ACK: "0" (acknowledgment not requested)

Secured packet as specified in TS 31.111 [15] clause 7.1.1.1a:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 40 | 00 | 91 | 7F | F6 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 8C | 07 | 00 | 03 | 1C | 03 | 01 | 70 | 00 | 01 | 48 | 15 |
| 02 | 00 | 10 | 10 | B0 | 01 | 40 | 00 | 00 | 00 | 00 | 00 |
| 00 | 02 | 99 | 54 | A1 | DC | 40 | 46 | 7B | AA | 82 | 01 |
| 2E | 22 | 07 | 00 | A4 | 00 | 04 | 02 | 6F | 61 | 22 | 81 |
| 8C | 00 | D6 | 00 | 00 | 87 | 52 | 14 | 00 | 00 | 80 | 52 |
| 24 | 00 | 80 | 00 | 52 | 34 | 00 | 08 | 00 | 52 | 44 | 00 |
| 00 | 80 | 52 | 54 | 00 | 80 | 00 | 52 | 64 | 00 | 08 | 00 |
| 52 | 74 | 00 | 00 | 80 | 52 | 84 | 00 | 80 | 00 | 52 | 94 |
| 00 | 08 | 00 | 52 | 19 | 00 | 00 | 80 | 52 | 29 | 00 | 80 |
| 00 | 52 | 39 | 00 | 08 | 00 | 52 | 49 | 00 | 00 | 80 | 52 |
| 59 | 00 | 80 | 00 | 52 | 69 | 00 | 08 | 00 | 52 | 79 | 00 |
| 00 | 80 | 52 | 89 | 00 | 80 | 00 | 52 | 99 | 40 | 00 | 91 |
| 7F | F6 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 8C | 05 | 00 |
| 03 | 1C | 03 | 02 | 00 | 08 | 00 | 52 | 11 | 00 | 00 | 80 |
| 52 | 21 | 00 | 80 | 00 | 52 | 31 | 00 | 08 | 00 | 52 | 41 |
| 00 | 00 | 80 | 52 | 51 | 00 | 80 | 00 | 52 | 61 | 00 | 08 |
| 00 | 52 | 71 | 00 | 00 | 80 | 52 | 81 | 00 | 80 | 00 | 52 |
| 91 | 00 | 08 | 00 | 81 | 81 | 93 | 81 | 03 | 01 | 01 | 07 |
| 82 | 02 | 81 | 82 | 72 | 81 | 87 | 52 | 14 | 00 | 00 | 80 |
| 52 | 24 | 00 | 80 | 00 | 52 | 34 | 00 | 08 | 00 | 52 | 44 |
| 00 | 00 | 80 | 52 | 54 | 00 | 80 | 00 | 52 | 64 | 00 | 08 |
| 00 | 52 | 74 | 00 | 00 | 80 | 52 | 84 | 00 | 80 | 00 | 52 |
| 94 | 00 | 08 | 00 | 52 | 19 | 00 | 00 | 80 | 52 | 29 | 00 |
| 80 | 00 | 52 | 39 | 00 | 08 | 00 | 52 | 49 | 00 | 00 | 80 |
| 52 | 59 | 00 | 80 | 00 | 52 | 44 | 00 | 91 | 7F | F6 | 00 |
| 00 | 00 | 00 | 00 | 00 | 00 | 46 | 05 | 00 | 03 | 1C | 03 |
| 03 | 69 | 00 | 08 | 00 | 52 | 79 | 00 | 00 | 80 | 52 | 89 |
| 00 | 80 | 00 | 52 | 99 | 00 | 08 | 00 | 52 | 11 | 00 | 00 |
| 80 | 52 | 21 | 00 | 80 | 00 | 52 | 31 | 00 | 08 | 00 | 52 |
| 41 | 00 | 00 | 80 | 52 | 51 | 00 | 80 | 00 | 52 | 61 | 00 |
| 08 | 00 | 52 | 71 | 00 | 00 | 80 | 52 | 81 | 00 | 80 | 00 |
| 52 | 91 | 00 | 08 | 00 |  |  |  |  |  |  |  |

ENVELOPE: SMS-PP DOWNLOAD 3.3.1

Logically:

SMS-PP Download

Device identities

Source device: Network

Destination device: UICC

SMS TPDU 1st part of Secured Packet from REGISTRATION ACCEPT message 3.3.1

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D1 | 81 | A0 | 02 | 02 | 83 | 81 | 0B | 81 | 99 | 40 | 00 |
|  | 91 | 7F | F6 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 8C | 07 |
|  | 00 | 03 | 1C | 03 | 01 | 70 | 00 | 01 | 48 | 15 | 02 | 00 |
|  | 10 | 10 | B0 | 01 | 40 | 00 | 00 | 00 | 00 | 00 | 00 | 02 |
|  | 99 | 54 | A1 | DC | 40 | 46 | 7B | AA | 82 | 01 | 2E | 22 |
|  | 07 | 00 | A4 | 00 | 04 | 02 | 6F | 61 | 22 | 81 | 8C | 00 |
|  | D6 | 00 | 00 | 87 | 52 | 14 | 00 | 00 | 80 | 52 | 24 | 00 |
|  | 80 | 00 | 52 | 34 | 00 | 08 | 00 | 52 | 44 | 00 | 00 | 80 |
|  | 52 | 54 | 00 | 80 | 00 | 52 | 64 | 00 | 08 | 00 | 52 | 74 |
|  | 00 | 00 | 80 | 52 | 84 | 00 | 80 | 00 | 52 | 94 | 00 | 08 |
|  | 00 | 52 | 19 | 00 | 00 | 80 | 52 | 29 | 00 | 80 | 00 | 52 |
|  | 39 | 00 | 08 | 00 | 52 | 49 | 00 | 00 | 80 | 52 | 59 | 00 |
|  | 80 | 00 | 52 | 69 | 00 | 08 | 00 | 52 | 79 | 00 | 00 | 80 |
|  | 52 | 89 | 00 | 80 | 00 | 52 | 99 |  |  |  |  |  |

ENVELOPE: SMS-PP DOWNLOAD 3.3.2

Logically:

SMS-PP Download

Device identities

Source device: Network

Destination device: UICC

SMS TPDU 2nd part of Secured Packet from REGISTRATION ACCEPT message 3.3.1

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D1 | 81 | A0 | 02 | 02 | 83 | 81 | 0B | 81 | 99 | 40 | 00 |
|  | 91 | 7F | F6 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 8C | 05 |
|  | 00 | 03 | 1C | 03 | 02 | 00 | 08 | 00 | 52 | 11 | 00 | 00 |
|  | 80 | 52 | 21 | 00 | 80 | 00 | 52 | 31 | 00 | 08 | 00 | 52 |
|  | 41 | 00 | 00 | 80 | 52 | 51 | 00 | 80 | 00 | 52 | 61 | 00 |
|  | 08 | 00 | 52 | 71 | 00 | 00 | 80 | 52 | 81 | 00 | 80 | 00 |
|  | 52 | 91 | 00 | 08 | 00 | 81 | 81 | 93 | 81 | 03 | 01 | 01 |
|  | 07 | 82 | 02 | 81 | 82 | 72 | 81 | 87 | 52 | 14 | 00 | 00 |
|  | 80 | 52 | 24 | 00 | 80 | 00 | 52 | 34 | 00 | 08 | 00 | 52 |
|  | 44 | 00 | 00 | 80 | 52 | 54 | 00 | 80 | 00 | 52 | 64 | 00 |
|  | 08 | 00 | 52 | 74 | 00 | 00 | 80 | 52 | 84 | 00 | 80 | 00 |
|  | 52 | 94 | 00 | 08 | 00 | 52 | 19 | 00 | 00 | 80 | 52 | 29 |
|  | 00 | 80 | 00 | 52 | 39 | 00 | 08 | 00 | 52 | 49 | 00 | 00 |
|  | 80 | 52 | 59 | 00 | 80 | 00 | 52 |  |  |  |  |  |

ENVELOPE: SMS-PP DOWNLOAD 3.3.3

Logically:

SMS-PP Download

Device identities

Source device: Network

Destination device: UICC

SMS TPDU 3rd part of Secured Packet from REGISTRATION ACCEPT message 3.3.1

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D1 | 59 | 02 | 02 | 83 | 81 | 0B | 53 | 44 | 00 | 91 | 7F |
|  | F6 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 46 | 05 | 00 | 03 |
|  | 1C | 03 | 03 | 69 | 00 | 08 | 00 | 52 | 79 | 00 | 00 | 80 |
|  | 52 | 89 | 00 | 80 | 00 | 52 | 99 | 00 | 08 | 00 | 52 | 11 |
|  | 00 | 00 | 80 | 52 | 21 | 00 | 80 | 00 | 52 | 31 | 00 | 08 |
|  | 00 | 52 | 41 | 00 | 00 | 80 | 52 | 51 | 00 | 80 | 00 | 52 |
|  | 61 | 00 | 08 | 00 | 52 | 71 | 00 | 00 | 80 | 52 | 81 | 00 |
|  | 80 | 00 | 52 | 91 | 00 | 08 | 00 |  |  |  |  |  |

PROACTIVE COMMAND: REFRESH 3.3.1

Logically:

Command details

Command number: 1

Command type: REFRESH

Command qualifier: Steering of Roaming

Device identities

Source device: UICC

Destination device: ME

PLMNwAcT List (27 entries)

1st PLMN: 254/001 1st ACT: GERAN

2nd PLMN: 254/002 2nd ACT: UTRAN

3rd PLMN: 254/003 3rd ACT: NG-RAN

4th PLMN: 254/004 4th ACT: GERAN

5th PLMN: 254/005 5th ACT: UTRAN

6th PLMN: 254/006 6th ACT: NG-RAN

7th PLMN: 254/007 7th ACT: GERAN

8th PLMN: 254/008 8th ACT: UTRAN

9th PLMN: 254/009 9th ACT: NG-RAN

10th PLMN: 259/001 10th ACT: GERAN

11th PLMN: 259/002 11th ACT: UTRAN

12th PLMN: 259/003 12th ACT: NG-RAN

13th PLMN: 259/004 13th ACT: GERAN

14th PLMN: 259/005 14th ACT: UTRAN

15th PLMN: 259/006 15th ACT: NG-RAN

16th PLMN: 259/007 16th ACT: GERAN

17th PLMN: 259/008 17th ACT: UTRAN

18th PLMN: 259/009 18th ACT: NG-RAN

19th PLMN: 251/001 19th ACT: GERAN

20th PLMN: 251/002 20th ACT: UTRAN

21st PLMN: 251/003 21st ACT: NG-RAN

22nd PLMN: 251/004 22nd ACT: GERAN

23rd PLMN: 251/005 23rd ACT: UTRAN

24th PLMN: 251/006 24th ACT: NG-RAN

25th PLMN: 251/007 25th ACT: GERAN

26th PLMN: 251/008 26th ACT: UTRAN

27th PLMN: 251/009 27th ACT: NG-RAN

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D0 | 81 | 93 | 81 | 03 | 01 | 01 | 07 | 82 | 02 | 81 | 82 |
|  | 72 | 81 | 87 | 52 | 14 | 00 | 00 | 80 | 52 | 24 | 00 | 80 |
|  | 00 | 52 | 34 | 00 | 08 | 00 | 52 | 44 | 00 | 00 | 80 | 52 |
|  | 54 | 00 | 80 | 00 | 52 | 64 | 00 | 08 | 00 | 52 | 74 | 00 |
|  | 00 | 80 | 52 | 84 | 00 | 80 | 00 | 52 | 94 | 00 | 08 | 00 |
|  | 52 | 19 | 00 | 00 | 80 | 52 | 29 | 00 | 80 | 00 | 52 | 39 |
|  | 00 | 08 | 00 | 52 | 49 | 00 | 00 | 80 | 52 | 59 | 00 | 80 |
|  | 00 | 52 | 69 | 00 | 08 | 00 | 52 | 79 | 00 | 00 | 80 | 52 |
|  | 89 | 00 | 80 | 00 | 52 | 99 | 00 | 08 | 00 | 52 | 11 | 00 |
|  | 00 | 80 | 52 | 21 | 00 | 80 | 00 | 52 | 31 | 00 | 08 | 00 |
|  | 52 | 41 | 00 | 00 | 80 | 52 | 51 | 00 | 80 | 00 | 52 | 61 |
|  | 00 | 08 | 00 | 52 | 71 | 00 | 00 | 80 | 52 | 81 | 00 | 80 |
|  | 00 | 52 | 91 | 00 | 08 | 00 |  |  |  |  |  |  |

TERMINAL RESPONSE: REFRESH 3.3.1

Logically:

Command details

Command number: 1

Command type: REFRESH

Command qualifier: Steering of Roaming

Device identities

Source device: ME

Destination device: UICC

Result

General Result: Command performed successfully

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 81 | 03 | 01 | 01 | 07 | 82 | 02 | 82 | 81 | 83 | 01 | 00 |

##### 27.22.14.3.5 Test requirement

The ME shall operate in the manner defined in expected sequence 3.1 to 3.3.