**Test Plan**

Plan Name: LTE SMS Test Plan

Plan Id: LTESMS

Version Number: 25.0

Release Date: October 2024

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# 0.1 Revision History VZ_TC_LTESMS_1530942203313282

| Version | Description | | Release Date |
|---|---|---|---|
| 1.0 | Initial release | | 2/11/2010 |
| 2.0 | Updates/Clarifications/Additions to the following sections:<br><br>1.4, 1.5, 4 | Verizon Wireless | 03/25/2010 |
| 3.0 | · Clarification added to test cases 2.1, 2.3 to 2.38.<br><br>· Test 2.2: Device IMS registration-Unauthorized user is void.<br><br>· Added new tests -2.39, 2.39 2.40, 2.41, 2.42, 2.43, 2.44, 2.45, 2.46, 2.47, 2.48, 2.49, 2.50, 2.51, 2.52 and 2.53. | Verizon Wireless | 08/02/2010 |
| 4.0 | · Clarification added to test cases 2.43 to 2.50 | Verizon Wireless | 10/12/2010 |
| 5.0 | · Updates to sections 1.3 and 1.5<br><br>· Updates to test cases 2.41 and 2.42 | Verizon Wireless | 12/17/2010 |
| 6.0 | · Updates to test cases 2.22, 2.23, 2.35, 2.37, 2.52 and 2.53<br><br>· Added new test cases 2.54 2.72<br><br>· Removed test cases 2.3, 2.4, 2.25, 2.27 | Verizon Wireless | 03/31/2011 |
| 7.0 | · Updates to test cases 2.1, 2.21, 2.35, 2.36, 2.38, 2.39, 2.40, 2.55<br><br>· Removed test cases, 2.37, 2.56, 2.57 | Verizon Wireless | 12/05/2011 |
| 8.0 | · Added test case 2.73 | Verizon Wireless | July 2012 |
| 9.0 | · Removed test cases 2.1, 2.5, 2.6, 2.7, 2.8, 2.9, 2.41, 2.43, 2.44, 2.45, 2.46, 2.47, 2.48, 2.49, 2.50, 2.52, 2.53. these test cases are moved to Verizon Wireless LTE IMS Registration and IMS Registration Retry Test Plan<br><br>· Added section in Test environment for IMS registration | Verizon Wireless | 01/23/2013 |
| 10.0 | · Updated Test Cases 2.16 and 2.16, verification of P-Access-Network-Info header in SIP MESSAGE method | Verizon Wireless | 01/23/2013 |
| | | | |
| 20.0 | Added Text-To-988 TC 2.25 | | Jun 2022 |
| 21.0 | Retired 3GPP2 test cases: | Verizon | June 2023 |

| | | | |
|---|---|---|---|
| | 2.14,2.20,2.22,2.29,2.31,2.33,2.35,2.54,2.64,2.65,2.66,2.67. Updated test cases: 2.39,2.40,2.58,2.60,2.61,2.70,2.71<br><br><br>Updated and Duplicated multiple TCs with extra suffixes for different technology variants. | Wireless | |
| 22.0 | Retired TCs: 2.58, 2.60, 2.61, 2.70, 2.71 ( Invalid for 3GPP) | Verizon Wireless | Oct 2023 |
| 23.0 | Updated numbering of TC 2.73.x from alphanumeric to numeric | Verizon Wireless | Feb 2024 |
| 24.0 | Section 2.35 retired | Verizon Wireless | October 2024 |

## 2.15 MOBILE TERMINATED SMS MESSAGE- 3GPP SMS VZ_TC_LTESMS_6306

This test verifies the LTE device functionality for 3GPP SMS formatted mobile-terminated SMS message.

**Traceability**
- VZW LTE SMS device requirements

| Design Steps |
| --- |
| **Step Name** |
| Step 1 |
| **Pre-Conditions** |
| **Test Environment**<br>• The LTE device under test (DUT) must be registered with IMS through LTE carrier. |
| **Procedures** |
| a. Using Test platform, confirm that DUT is in idle state i.e. no traffic channel is up.<br>b. Send a 3GPP formatted SMS message from Test platform to DUT.<br>a. Using Test platform, verify that DUT successfully received the SMS text message sent at **step b**. |
| **Expected Results** |
| The LTE device successfully receives 3GPP formatted SMS messages over IMS |

## 2.21 MT 3GPP SMS MESSAGE- VERIFY SIP CALL FLOW VZ_TC_LTESMS_6316

This test verifies the LTE device SIP call flow for successful mobile-terminated 3GPP SMS message.

**Traceability**
- VZW LTE SMS device requirements

| Design Steps |
|---|
| **Step Name** |
| Step 1 |
| **Pre-Conditions** |
| **Test Environment**<br>• The LTE device under test (DUT) must be registered with IMS through LTE carrier. |
| **Procedures** |
| a. Send a 3GPP formatted SMS message from the Test platform to DUT.<br>b. Using Test platform, verify that DUT received SIP MESSAGE from P-CSCF indicating the MT 3GPP SMS message.<br>c. Using Test platform, verify that DUT sent SIP 200 OK response message as well as SIP MESSAGE containing Delivery Report to P-CSCF indicating the successful MT SMS delivery. |
| **Expected Results** |
| The LTE device successfully exchanges the SIP messages with P-CSCF for MT 3GPP SMS messages and returns a SIP 200 OK response to the network as well as the Delivery Report. |

## 2.23 MO 3GPP SMS MESSAGE SIZE MORE THAN 1 SEGMENT OF TEXT
VZ_TC_LTESMS_6318

This test verifies the LTE device MO 3GPP SMS functionality, when the SMS message size (SMS payload) is more than 1 segment of text (i.e. default one segment SMS message size is 160 characters).

**Traceability**
- VZW LTE SMS device requirements

| Design Steps |
| --- |
| **Step Name** |
| Step 1 |
| **Pre-Conditions** |
| **Test Environment**<br>  &bull; The LTE device under test (DUT) must be registered with IMS through LTE carrier.<br>  &bull; The Test platform shall be EMS supported capable.<br>  &bull; Using DM tool, configure the DUT SMS format setting parameter "smsformat" to "3GPP". |
| **Procedures** |
| a. Compose and send an SMS message with more than 160 characters from DUT to the Test platform.<br><br>b. Using Test platform confirm that DUT sent an SMS message as multiple SIP messages (SMSs).<br>     **Note**: The maximum SMS message (SMS payload) size support for single a SMS message is 160 characters (1 segment). **Example**: If SMS message contains 208 characters, then SMS message will be sent as 2 messages (i.e. First messages contains 160 characters, and second message contains 48 characters).<br><br>c. Using Test platform, confirm that SMS message is received successfully from DUT and also confirm that the Test platform indicates that, the received SMS is multi a segment SMS. |
| **Expected Results** |
| The LTE device successfully sends the 3GPP SMS message, when SMS message size (SMS payload) is more than 256 bytes. |

## 2.24 2.24APPLICATION DIRECTED SMS- OTADM VZ_TC_LTESMS_6319

This test verifies the interaction between the SMS-Over-IMS application and an application that uses application-directed SMS messages for LTE device.

### Traceability
- VZW LTE SMS device requirements

| Design Steps |
| --- |
| **Step Name** |
| Step 1 |
| **Pre-Conditions** |
| **Test Environment**<br> • The LTE device under test (DUT) must be registered with IMS through LTE carrier. |
| **Procedures** |
| 1. Send a WAP SMS for the OTADM client inside the DUT from Network equipment.<br>2. Verify that the DUT receives the WAP SMS message over the IMS network.<br>3. Using Test platform, verify that DUT OTADM client successfully wakes up and DUT is ready for OTADM session. |
| **Expected Results** |
| The LTE device correctly responds to the WAP OTADM message. |

## 2.25 3GPP TEXT-TO-988 VZ_TC_LTESMS_7349

This test verifies the LTE device SMS functionality to/from Text-To-988 Service.

**Traceability**

- VZW LTE SMS device requirements

| Design Steps |
| --- |
| Step Name |
| Step 1 |
| Pre-Conditions |
| **Test Environment**<br><br>The LTE device under test (DUT) must be registered with IMS through Live LTE network.<br><br>Using DM tool, configure DUT SMS format setting parameter "smsformat" to "3GPP". |
| Procedures |
| Compose and send an SMS message with less than 160 characters from DUT with [Verizon Text-To-988 certification] tag. |
| Expected Results |
| The LTE device successfully sends the SMS message, and received a response message from 988 Suicide Prevention Lifeline. |
| Design Steps |
| Step Name |

| |
|---|
| Step 2 |

| Pre-Conditions |
|---|

| Procedures |
|---|
| Compose and send an SMS message with more than 160 characters from DUT with [Verizon Text-To-988 certification] tag. |

| Expected Results |
|---|
| The LTE device successfully sends the SMS message, and received a response message from 988 Suicide Prevention Lifeline. |

## 2.26 SMS MESSAGES STORAGE SETTING (DEFAULT) - 3GPP SMS
VZ_TC_LTESMS_6320

This test verifies the LTE device default SMS storage setting configuration for MO and MT 3GPP SMS messages.

**Traceability**
- VZW LTE SMS device requirements

| Design Steps |
| --- |
| **Step Name** |
| Step 1 |
| **Pre-Conditions** |
| **Test Environment**<br>• The LTE device under test (DUT) must be registered with IMS through LTE carrier.<br>• This test must be performed on a DUT with the default SMS storage setting.<br>• Using DM tool, configure DUT SMS format setting parameter "smsformat" to "3GPP". |
| **Procedures** |
| a. Using DM tool, confirm that the DUT SMS storage setting parameter "smswriteuicc" is "OFF"<br>b. Send an MO 3GPP SMS message from DUT to the Test platform.<br>c. Using DUT, confirm that MO 3GPP SMS (i.e. sent SMS) is stored in the device memory location.<br>d. Send an 3GPP SMS message from Test platform to DUT<br>e. Using DUT, confirm that the MT 3GPP SMS (i.e. received SMS) is stored in the device memory location. |
| **Expected Results** |
| The LTE device default SMS storage setting parameter "smswriteuicc" values is "OFF" and the MO /MT 3GPP SMS messages shall be stored in the device memory location. |

## 2.28 SMS MESSAGES STORAGE SETTING (MODIFIED) - 3GPP SMS
VZ_TC_LTESMS_6321

This test verifies the LTE device MO and MT 3GPP SMS message storage locations for different device SMS storage setting configurations.

**Traceability**
- VZW LTE SMS device requirements

| Design Steps |
| --- |
| **Step Name** |
| Step 1 |
| **Pre-Conditions** |
| **Test Environment**<br>• The LTE device under test (DUT) must be registered with IMS through LTE carrier.<br>• Using DM tool, configure the DUT SMS storage setting parameter "smsformat" to "3GPP". |
| **Procedures** |
| a. Using DM tool, configure the DUT SMS storage setting parameter "smswriteuicc" to "ON".<br>b. Send 3GPP SMS message from DUT to the Test platform.<br>c. Using DUT, confirm that the MO 3GPP SMS (i.e. sent SMS) is stored in the device UICC (USIM) card memory location.<br>d. Send a 3GPP SMS message from Test platform to DUT<br>e. Using DUT, confirm that the MT 3GPP SMS (i.e. received SMS) is stored in the device UICC (USIM) card memory location<br>f. Power cycle the DUT and confirm that the value of DUT SMS storage setting parameter "smswriteuicc" is still set to "ON".<br>g. Using DM tool, change the value of the SMS storage setting parameter "smswriteuicc" is set to "OFF".<br>h. Send an MO 3GPP SMS message from DUT to the Test platform.<br>i. Using DUT, confirm that the MO 3GPP SMS (i.e. sent SMS) is stored in the device memory location.<br>j. Send an 3GPP SMS message from Test platform to DUT<br>k. Using DUT, confirm that the MT 3GPP SMS (i.e. received SMS) is stored in the device memory location.<br>l. Power cycle the DUT and confirm that the value of DUT SMS storage setting parameter "smswriteuicc" is still set to "OFF". |
| **Expected Results** |
| The LTE device SMS storage setting parameter "smswriteuicc" is configurable.<br>The LTE device SMS storage setting is persistent across device power cycles.<br>The MO and MT 3GPP SMS messages shall be stored in the device memory, when "smswriteuicc" value is "OFF".<br>The MO and MT 3GPP SMS messages are stored in the device UICC (USIM) memory when "smswriteuicc" is "ON". |

## 2.30 MO 3GPP SMS RETRY BEHAVIOR-DEFAULT SIP T1, TIMER F AND T2 TIMERS VZ_TC_LTESMS_6323

This test verifies the LTE device MO 3GPP SMS message retry mechanism for the device default SIP timer values T1, Timer F and T2.

**Traceability**
- VZW LTE SMS device requirements

| Design Steps |
| --- |
| **Step Name** |
| Step 1 |
| **Pre-Conditions** |
| **Test Environment**<br>    • The LTE device under test (DUT) must be registered with IMS through LTE carrier.<br>    • This test must be performed on a DUT with default SIP Timer (i.e. T1 Timer, Timer F and T2 Timer) values.<br>    • Using DM tool, configure the DUT SMS storage setting parameter "smsformat" to "3GPP". |
| **Procedures** |
| 1. Using DM tool, verify that DUT default SIP T1 timer parameter "T1timer_ims" value is 3 seconds.<br>1. Using DM tool, verify that DUT default SIP Timer F parameter "TFtimer_ims" value is 30 seconds.<br>2. Using DM tool, verify that the DUT default SIP "T2 timer" parameter "T2Timer_ims" value is 16 seconds.<br>3. Configure P-CSCF (IMS) not to respond for any of the SIP messages from DUT.<br>4. Attempt to send a 3GPP SMS message from DUT to the Test platform.<br>5. Using Test platform, verify that DUT sent SIP MESSAGE to P-CSCF and note the timestamp at which DUT sent the SIP MESSAGE.<br>6. Using Test platform, confirm that DUT retransmitted SIP MESSAGE in the following intervals<br>        ☐ Second SIP MESSAGE transmitted after 3 seconds (i.e. after T1 expires) and subsequently the SIP MESSAGE is transmitted in 6 sec, 12 sec.etc ( i.e. T1 sec, 2 \*(2\*T1) sec, 2 \*2\*(2\*T1) sec, 2\*2\*2\*(2\*T1) .etc) time interval till the time interval reach to 16 Sec (T2 Timer).<br>        ☐ After reaching the re-transmission interval to 16 sec (T2 timer), then the SIP MESSAGE will be re-transmitted after every 16 sec till the sum of the T1 and T2 time intervals reaches to the SIP Timer F expires (i.e. 30 sec). |

□ The SIP MESSAGE is transmitted for 30 seconds (i.e. till Timer F expiry) in 3 sec, 6 sec, 12 sec, and 16 sec time intervals.

**Note**: The last SIP MESSAGE re-transmission (i.e. 16 second interval) may not happen, because the total sums of time intervals cross the SIP timer expiry (i.e. 30 sec- Timer F).

7. Using Test platform, confirm that once SIP timer expires (i.e. SIP Timer F) DUT presents SMS message failure indication to the DUT user.

**Note**: Even if the DUT retransmits SIP MESSAGE in different SIP timer intervals (i.e. till SIP timer F expiry), according to the device user one attempt of MO SMS failure will be considered only after SIP timer F expiry. A second MO SMS attempt will be considered only after the SIP Timer F expires.

| Expected Results |
|---|
| The LTE device default SIP "T1", "T2" and "Timer F" timer values are 3 seconds,16 seconds and 30 seconds respectively and device follows the proper retry logic for MO 3GPP SMS based on the SIP timers. |

## 2.32 MO 3GPP SMS RETRY BEHAVIOR-MODIFIED SIP T1, TIMER F AND T2 TIMERS VZ_TC_LTESMS_6325

This test verifies the LTE device MO 3GPP SMS message retry mechanism for the device modified SIP timer T1, Timer F and T2 values.

**Traceability**
  • VZW LTE SMS device requirements

| Design Steps |
| --- |
| **Step Name** |
| Step 1 |
| **Pre-Conditions** |
| **Test Environment**<br>  • The LTE device under test (DUT) must be registered with IMS through LTE carrier.<br>  • Using DM tool, configure the DUT SMS storage setting parameter "smsformat" to "3GPP". |
| **Procedures** |
| 1. Using DM tool, change the DUT SIP T1 timer parameter "T1timer_ims" value to 2 seconds.<br>1. Using DM tool, change the DUT SIP Timer F parameter "TFtimer_ims" value to 40 seconds.<br>2. Using DM tool, change the DUT SIP "T2 timer" parameter "T2Timer_ims" value to 8 seconds.<br>3. Configure P-CSCF (IMS) not to respond for any of the SIP messages from DUT.<br>4. Attempt to send a 3GPP SMS message from DUT to the Test platform.<br>5. Using Test platform, verify that DUT sent SIP MESSAGE to P-CSCF and note the timestamp at which DUT sent the SIP MESSAGE.<br>6. Using Test platform, confirm that DUT retransmitted  SIP MESSAGE in the following intervals<br>      □ Second SIP MESSAGE transmitted after 2 seconds (i.e. after T1 expires) and subsequently the SIP MESSAGE is transmitted in 4 sec, 8 sec.etc ( i.e. T1 sec, 2 *(2*T1) sec, 2 *2*(2*T1) sec, 2*2*2*(2*T1) .etc) time interval till the time interval reach to 8 Sec (T2 Timer).<br>      □ After reaching the re-transmission interval to 8 sec (T2 timer), then the SIP MESSAGE will be re-transmitted after every 8 sec till the sum of the T1 and T2 time intervals reaches to the SIP Timer F expires (i.e. 30 sec).<br>      □ The SIP MESSAGE is transmitted for 30 seconds (i.e. till Timer F expiry) in 2 sec, 4 sec, 8 sec, 8 sec, 8 sec and 8 sec time intervals.<br>7. Using Test platform, confirm that once SIP timer expires (i.e. SIP Timer F) DUT presents |

SMS message failure indication to the DUT user.

**Note**: Even if the DUT retransmits SIP MESSAGE in different SIP timer intervals (i.e. till SIP timer F expiry), according to the device user one attempt of MO SMS failure will be considered only after SIP timer F expiry.  A second MO SMS attempt will be considered only after the SIP Timer F expires.

| Expected Results |
|---|
| The LTE device SIP timers "T1", "T2" and "Timer F" are configurable and device follows the proper retry logic for MO 3GPP SMS based on the modified SIP timers. |

## 2.33.4 Test Procedure - SIP 400 BAD REQUEST VZ_TC_LTESMS_3804468

## 2.33.5 Test Procedure - SIP 404 NOT FOUND VZ_TC_LTESMS_3804481

## 2.33.6 Test Procedure- SIP 500 SERVER INTERNAL ERROR VZ_TC_LTESMS_3804676

## 2.33.7 Test Procedure- SIP 502 BAD GATEWAY VZ_TC_LTESMS_3804968

## 2.33.8 Test Procedure- SIP 503 SERVICE UNAVAILABLE ERROR VZ_TC_LTESMS_3805049

## 2.34 MO 3GPP SMS SIP ERRORS VZ_TC_LTESMS_6332

This test verifies the LTE device behavior for MO 3GPP SMS message, when device receives a SIP error from IMS.

**Traceability**
- VZW LTE SMS device requirements

| Design Steps |
| --- |
| Step Name |
| SIP 400 BAD REQUEST |
| Pre-Conditions |
| **Test Environment**<br>• The LTE device under test (DUT) must be registered with IMS through LTE carrier.<br>• Using DM tool, configure the DUT SMS storage setting parameter "smsformat" to "3GPP". |
| Procedures |
| a. Configure P-CSCF (IMS) to respond with SIP 400 Bad request error for DUTs SIP MESSAGE.<br>b. Attempt to send a 3GPP SMS message from DUT to the Test platform.<br>c. Using Test platform, verify that DUT received the SIP 400 Bad Request error message from P-CSCF for SIP MESSAGE.<br>d. Using Test platform, confirm that the MO 3GPP SMS message attempt is failed. |
| Expected Results |
| The LTE device shall be able to identify the SIP errors. |
| Design Steps |
| Step Name |
| SIP 404 NOT FOUND |
| Pre-Conditions |
| **Test Environment**<br>• The LTE device under test (DUT) must be registered with IMS through LTE carrier.<br>• Using DM tool, configure the DUT SMS storage setting parameter "smsformat" to "3GPP". |
| Procedures |
| a. Configure P-CSCF (IMS) to respond with SIP 404 NOT FOUND error for DUTs SIP MESSAGE.<br>b. Attempt to send a 3GPP SMS message from DUT to the Test platform.<br>c. Using Test platform, verify that DUT received the SIP 404 not found error message from P-CSCF for SIP MESSAGE. |

d. Using Test platform, confirm that the MO 3GPP SMS message attempt is failed.

## Expected Results

The LTE device shall be able to identify the SIP errors.

## Design Steps

## Step Name

## SIP 500 SERVER INTERNAL ERROR

## Pre-Conditions

**Test Environment**
- The LTE device under test (DUT) must be registered with IMS through LTE carrier.
- Using DM tool, configure the DUT SMS storage setting parameter "smsformat" to "3GPP".

## Procedures

a. Configure P-CSCF (IMS) to respond with SIP 500 SERVER INTERNAL error for DUTs SIP MESSAGE.

b. Attempt to send a 3GPP SMS message from the DUT to the Test platform.

c. Using Test platform, verify that DUT received the SIP 500 server internal error message from P-CSCF for SIP MESSAGE.

d. Using Test platform, confirm that the MO 3GPP SMS message attempt is failed.

## Expected Results

The LTE device shall be able to identify the SIP errors.

## Design Steps

## Step Name

## SIP 502 BAD GATEWAY ERROR

## Pre-Conditions

**Test Environment**
- The LTE device under test (DUT) must be registered with IMS through LTE carrier.
- Using DM tool, configure the DUT SMS storage setting parameter "smsformat" to "3GPP".

## Procedures

a. Configure P-CSCF (IMS) to respond with SIP 502 BAD GATEWAY error for DUTs SIP MESSAGE.

b. Attempt to send a 3GPP SMS message from  DUT to the Test platform

c. Using Test platform, verify that DUT received the SIP 502 Bad gateway error message from P-CSCF for SIP MESSAGE.

d. Using Test platform, confirm that the MO 3GPP SMS message attempt is failed.

## Expected Results

The LTE device shall be able to identify the SIP errors.

| Design Steps |
|---|
| **Step Name** |
| SIP 503 SEVICE UNAVAILABLE ERROR |
| **Pre-Conditions** |
| **Test Environment**<br>• The LTE device under test (DUT) must be registered with IMS through LTE carrier.<br>• Using DM tool, configure the DUT SMS storage setting parameter "smsformat" to "3GPP". |
| **Procedures** |
| a. Configure P-CSCF (IMS) to respond with SIP 503 SEVICE UNAVAILABLE error for DUTs SIP MESSAGE.<br><br>b. Attempt to send a 3GPP SMS message from DUT to the Test platform.<br><br>c. Using Test platform, verify that DUT received the SIP 503 service unavailable error message from P-CSCF for SIP MESSAGE.<br><br>d. Using Test platform, confirm that the MO 3GPP SMS message attempt is failed. |
| **Expected Results** |
| The LTE device shall be able to identify the SIP errors. |

## 2.34.4 Test Procedure - SIP 400 BAD REQUEST VZ_TC_LTESMS_3805059

## 2.34.5 Test Procedure - SIP 404 NOT FOUND VZ_TC_LTESMS_3805067

## 2.34.6 Test Procedure - SIP 500 SERVER INTERNAL ERROR VZ_TC_LTESMS_3805068

## 2.34.7 Test Procedure - SIP 502 BAD GATEWAY VZ_TC_LTESMS_3805076

## 2.34.8 Test Procedure - SIP 503 SERVICE UNAVAILABLE ERROR VZ_TC_LTESMS_3805154

## 2.36 MO 3GPP SMS RETRY BEHAVIOR-DEFAULT SMS STORAGE SETTING VZ_TC_LTESMS_6341

This test verifies the LTE device MO 3GPP SMS message retry mechanism, when initial attempt of MO 3GPP SMS message is failed due to SIP error or SIP timer expiration and this test also verifies the SMS message storage location.

**Traceability**
- VZW LTE SMS device requirements

| Design Steps |
| --- |
| **Step Name** |
| No response from IMS |
| **Pre-Conditions** |
| **Test Environment**<br>• The LTE device under test (DUT) must be registered with IMS through LTE carrier.<br>• This test must be performed on device with default SMS storage setting.<br>• Using DM tool, configure the DUT MO SMS format setting parameter "smsformat" to "3GPP". |
| **Procedures** |
| a. Using DM tools, confirm that SMS storage setting parameter "smswriteuicc" is "OFF".<br>b. Configure P-CSCF (IMS) not to respond for SIP MESSAGE from DUT.<br>c. Attempt to send a 3GPP SMS message from DUT to the Test platform.<br>d. Execute **Test**: "MO 3GPP SMS RETRY BEHAVIOR-DEFAULT SIP T1, TIMER F AND T2 TIMERS" or **Test**: "MO 3GPP SMS RETRY BEHAVIOR-MODIFIED SIP T1, TIMER F AND T2 TIMERS" test procedure for SMS attempt failure and also note the time stamp of initial SMS attempt failure.<br>e. Using Test platform, confirm that the DUT re-attempted (second attempt) to send 3GPP SMS to Test platform exactly after 30 sec of the first attempt SMS failure.<br>f. Verify that the message in the second attempt has TP-Reject-Duplicates (TP-RD) bit set to 1 and it includes the same value for TP-Message-Reference (TP-MR) as the message in the initial attempt.<br>g. Verify that the second attempt of 3GPP SMS is also failed due to IMS configuration at **Step-b**.<br>h. Verify that the failed MO 3GPP SMS message is stored in the device memory with status set to fail. |
| **Expected Results** |
| The LTE device follows the appropriate retry logic for MO 3GPP SMS and the sent MO 3GPP SMS message shall be stored in the memory location with the proper status indication (failed/Pass). In the second attempt, device sets TP-Reject-Duplicates (TP-RD) bit to 1 and the TP-Message-Reference (TP-MR) value is the same as the one in the initial attempt. |
| **Design Steps** |
| **Step Name** |

## SIP error from IMS

### Pre-Conditions

**Test Environment**

- The LTE device under test (DUT) must be registered with IMS through LTE carrier.
- This test must be performed on device with default SMS storage setting.
- Using DM tool, configure the DUT MO SMS format setting parameter "smsformat" to "3GPP".

### Procedures

a. Using DM tool, confirm that SMS storage setting parameter "smswriteuicc" is "OFF".

b. Configure P-CSCF (IMS) to respond with SIP error for DUTs SIP MESSAGE.
   **NOTE**: Refer **Test**: "MO 3GPP SMS-SIP errors" for different SIP errors.

c. Attempt to send a 3GPP SMS message from DUT to the Test platform.

d. Execute **Test**: "MO 3GPP SMS SIP ERRORS" test procedure for SMS attempt failure and also note the time stamp of initial SMS attempt failure.

e. Using Test platform, confirm that the DUT re-attempted (second attempt) to send 3GPP SMS to Test platform exactly after 30 sec of the first attempt SMS failure.

f. Verify that the message in the second attempt has TP-Reject-Duplicates (TP-RD) bit set to 1 and it includes the same value for TP-Message-Reference (TP-MR) as the message in the initial attempt.

g. Verify that the second attempt of 3GPP SMS is also failed due to IMS configuration at **Step-b**.

h. Verify that the failed MO 3GPP SMS message is stored in the memory with status set to fail.

### Expected Results

The LTE device follows the appropriate retry logic for MO 3GPP SMS and the sent MO 3GPP SMS message shall be stored in the memory location with the proper status indication (failed/Pass). In the second attempt, device sets TP-Reject-Duplicates (TP-RD) bit to 1 and the TP-Message-Reference (TP-MR) value is the same as the one in the initial attempt.

## 2.36.4 Test Procedure - No Response from IMS VZ_TC_LTESMS_3815949

## 2.36.5 Test Procedure - SIP Error from IMS VZ_TC_LTESMS_3815950

## 2.38 MO 3GPP SMS RETRY BEHAVIOR-MODIFIED SMS STORAGE SETTING VZ_TC_LTESMS_6344

This test verifies the LTE device MO 3GPP SMS message retry mechanism, when initial attempt of MO 3GPP SMS message is failed due to SIP error or SIP timer expiration and this test also verifies the SMS message storage location.

**Traceability**
- VZW LTE SMS device requirements

| Design Steps |
| --- |
| **Step Name** |
| No response from IMS |
| **Pre-Conditions** |
| **Test Environment**<br>• The LTE device under test (DUT) must be registered with IMS through LTE carrier.<br>• Using DM tool set the device MO SMS format setting parameter "smsformat" to "3GPP". |
| **Procedures** |
| a. Using  DM tool, set the   DUT SMS storage setting parameter "smswriteuicc" value to "ON".<br>b. Configure P-CSCF (IMS) not to respond for SIP MESSAGE from DUT.<br>c. Attempt to send a 3GPP SMS message from DUT to the Test platform.<br>d. Follow the **Test**: "MO 3GPP SMS RETRY BEHAVIOR-DEFAULT SIP T1, TIMER F AND T2 TIMERS" **or  Test:"** MO 3GPP SMS RETRY BEHAVIOR-MODIFIED SIP T1, TIMER F AND T2 TIMERS" test procedure for initial SMS attempt failure and also note the time stamp of initial SMS attempt failure.<br>e. Using Test platform, confirm that the DUT re-attempted (second attempt) to send 3GPP SMS to Test platform exactly after 30 sec of the first attempt SMS failure.<br>       **Note:** Test procedure is same as at **step-d**<br>f.  Using Test platform, verify that the second attempt of 3GPP SMS is also failed due to IMS configuration at **Step-b**.<br>g. Verify that the message in the second attempt has TP-Reject-Duplicates (TP-RD) bit set to 1 and it includes the same value for TP-Message-Reference (TP-MR) as the message in the initial attempt.<br>h. Verify DUT presented SMS message failure indication to the DUT user.<br>i. Verify that the failed MO 3GPP SMS message is stored in the device UICC (USIM) memory location with status set to fail. |
| **Expected Results** |
| The LTE device follows the appropriate retry logic for MO 3GPP SMS and the sent MO 3GPP SMS message shall be stored in the device memory location with the proper status indication (failed). In the second attempt, device sets TP-Reject-Duplicates (TP-RD) bit to 1 and the TP-Message-Reference (TP-MR) value is the same as the one in the initial attempt. |
| **Design Steps** |
| **Step Name** |

## SIP error from IMS

### Pre-Conditions

**Test Environment**
- The LTE device under test (DUT) must be registered with IMS through LTE carrier.
- Using DM tool set the device MO SMS format setting parameter "smsformat" to "3GPP".

### Procedures

a. Using DM tool set the DUT SMS storage setting parameter "smswriteuicc" value to "ON".

b. Configure P-CSCF (IMS) to respond with SIP error for DUTs SIP MESSAGE.
   **Note**: Refer **Test**: "MO 3GPP SMS-SIP errors" for different SIP errors

c. Attempt to send a 3GPP SMS message from DUT to the Test platform.

d. Follow **Test**: "MO 3GPP SMS - SIP ERRORS" test procedure for initial SMS attempt failure and also note the time stamp of initial SMS attempt failure.

e. Using Test platform, confirm that the DUT re-attempted (second attempt) to send 3GPP SMS to Test platform exactly after 30 sec of the first attempt SMS failure.
   **Note:** Test procedure is same as at **step-d**

f. Using Test platform, verify that the second attempt of 3GPP SMS is also failed due to IMS configuration at **Step-b**.

g. Verify that the message in the second attempt has TP-Reject-Duplicates (TP-RD) bit set to 1 and it includes the same value for TP-Message-Reference (TP-MR) as the message in the initial attempt.

h. Verify DUT presented the SMS message failure indication to the DUT user.

i. Verify that the failed MO 3GPP SMS message is stored in the device UICC (USIM) memory location with status set to fail.

### Expected Results

The LTE device follows the appropriate retry logic for MO 3GPP SMS and the sent MO 3GPP SMS message shall be stored in the device memory location with the proper status indication (failed). In the second attempt, device sets TP-Reject-Duplicates (TP-RD) bit to 1 and the TP-Message-Reference (TP-MR) value is the same as the one in the initial attempt.

## 2.38.4 Test Procedure - No Response from IMS VZ_TC_LTESMS_3816049

## 2.38.5 Test Procedure - SIP Error from IMS VZ_TC_LTESMS_3816053

## 2.39 DEVICE IMS REGISTRATION CONTROL PARAMETERS- DEFAULT
**VZ_TC_LTESMS_6347**

This test verifies the LTE device IMS registration functionality impact on the device default IMS registration control parameter settings.

**Traceability**
* VZW LTE SMS device requirements

| Design Steps |
| --- |
| **Step Name** |
| Step 1 |
| **Pre-Conditions** |
| **Test Environment**<br>• The LTE device under test (DUT) must be power off mode.<br>• This test must be performed on a device with default settings |
| **Procedures** |
| a. Using DM tool, confirm that DUT default SMS over IMS Control setting parameter "SMS_Over_IP_Networks_Indication" value is "1".<br>b. Using DM tool, confirm that DUT default IMS Test mode control parameter is "disabled".<br>c. Execute **Test:** "Device Initial MSISDN-based IMS Registration" Test procedure for successful device IMS registration.<br>d. Execute Tests: "Mobile Originated SMS message- 3GPP SMS", and "Mobile Terminated SMS message- 3GPP SMS"<br>e. Verify that the DUT successfully sends/receives SMS (3gpp/3gpp2) over IMS. |
| **Expected Results** |
| The LTE device successfully performs IMS registration with the default device IMS registration control parameter settings.<br>The LTE device default SMS over IMS control setting parameter "SMS_Over_IP_Networks_Indication" value is "1" and IMS Test mode control parameter is "disable".<br>With default values of "SMS_Over_IP_Networks_Indication" and IMS Test mode control parameter, LTE device successfully sends MO SMS (3gpp/3gpp2) and receives MT SMS (3gpp/3gpp2) over IMS. |

## 2.40 DEVICE IMS REGISTRATION CONTROL PARAMETER- MODIFIED
VZ_TC_LTESMS_6348

This test verifies the LTE device IMS registration functionality for different IMS registration control parameter settings.

**Traceability**
- VZW LTE SMS device requirements

| Design Steps |
| --- |
| **Step Name** |
| SMS_over_IP_Networks_Indication and IMS Test mode are disable and enable respectively |
| **Pre-Conditions** |
| **Test Environment**<br>• The LTE device under test (DUT) must be power off mode.<br>• This test must be performed on a device with default settings.<br>• Using DM tool, confirm that the DUT SMS over IMS Control setting parameter "SMS_Over_IP_Networks_Indication" value is "1".<br>• Using DM tool, confirm that the DUT IMS Test mode control parameter is "disable". |
| **Procedures** |
| a. Using DM tool, configure the DUT SMS over IMS Control setting parameter "SMS_Over_IP_Networks_Indication" value to "0".<br><br>b. Using DM tool, configure the DUT IMS Test mode control parameter to "enable".<br><br>c. Power up the DUT<br><br>d. Using Test platform, confirm that DUT is not attempted to IMS registration and is only attached to LTE network.<br><br>e. Execute Tests:" Mobile Originated SMS message- 3GPP SMS", " and " Mobile Terminated SMS message- 3GPP SMS"<br><br>f. Verify that, since DUT is in IMS Test mode operation, SMS origination and termination over IMS is disabled (DUT does not perform IMS registration)<br><br>g. Power cycle the DUT and using DM tool, confirm the DUT SMS over IMS Control setting parameter "SMS_Over_IP_Networks_Indication" and IMS Test mode control parameter are still set to "0" and "enable" respectively |
| **Expected Results** |
| The LTE device IMS registration control setting parameters can be configurable and the configured setting parameters are persistent across device power cycles.<br>The LTE device IMS registration attempt depends on the IMS registration control setting parameters:<br>• LTE device does not perform IMS registration if IMS Test mode is enabled and SMS origination/termination over IMS is disabled<br>• LTE device performs IMS registration if both IMS test mode and "SMS_Over_IP_Networks_Indication" are disabled, receives MT SMS sent over IMS, but does not send any MO SMS over IMS |
| **Design Steps** |
| **Step Name** |

## SMS_Over_IP_Networks_Indication and IMS Test mode are disabled

### Pre-Conditions

**Test Environment**
- The LTE device under test (DUT) must be power off mode.
- This test must be performed on a device with default settings.
- Using DM tool, confirm that the DUT SMS over IMS Control setting parameter "SMS_Over_IP_Networks_Indication" value is "1".
- Using DM tool, confirm that the DUT IMS Test mode control parameter is "disable".

### Procedures

a. Using DM tool, configure the DUT SMS over IMS Control setting parameter "SMS_Over_IP_Networks_Indication" value to "0".

b. Using DM tool, configure the DUT IMS Test mode control parameter to "disable".

c. Power up the DUT

d. Using Test platform, confirm that DUT attaches via the IMS PDN and performs IMS registration.

e. Execute Tests: "Mobile Originated SMS message- 3GPP SMS", and "Mobile Terminated SMS message- 3GPP SMS"

f. Verify that SMS origination over IMS is disabled, but device is capable of receiving MT SMS messages over IMS.

g. Power cycle the DUT and using DM tool, confirm the DUT SMS over IMS Control setting parameter "SMS_Over_IP_Networks_Indication" and IMS Test mode control parameter are still set to "0" and "disable" respectively.

### Expected Results

The LTE device IMS registration control setting parameters can be configurable and the configured setting parameters are persistent across device power cycles.
The LTE device IMS registration attempt depends on the IMS registration control setting parameters:
- LTE device does not perform IMS registration if IMS Test mode is enabled and SMS origination/termination over IMS is disabled
- LTE device performs IMS registration if both IMS test mode and "SMS_Over_IP_Networks_Indication" are disabled, receives MT SMS sent over IMS, but does not send any MO SMS over IMS

### Design Steps

### Step Name

## SMS_over_IP_Networks_Indication and IMS Test mode are enabled

### Pre-Conditions

**Test Environment**
- The LTE device under test (DUT) must be power off mode.
- This test must be performed on a device with default settings.
- Using DM tool, confirm that the DUT SMS over IMS Control setting parameter "SMS_Over_IP_Networks_Indication" value is "1".
- Using DM tool, confirm that the DUT IMS Test mode control parameter is "disable".

### Procedures

a. Using DM tool, configure the DUT SMS over IMS Control setting parameter "SMS_Over_IP_Networks_Indication" value to "1".

b. Using DM tool, configure the DUT IMS Test mode control parameter to "enable".

c. Power up the DUT

d. Using Test platform, confirm that DUT is not attempted to IMS registration and is only attached to LTE network.

e. Execute Tests:" Mobile Originated SMS message- 3GPP SMS", and " Mobile Terminated SMS message- 3GPP SMS"

f. Verify that, since DUT is in IMS Test mode operation, SMS origination and termination over IMS is disabled (DUT does not perform IMS registration)

g. Power cycle the DUT and using DM tool, confirm the DUT SMS over IMS Control setting parameter "SMS_Over_IP_Networks_Indication" and IMS Test mode control parameter are still set to "1" and "enable" respectively.

## Expected Results

The LTE device IMS registration control setting parameters can be configurable and the configured setting parameters are persistent across device power cycles.
The LTE device IMS registration attempt depends on the IMS registration control setting parameters:

- LTE device does not perform IMS registration if IMS Test mode is enabled and SMS origination/termination over IMS is disabled
- LTE device performs IMS registration if both IMS test mode and "SMS_Over_IP_Networks_Indication" are disabled, receives MT SMS sent over IMS, but does not send any MO SMS over IMS

## 2.40.4 Test Procedure - SMS_Over_IP_Networks_Indication and IMS Test mode are 'disabled' VZ_TC_LTESMS_3816281

## 2.40.5 Test Procedure - SMS_Over_IP_Networks_Indication and IMS Test mode are 'enabled' VZ_TC_LTESMS_3816283

## 2.40.6 Test Procedure - SMS_Over_IP_Networks_Indication and IMS Test mode are 'disable' and 'enable' respectively VZ_TC_LTESMS_3816284

## 2.51 DEVICE IMS INTERACTION- IPSEC CONFIDENTIALITY PROTECTION VZ_TC_LTESMS_6355

This test verifies the below mentioned LTE device functionalities, when IPSec for confidentiality protection is enabled at IMS.
- Device IMS Registration
- Device MO/MT SMS

**Traceability**
- VZW LTE SMS device requirements

**Applicability**
- Applicable for IPSec confidentiality protection supported LTE devices

| Design Steps |
| --- |
| Step Name |
| Step 1 |
| Pre-Conditions |
| **Test Environment**<br>• The LTE device under test (DUT) must be power off mode.<br>• Enable IPSec for confidentiality protection at IMS |
| Procedures |
| a. Power up the DUT.<br>b. Using Test platform, confirm that DUT advertises the IPSec confidentiality protection support information to P-CSCF (IMS).<br>c. Execute **Test: "**Device initial MSISDN-based IMS registration" Test procedure for DUT IMS registration.<br>d. Using Test platform, confirm that DUT registered to IMS.<br>e. Send an MO SMS form DUT.<br>f. Using Test platform, confirm that DUT successfully sent an SMS message.<br>g. Send an MT SMS message from Test platform to DUT.<br>h. Using Test platform, confirm that DUT successfully received an SMS message. |
| Expected Results |
| The LTE device successfully supports IMS registration, MO and MT SMS messages, when IMS IPSec for confidentiality protection is enabled. |

## 2.55 MT 3GPP CONCATENATED SHORT MESSAGE (MORE THAN 1 SEGMENT OF TEXT) <mark>VZ_TC_LTESMS_6358</mark>

This test verifies the LTE device MT 3GPP Concatenated Short Message functionality.

**Traceability**
- VZW LTE SMS device requirements

| Design Steps |
| --- |
| **Step Name** |
| Step 1 |
| **Pre-Conditions** |
| **Test Environment** <br> • The LTE device under test (DUT) must be registered with IMS through LTE carrier. <br> • The Test platform shall support multi-segments short message capability. |
| **Procedures** |
|    a. Compose and send a SMS message in 3GPP format with more than 160 characters from the Test platform to DUT. <br>    b. Using DUT, confirm that SMS message is received successfully |
| **Expected Results** |
| The LTE device successfully receives the 3GPP SMS message as single message when message contains more than 160 characters of text, and the text in the received message is the same as the text of the message sent from the test platform. |

## 2.59 MO 3GPP SMS - MESSAGE STATUS REPORT VZ_TC_LTESMS_6360

This test verifies the LTE device MO 3GPP SMS functionality.
Device shall support message status report that is sent by network in response to MO messages when the end user request Status Report and sends a 3GPP message.

**Traceability**
  • VZW LTE SMS device requirements

| Design Steps |
| --- |
| **Step Name** |
| Step 1 |
| **Pre-Conditions** |
| **Test Environment**<br>  • The LTE device under test (DUT) must be registered with IMS through LTE carrier.<br>  • Using DM tool, configure the DUT SMS format setting parameter "smsformat" to "3GPP". |
| **Procedures** |
| a. Compose and send an SMS message with "Status Report" request from the DUT to the Test platform.<br><br>b. Using the Test platform create status report message for the message sent by DUT in step a.<br><br>c. Using DUT, confirm that DUT received and processed Message Status Report in response to the message sent. |
| **Expected Results** |
| The LTE device receives Message Status Report in response to the message sent. |

## 2.62 MO 3GPP SMS ENCODED USING GSM 7- BIT  VZ_TC_LTESMS_6363

This test verifies the LTE device MO 3GPP SMS functionality, when a message is encoded using GSM 7-bit character set in the message.

**Traceability**
- VZW LTE SMS device requirements

| Design Steps |
|---|
| **Step Name** |
| Step 1 |
| **Pre-Conditions** |
| **Test Environment** <br> • The LTE device under test (DUT) must be registered with IMS through LTE carrier. <br> • Configure the DUT SMS format setting parameter "smsformat" to "3GPP". |
| **Procedures** |
| a. Compose an SMS message containing characters in GSM 7-bit character set and send the message to the test platform. <br><br> b. Verify that the message is sent from the DUT to the Test platform. <br><br> c. Capture the log through test platform and verify the message encoding. <br><br> d. Verify that the message is same in between the one sent and the one received. |
| **Expected Results** |
| The LTE device sends 3GPP SMS message encoded in GSM-7 bit character set. The message received on the test platform is the same as the one sent from DUT. |

## 2.63 MT 3GPP SMS ENCODED USING GSM 7- BIT VZ_TC_LTESMS_6364

This test verifies the LTE device MT 3GPP SMS functionality, when message is encoded in GSM 7-bit.

**Traceability**
- VZW LTE SMS device requirements

| Design Steps |
| --- |
| Step Name |
| Step 1 |
| Pre-Conditions |
| **Test Environment**<br>• The LTE device under test (DUT) must be registered with IMS through LTE carrier. |
| Procedures |
| a. Compose and send a 3GPP SMS message encoded using GSM 7-bit character set from the Test platform to DUT.<br>b. From DUT, compare the received message with the one sent from test platform. |
| Expected Results |
| The LTE device receives message encoded using GSM 7-bit from the test platform and the text in the received is the same as entered on the test platform. |

## 2.68 MO 3GPP SMS Encoded Using UCS-2(ISOIEC 10646-1) VZ_TC_LTESMS_6369

This test verifies that the LTE device MO 3GPP SMS functionality, when message is encoded in UCS-2 (ISO/IEC 10646-1) character set.

**Traceability**
- VZW LTE SMS device requirements

| Design Steps |
| --- |
| Step Name |
| Step 1 |
| Pre-Conditions |
| **Test Environment**<br>• The LTE device under test (DUT) must be registered with IMS through LTE carrier.<br>• Using DM tool, configure the DUT SMS format setting parameter "smsformat" to "3GPP". |
| Procedures |
| a. Compose a message less than 140 bytes with characters part of ASCII 7 bit and special characters that includes Unicode (i.e., Chinese characters or F, ² ) on DUT.<br>b. Send the message to the test platform.<br>c. Check the message encoding on the test platform.<br>d. Repeat from step "a" with more than 140 bytes message. |
| Expected Results |
| The LTE device sends message with text encoded using UCS-2 character set. Message shall include all the character as entered on DUT. |

## 2.69 MT 3GPP SMS Encoded Using UCS-2(ISOIEC 10646-1) VZ_TC_LTESMS_6370

This test verifies the LTE device MT 3GPP SMS functionality, when message is encoded in UCS-2(ISO/IEC 10646-1) character set.

**Traceability**
- VZW LTE SMS device requirements

| Design Steps |
| --- |
| Step Name |
| Step 1 |
| Pre-Conditions |
| **Test Environment**<br>• The LTE device under test (DUT) must be registered with IMS through LTE carrier. |
| Procedures |
| a. Compose a message less than 140 bytes with characters part of ASCII 7 bit and special characters that includes Unicode (i.e., Chinese characters or F, ² ) on the test platform.<br><br>b. Send the message to DUT.<br><br>c. From DUT, compare the received message with the one sent from test platform.<br><br>d. Repeat from step "a" with message of more than one segment. |
| Expected Results |
| The LTE device receives the message successfully and the text in the received message is the same as entered on the test platform. |

## 2.72 MT SMS Messages storage Function - 3GPP SMS VZ_TC_LTESMS_6373

This test verifies that message storage setting in the LTE device does not apply on class 2 3GPP message.

**Traceability**
- VZW LTE SMS device requirements

| Design Steps |
| --- |
| **Step Name** |
| Step 1 |
| **Pre-Conditions** |
| **Test Environment**<br>• The LTE device under test (DUT) must be registered with IMS through LTE carrier.<br>• Delete all messages in inbox and UICC memory of DUT. |
| **Procedures** |
| a. Configure the DUT SMS storage setting parameter "smswriteuicc" to "OFF".<br>b. Send "class 2" 3GPP SMS message with Protocol Identifier (TP-PID) set to "(U)SIM Data Download" from the Test platform to the DUT.<br>c. Check the message storage in DUT.<br>d. Check the message storage on UICC.<br>e. Configure the DUT SMS storage setting parameter "smswriteuicc" to "ON".<br>f. Send "class 2" 3GPP SMS message with Protocol Identifier (TP-PID) set to "(U)SIM Data Download" from the Test platform to the DUT.<br>g. Check the message storage in DUT.<br>h. Check the message storage on UICC. |
| **Expected Results** |
| There are no class 2 messages on device memory storage area in steps c and g.<br>There are no class 2 messages stored in UICC (USIM) message storage area in steps d and h. Device does not store Class 2 messages with Protocol Identifier (TP-PID) set to "(U)SIM Data Download" on either device or UICC message storage area. |

## 2.73 MT SIM OTA Wake Up SMS After IMS Registration Using the IMSI-based SIP URI VZ_TC_LTESMS_6374

This test verifies that the UE meets Verizon Wireless requirements for MT SIM OTA wake up SMS after IMS registration using the IMSI-based SIP URI.

**Traceability**
- Verizon Wireless LTE SMS Requirements
- Verizon Wireless LTE 3GPP Band 13 Network Access Requirements

| Design Steps |
| --- |
| **Step Name** |
| TEST 1 (IMSI SIP URI REGISTRATION TRIGGERED ON IMS REGISTRATION REJECTION WITH SIP ERROR CODES 403, 404) |
| **Pre-Conditions** |
| **Procedures** |
| 1. Configure the P-CSCF to reject all IMS registration requests with a SIP 403 error code.<br>2. Power on the UE.<br>3. Verify that the UE attaches to the LTE network using the IMS PDN.<br>4. Verify that the UE sends a SIP REGISTER message to the P-CSCF. Verify the following:<br>    1. The UE uses the first P-CSCF IP address provided in the PCO field of the NAS ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message for the IMS PDN.<br>    2. All SIP messages are routed on the dedicated bearer for the IMS PDN.<br>    3. All SIP messages use UDP on port 5060.<br>    4. The UE initiates a new registration (as opposed to a re-registration).<br>    5. The UE uses the MSISDN-based SIP URI's in the FROM and TO headers (e.g. "sip:+15551234567@vzims.com"<br>    6. The UE does not request IPSec.<br>    7. The UE requests a registration expiration time of 600,000 seconds.<br>5. Verify that the P-CSCF rejects the SIP REGISTER message from the device with a SIP 403 error code.<br>6. Verify that the UE sends another SIP REGISTER message using the same parameters as in step 4, with the following exception:<br>    1. The UE uses IMSI-based SIP URIs in FROM and TO headers (e.g. "sip: 311480xxxxxxxxx@ims.mnc480.mcc311.3gppnetwork.org"). |

7. Verify that the P-CSCF rejects the SIP REGISTER message from the device with a SIP 403 error code.
8. Verify the UE does not send another SIP REGISTER message for 30 seconds.
9. Once the 30 second throttling timer expires, verify that the UE sends another SIP REGISTER message using the same parameters as in step 4.) with the following exception:
   1. The UE uses the second P-CSCF IP address provided in the PCO field of the NAS ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message for the IMS PDN.
10. Verify that the P-CSCF rejects the SIP REGISTER message from the device with a SIP 403 error code.
11. Verify the UE does not send another SIP REGISTER message for 30 seconds.
12. Once the 30 second throttling timer expires, verify that the UE sends another SIP REGISTER message using the same parameters as in step 4.) with the following exception:
    1. The UE uses the third P-CSCF IP address provided in the PCO field of the NAS ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message for the IMS PDN.
13. Verify that the P-CSCF rejects the SIP REGISTER message from the device with a SIP 403 error code.
14. Verify the UE does not send another SIP REGISTER message for 30 seconds.
15. Once the 30 second throttling timer expires, verify that the UE sends another SIP REGISTER message using the same parameters as in step 4.) with the following exception:
    1. The UE uses the first P-CSCF IP address provided in the PCO field of the NAS ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message for the IMS PDN.
    2. The UE uses the IMSI-based SIP URI's in the FROM and TO headers (e.g. "sip: 311480xxxxxxxxx@ims.mnc480.mcc311.3gppnetwork.org").
16. Configure the P-CSCF to respond to the SIP REGISTER message with a SIP 401 "Unauthorized" message to challenge the REGISTER message using Digest AKAv2 authentication (i.e. AKAv2-MD5).
17. Verify that the UE sends a SIP REGISTER message to the P-CSCF with the correct Authorization header.
18. Configure the P-CSCF to respond to the SIP REGISTER message with a SIP 200 OK message with a registration expiration time of 7200 seconds.
19. Verify that the UE sends a SIP SUBSCRIBE message to the P-CSCF to subscribe to the reg events package. Verify that the UE sets the Event header field to "reg" and sets the Expires header field to 600,000 seconds.
20. Configure the P-CSCF to respond to the SIP SUBSCRIBE message with a SIP 200 OK message with a subscription expiration time of 7200 seconds.
21. Configure the P-CSCF to send a SIP NOTIFY to the UE corresponding to the reg event

package subscription indicating the user's current subscription state.

22. Verify that the UE responds with a SIP 200 OK message.
23. Configure the test platform to send a SIM OTA wake up SMS message (for the SIM OTA client in the USIM of the UICC) to the device using the 3GPP SMS format. Configure the MDN field in the SMS message to be different than the MSISDN currently configured on the USIM under EFMSISDN.
24. Verify that the SMS message is received by the device.
25. Verify that the device makes a request for the administrative PDN by sending a NAS PDN CONNECTIVITY REQUEST message where the "APN" information element is set to "VZWADMIN".
26. Configure the network emulator to accept the PDN connection request.
27. Power off the UE.
28. Repeat steps 1.) through 25.) with a SIP 404 error code.

## Expected Results

The device successfully IMS registers using the IMSI-based SIP URI and receives a SIM OTA wake up message for the UICC SIM OTA client.

## Design Steps

## Step Name

TEST 2 (IMSI SIP URI REGISTRATION TRIGGERED ON IMS RE-REGISTRATION REJECTION WITH SIP ERROR CODES 403, 404)

## Pre-Conditions

## Procedures

1. Power on the UE.
2. Verify that the UE attaches to the LTE network using the IMS PDN.
3. Verify that the UE sends a SIP REGISTER message to the P-CSCF. Verify the following:
   a. The UE uses the first P-CSCF IP address provided in the PCO field of the NAS ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message for the IMS PDN.
   b. All SIP messages are routed on the dedicated bearer for the IMS PDN.
   c. All SIP messages use UDP on port 5060.
   d. The UE initiates a new registration (as opposed to a re-registration).
   e. The UE uses the MSISDN-based SIP URI's in the FROM and TO headers (e.g. "sip:+15551234567@vzims.com"
   f. The UE requests IPSec authentication.
   g. The UE requests a registration expiration time of 600,000 seconds.
4. Configure the P-CSCF to respond to the SIP REGISTER message with a SIP 401 "Unauthorized" message to challenge the REGISTER

message using Digest AKAv2 authentication (i.e. AKAv2-MD5).

5. Verify that the UE sends a SIP REGISTER message to the P-CSCF with the correct Authorization header.
6. Configure the P-CSCF to respond to the SIP REGISTER message with a SIP 200 OK message with a registration expiration time of 1500 seconds.
7. Verify that the UE sends a SIP SUBSCRIBE message to the P-CSCF to subscribe to the reg events package. Verify that the UE sets the Event header field to "reg" and sets the Expires header field to 600,000 seconds.
8. Configure the P-CSCF to respond to the SIP SUBSCRIBE message with a SIP 200 OK message with a subscription expiration time of 1500 seconds.
9. Configure the P-CSCF to send a SIP NOTIFY to the UE corresponding to the reg event package subscription indicating the user's current subscription state.
10. Verify that the UE responds with a SIP 200 OK message.
11. Verify that between 900 and 1500 seconds after step 6.) that the UE attempts a reregistration. Verify that:

    a. The UE sends a valid SIP REGISTER message for a reregistration.

    b. The UE sends the SIP REGISTER message inside the existing TLS security association.

    c. The UE requests a registration expiration time of 600,000 seconds.

    d. The UE sends the reregistration request to the same P-CSCF as the original registration.

12. Configure the P-CSCF to reject all IMS reregistration and registration requests with a SIP 403 error code.
13. Verify the UE does not send another SIP REGISTER message for 30 seconds.
14. Once the 30 second throttling timer expires, verify that the UE sends another SIP REGISTER message for a new registration using the same parameters as in step 3.) with the following exception:

    a. The UE uses the second P-CSCF IP address provided in the PCO field of the NAS ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message for the IMS PDN.

15. Verify that the P-CSCF rejects the SIP REGISTER message from the device with a SIP 403 error code.
16. Verify the UE does not send another SIP REGISTER message for 30 seconds.
17. Once the 30 second throttling timer expires, verify that the UE sends another SIP REGISTER message for a new registration using the same parameters as in step 3.) with the following exception:

    a. The UE uses the third P-CSCF IP address provided in the PCO field of the NAS ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message for the IMS PDN.

18. Verify that the P-CSCF rejects the SIP REGISTER message from the device with a SIP 403 error code.
19. Verify the UE does not send another SIP REGISTER message for 30 seconds.
20. Once the 30 second throttling timer expires, verify that the UE sends another SIP REGISTER message for a new registration using the same parameters as in step 3.) with the following exception:

    a. The UE uses the first P-CSCF IP address provided in the PCO field of the NAS ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message for the IMS PDN.

    b. The UE uses the IMSI-based SIP URI's in the FROM and TO headers (e.g. " sip: 311480xxxxxxxxx@ims.mnc480.mcc311.3gppnetwork.org").

21. Configure the P-CSCF to respond to the SIP REGISTER message with a SIP 401 "Unauthorized" message to challenge the REGISTER message using Digest AKAv2 authentication (i.e. AKAv2-MD5).
22. Verify that the UE sends a SIP REGISTER message to the P-CSCF with the correct Authorization header.
23. Configure the P-CSCF to respond to the SIP REGISTER message with a SIP 200 OK message with a registration expiration time of 7200 seconds.
24. Verify that the UE sends a SIP SUBSCRIBE message to the P-CSCF to subscribe to the reg events package. Verify that the UE sets the Event header field to "reg" and sets the Expires header field to 600,000 seconds.
25. Configure the P-CSCF to respond to the SIP SUBSCRIBE message with a SIP 200 OK message with a subscription expiration time of 7200 seconds.
26. Configure the P-CSCF to send a SIP NOTIFY to the UE corresponding to the reg event package subscription indicating the user's current subscription state.

27. Verify that the UE responds with a SIP 200 OK message.

28. Configure the test platform to send a SIM OTA wake up SMS message (for the SIM OTA client in the USIM of the UICC) to the device using the 3GPP SMS format. Configure the MDN field in the SMS message to be different than the MSISDN currently configured on the USIM under $EF_{MSISDN}$.

29. Verify that the SMS message is received by the device.

30. Verify that the device makes a request for the administrative PDN by sending a NAS PDN CONNECTIVITY REQUEST message where the "APN" information element is set to "VZWADMIN".

31. Configure the network emulator to accept the PDN connection request.

32. Power off the UE.

33. Repeats steps 1.) through 32.) with a SIP 404 error code.

## Expected Results

The device successfully IMS registers using the IMSI-based SIP URI and receives a SIM OTA wake up message for the UICC SIM OTA client.

### 2.73.1 MT SIM OTA Wake Up SMS After IMS Registration Using the IMSI-based SIP URI - Test 1 VZ_TC_LTESMS_4105999311931763

## 2.73.2 MT SIM OTA Wake Up SMS After IMS Registration Using the IMSI-based SIP URI - Test2 VZ_TC_LTESMS_4105999311931764

## 2.75 DEVICE MO SMS - VERIFY FORMAT SETTING- MODIFIED, SIP MESSAGE Headers, and SIP Call Flow VZ_TC_LTESMS_9562

This test verifies whether the LTE device MO SMS format setting is configurable, mobile-originated SMS-Over-IMS functionality (when device MO SMS format is 3GPP), SIP MESSAGE header information for MO 3GPP SMS formatted message, and SIP call flow for successful mobile-originated 3GPP SMS message.

Traceability
   • VZW LTE SMS device requirements

| Design Steps |
| --- |
| Step Name |
| Step 1 |
| Pre-Conditions |
| Test Environment<br>    • The LTE device under test (DUT) must be registered with IMS through LTE carrier.<br>    • This test must be performed on a device with default SMS format settings. |
| Procedures |
|    **a.** Using DM tool configure the DUT SMS format setting parameter "smsformat" to "3GPP".<br>   **b.** Send an SMS message from the DUT to the Test platform.<br>   **c.** Using the Test platform confirm that the DUT sent the SIP MESSAGE (Containing the SMS text) with content header set to "application/vnd.3gpp.sms", to indicate the MO 3GPP SMS format.<br>   **d.** Power cycle the DUT and using DM tool, confirm that the MO SMS format setting parameter "smsformat" is "3GPP".<br>   **e.** Send an SMS message from the DUT and using Test platform confirm that the DUT sent an SMS with 3GPP format.<br>   **a.** Using Test platform, verify that the SMS is received successfully from DUT with the message text sent at **step a.**<br>   **b.** Using Test platform, verify that DUT successfully sent the 3GPP SMS message and also verify the below steps c through g for SIP MESSAGE headers of the MO 3GPP SMS<br>   **c.** Verify that the "Request-URI header and the To" header is properly indicating the tel URI of destination. (The tel URI contains the digits string entered by the user as destination. i.e. the digit string is equal the MDN of the destination device or corresponds to the short code). Example: To: "<tel: 9085555555>"<br>   **d.** Verify that the "Request-Disposition header" contains the "no-fork" directive.<br>   **e.** Verify that the "Content-Type" header is set to the "application/vnd.3gpp.sms"<br>   **f.** Verify that the "From" header is properly set to the IMS public User identity of the DUT. (The format of Public User identity is MSISDN-based SIP URI (i.e. "sip: +1MDN@<home_network_domain_name>" where MDN is the DUT MDN in an E.164 format). Example: From: " <sip:+19085555555@test.3gpp.com;user=phone>".<br>   **g.** Verify that P-Access-Network-Info header is included in SIP MESSAGE method for any SMS message that is sent, including "access-type" and "access-info". |
| Expected Results |

The LTE device successfully sends SMS message over IMS with 3GPP SMS format
The LTE device successfully sends 3GPP SMS message over IMS with appropriate SIP MESSGAGE header information.


The LTE device MO SMS format setting is configurable to "3GPP" or "3GPP2" formats

## Design Steps

### Step Name

Step 2

### Pre-Conditions

### Procedures

a. Send an SMS message from DUT to the Test platform.

b. Using Test platform, verify that DUT sent SIP MESSAGE to P-CSCF indicating MO 3GPP SMS message.

c. Configure P-CSCF to send SIP 200 OK to indicate successful SMS message acknowledgement.
Using Test platform, confirm that DUT received SIP 200 OK message from P-CSCF (IMS).

### Expected Results

The LTE device successfully exchanges the SIP messages with P-CSCF for MO 3GPP SMS messages.

## Design Steps

### Step Name

Step 3

### Pre-Conditions

### Procedures

a. Send an SMS message from DUT to the Test platform.

b. Using Test platform, verify that DUT sent SIP MESSAGE to P-CSCF  indicating the MO 3GPP SMS.

c. Configure P-CSCF to send SIP 202 ACCEPTED to indicate the successful SMS message acknowledgement.

d. Using Test platform, confirm that DUT received SIP 202 Accepted message from P-CSCF (IMS).

### Expected Results

The LTE device successfully exchanges the SIP messages with P-CSCF for MO 3GPP SMS messages.

## 2.80 SMS over NAS VZ_TC_LTESMS_3330510

The following GCF test cases from 3GPP 36.523-1 should be included:
- 11.1.1
- 11.1.2
- 11.1.3
- 11.1.4
- 11.1.5
- 11.1.6

## 2.80.1 Test Procedure - SMS over NAS - GCF 36.523-1_11.1.1 VZ_TC_LTESMS_3817077

## 2.80.2 Test Procedure - SMS over NAS - GCF 36.523-1_11.1.2 VZ_TC_LTESMS_3817086

## 2.80.3 Test Procedure - SMS over NAS - GCF 36.523-1_11.1.3 VZ_TC_LTESMS_3817088

## 2.80.4 Test Procedure - SMS over NAS - GCF 36.523-1_11.1.4 VZ_TC_LTESMS_3817090

## 2.90 Test Results Template VZ_TC_LTESMS_6707

The header block for the test results should define: what device was tested, when it was tested, who tested it, and what equipment was used to test it.

| PRODUCT TESTED | | Version | | |
|---|---|---|---|---|
| MFR/Model: | | Hardware | Software/Firmware | Watcher |
| Module (if applicable): | | Hardware | Software/Firmware | |
| ESN/IMEI: | | | | |
| Additional Information: | | | | |
| Tester: | | Test Date(s): | Test Location: | |
| Monitoring Software | | Port | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| Test No. | Test | Expected | Actual | PASS/ FAIL |
|---|---|---|---|---|
| 2.1 | Device initial MSISDN based IMS Registration | The LTE device successfully performs the registration with IMS. | | |
| 2.2 | Void | | | |
| 2.3 | Void | | | |
| 2.4 | Void | | | |
| 2.5 | Device Reg event package subscription | The LTE device successfully subscribes to the registration event package. | | |
| 2.6 | Device Reregistration with IMS- Device initiated | The LTE device successfully performs the user initiated Reregistration with IMS | | |

| 2.7 | Device Reregistration with IMS-Network initiated | The LTE device successfully performs the network initiated Reregistration with IMS | | |
|------|---|---|---|---|
| 2.8 | **Device Deregistration with IMS-Device initiated** | The LTE device successfully performs the user initiated deregistration with IMS | | |
| 2.9 | Device Deregistration with IMS-Network initiated | The LTE device successfully performs the network initiated Deregistration with IMS | | |
| 2.10 | Device MO SMS format setting- Default | The LTE device default MO SMS format setting parameter "smsformat" value is "3GPP2". | | |
| 2.11 | Device MO SMS format setting-Modified | The LTE device MO SMS format setting is configurable to "3GPP" or "3GPP2" formats and the MO SMS format setting is persistent across device power cycles. | | |
| 2.12 | Mobile Originated SMS Message-3GPP2 SMS | The LTE device successfully sends SMS message over IMS with 3GPP2 SMS format | | |
| 2.13 | Mobile Originated SMS Message - 3GPP SMS | The LTE device successfully sends SMS message over IMS with 3GPP SMS format | | |
| 2.14 | Mobile terminated SMS message 3GPP2 SMS | The LTE device successfully receives the MT 3GPP formatted SMS message over IMS | | |
| 2.15 | Mobile terminated SMS message 3GPP SMS | The LTE device successfully receives 3GPP formatted SMS message over IMS | | |
| 2.16 | MO 3GPP2 SMS- Verify SIP Message headers | The LTE device successfully sends 3GPP2 SMS message over IMS with appropriate SIP MESSGAGE header information. | | |

| 2.17 | MO 3GPP SMS- Verify SIP Message headers | The LTE device successfully sends 3GPP SMS message over IMS with appropriate SIP MESSGAGE header information. | | |
|---|---|---|---|---|
| 2.18 | MO 3GPP2 SMS Message- Verify SIP call flow | The LTE device successfully exchanges the SIP messages with P-CSCF for MO 3GPP2 SMS messages. | | |
| 2.18.4 | Test procedure- SIP 200 OK Response | | | |
| 2.18.5 | Test procedure- SIP 202 ACCEPTED Response | | | |
| 2.19 | MO 3GPP SMS Message- Verify SIP call flow | The LTE device successfully exchanges the SIP messages with P-CSCF for MO 3GPP SMS messages. | | |
| 2.19.4 | Test procedure- SIP 200 OK Response | | | |
| 2.19.5 | Test procedure- SIP 202 ACCEPTED Response | | | |
| 2.20 | MT 3GPP2 SMS Message- Verify SIP call flow | The LTE device successfully exchanges the SIP messages with P-CSCF for MT 3GPP2 SMS messages. | | |
| 2.21 | MT 3GPP SMS Message- Verify SIP call flow | The LTE device successfully exchanges the SIP messages with P-CSCF for MT 3GPP SMS messages and returns a SIP 200 OK response to the network as well as the Delivery Report. | | |
| 2.22 | MO 3GPP2 SMS Message size More than 256 bytes. | The LTE device successfully sends the 3GPP2 SMS message, when SMS message size (SMS payload) is more than 256 bytes. | | |
| 2.23 | MO 3GPP SMS Message size More than 256 bytes | The LTE device successfully sends the 3GPP SMS message, when SMS message size (SMS payload) is more than 256 bytes. | | |
| 2.24 | Application directed SMS- OTADM | The LTE device correctly responds to the application-directed OTADM message. | | |
| 2.25 | Void | | | |
| 2.26 | SMS Message storage setting (default)- 3GPP SMS | The LTE device default SMS storage setting parameter "smswriteuicc" values is "OFF" and the MO/ MT 3GPP SMS message shall be stored in the device memory location. | | |
| 2.27 | Void | | | |
| 2.28 | SMS Message storage setting (Modified) 3GPP SMS | The LTE device SMS storage setting parameter "smswriteuicc" is configurable. The MO and MT 3GPP SMS messages shall be stored in the device memory when "smswriteuicc" value is "OFF". The MO and MT 3GPP SMS messages are stored in the | | |

| | | | | | |
|---|---|---|---|---|---|
| | | device UICC (USIM) card memory when "smswriteuicc" is "ON". | | | |
| 2.29 | MO 3GPP2 SMS retry behavior- Default SIP T 1, Timer F and T2 timer | The LTE device default SIP "T1", "T2" and "Timer F" timer values are 3 seconds,16 seconds and 30 seconds respectively and device follows the proper retry logic for MO 3GPP2 SMS based on the SIP timers. | | | |
| 2.30 | MO 3GPP SMS retry behavior- Default SIP T 1, Timer F and T2 timer | The LTE device default SIP "T1", "T2" and "Timer F" timer values are 3 seconds,16 seconds and 30 seconds respectively and device follows the proper retry logic for MO 3GPP SMS based on the SIP timers. | | | |
| 2.31 | MO 3GPP2 SMS retry behavior- Modified SIP T 1, Timer F and T2 timer | The LTE device SIP timers "T1", "T2" and "Timer F" are configurable and device follows the proper retry logic for MO 3GPP2 SMS based on the modified SIP timers. | | | |
| 2.32 | MO 3GPP SMS retry behavior- Modified SIP T 1, Timer F and T2 timer | The LTE device SIP timers "T1", "T2" and "Timer F" are configurable and device follows the proper retry logic for MO 3GPP SMS based on the modified SIP timers. | | | |
| 2.33 | 3GPP2 SMS - SIP Errors | The LTE device shall identify the SIP errors. | | | |
| 2.33.4 | Test Procedure- SIP 400 BAD REQUEST | | | | |
| 2.33.5 | Test Procedure- SIP 404 NOT FOUND | | | | |
| 2.33.6 | Test Procedure -SIP 500 SERVER INTERNAL ERROR | | | | |
| 2.33.7 | Test Procedure- SIP 502 BAD GATEWAY | | | | |
| 2.33.8 | Test Procedure- SIP 503 SERVICE UNAVAILABLE ERROR | | | | |
| 2.34 | 3GPP SMS - SIP Errors | The LTE device shall successfully identify the SIP errors. | | | |
| 2.34.4 | Test Procedure- SIP 400 BAD REQUEST | | | | |
| 2.34.5 | Test Procedure- SIP 404 NOT FOUND | | | | |
| 2.34.6 | Test Procedure -SIP 500 SERVER INTERNAL ERROR | | | | |
| 2.34.7 | Test Procedure- SIP 502 BAD GATEWAY | | | | |
| 2.34.8 | Test Procedure- SIP 503 SERVICE | | | | |

| | | | | |
|---|---|---|---|---|
| | UNAVAILABLE ERROR | | | |
| 2.35 | MO 3GPP2 SMS retry behavior- Default SMS Storage setting | The LTE device follows the proper retry logic for MO 3GPP2 SMS and the sent MO 3GPP2 SMS messages shall be stored with the proper status indication (failed/Pass). MESSAGE_ID value sent in the second attempt is the same as the one in the initial attempt. | | |
| 2.35. | Test Procedure- No response from IMS | | | |
| 2.35.5 | Test Procedure- SIP error from IMS | | | |
| 2.36 | MO 3GPP SMS  retry behavior- Default SMS Storage setting | The LTE device follows the proper retry logic for MO 3GPP SMS and the sent MO 3GPP SMS message shall be stored in the device memory location with the proper status indication (failed). In the second attempt, device sets TP-Reject-Duplicates (TP-RD) bit to 1 and the TP-Message-Reference (TP-MR) value is the same as the one in the initial attempt. | | |
| 2.36.4 | Test Procedure- No response from IMS | | | |
| 2.36.5 | Test Procedure- SIP error from IMS | | | |
| 2.37 | Void | | | |
| | | | | |
| | | | | |
| 2.38 | MO 3GPP SMS retry behavior- Modified SMS Storage setting | The LTE device follows the proper retry logic for MO 3GPP SMS and the sent MO 3GPP SMS message shall be stored in the device UICC (USIM) card memory location with the proper status indication (failed). In the second attempt, device sets TP-Reject-Duplicates (TP-RD) bit to 1 and the TP-Message-Reference (TP-MR) value is the same as the one in the initial attempt. | | |
| 2.38.4 | Test Procedure- No response from IMS | | | |
| 2.38.5 | Test Procedure- SIP error from IMS | | | |
| 2.39 | Device IMS Registration control parameter- Default | The LTE device successfully performs IMS registration with the default device IMS registration control parameter settings.<br>The LTE device default SMS over IMS control setting parameter "SMS_Over_IP_Networks_Indication" value is "1" and IMS Test mode control parameter is "disabled". With default values of "SMS_Over_IP_Networks_Indication" and IMS Test mode control parameter, LTE device successfully sends MO SMS (3gpp/3gpp2) and receives MT SMS (3gpp/3gpp2) over IMS. | | |
| 2.40 | Device  IMS Registration control parameter- Modified | The LTE device IMS registration control setting parameters can be configurable and the configured setting parameters are persistent across device power cycles.<br>The LTE device IMS registration attempt depends on the IMS registration control setting parameters:<br>• LTE device does not perform IMS registration if IMS Test mode is enabled and SMS origination/termination over IMS is disabled<br>• LTE device performs IMS registration if both IMS test mode and | | |
| 2.40.4 | Test procedure- SMS_over_IP_Networks_Indication and IMS Test mode are "Disable" | | | |
| 2.40.5 | Test procedure- SMS_over_IP_Networks_Indication and IMS Test mode are "Enable" | | | |

| 2.40.6 | Test procedure- SMS_over_IP_Networks_Indication and IMS Test mode are "Disable" and "Enable" respectively | "SMS_Over_IP_Networks_Indication" are disabled, receives MT SMS sent over IMS, but does not send any MO SMS over IMS | | |
|---|---|---|---|---|
| 2.41 | Device Initial IMSI-based IMS registration | The LTE device successfully performs the IMSI-based IMS registration. | | |
| 2.42 | Device IMSI-based IMS registration- SMS operation | The LTE device shall not support MO and MT SMS messages. | | |
| 2.43 | Device IMS registration retry behavior- No response from IMS | The LTE device follows the appropriate retry mechanism for IMS registration. | | |
| 2.44 | Device IMS registration retry behavior- SIP errors | The LTE device follows the appropriate retry mechanism for IMS registration. | | |
| 2.44.4 | Test Procedure- SIP 400 BAD REQUEST | | | |
| 2.44.5 | Test Procedure -SIP 500 SERVER INTERNAL ERROR | | | |
| 2.44.6 | Test Procedure- SIP 502 BAD GATEWAY | | | |
| 2.44.7 | Test Procedure- SIP 503 SERVICE UNAVAILABLE ERROR | | | |
| 2.44.8 | Test Procedure- SIP 408 REQUEST TIMEOUT | | | |
| 2.45 | Device IMS Registration retry behavior- SIP 404-Not found error | The LTE device follows the appropriate retry mechanism for IMS registration, | | |
| 2.46 | Device IMS Registration retry behavior- SIP 403- Forbidden error | The LTE device follows the appropriate retry mechanism for IMS registration, | | |
| 2.47 | Device IMS Reregistration retry behavior- No response from IMS | The LTE device follows the appropriate retry mechanism for IMS re-reregistration. | | |
| 2.48 | Device IMS Reregistration retry behavior- Registration rejection from IMS | The LTE device follows the appropriate retry mechanism for IMS re-registration. | | |
| 2.48.4 | Test Procedure- SIP 400 BAD REQUEST | | | |
| 2.48.5 | Test Procedure -SIP 500 SERVER INTERNAL ERROR | | | |
| 2.48.6 | Test Procedure- SIP 502 BAD | | | |

| | GATEWAY | | | |
|---|---|---|---|---|
| 2.48.7 | Test Procedure- SIP 503 SERVICE UNAVAILABLE ERROR | | | |
| 2.48.8 | Test Procedure- SIP 408 REQUEST TIMEOUT | | | |
| 2.49 | Device IMS Re-registration retry behavior- SIP 404-Not found error | The LTE device follows the appropriate retry mechanism for IMS re-registration. | | |
| 2.50 | Device IMS Re-registration retry behavior- SIP 403- Forbidden error | The LTE device follows the appropriate retry mechanism for IMS re-registration. | | |
| 2.51 | Device IMS interaction- IPSec confidentiality protection | The LTE device successfully supports IMS registration, MO and MT SMS messages, when IPSec for confidentiality protection is enabled. | | |
| 2.52 | Device Network bearer configuration- Default bearer | The LTE device properly interacts to IMS for different network bearer configurations. | | |
| 2.53 | Device Network bearer configuration- Dedicated bearer | The LTE device properly interacts to IMS for different network bearer configurations. | | |
| 2.54 | MT 3GPP2 Concatenated Short Message (more than 1 segment of text) | The LTE device successfully receives the 3GPP2 SMS message as single message when message contains more than 160 characters of text, and message text received is same as the one sent from test platform. | | |
| 2.55 | MT 3GPP Concatenated Short Message (more than 1 segment of text) | The LTE device successfully receives the 3GPP SMS message as single message when message contains more than 160 characters of text, and the text in the received message is the same as the text of the message sent from test platform. | | |
| 2.56 | VOID | | | |
| 2.57 | VOID | | | |
| 2.58 | MO 3GPP2 SMS Message Delivery Acknowledgements | The LTE device receives Message Delivery Acknowledgement in response to the message sent. | | |
| 2.59 | MO 3GPP SMS - Message Status Report | The LTE device receives Message Status Report in response to the message sent. | | |
| 2.60 | MO 3GPP2 SMS Encoded using 7 bit ASCII | The LTE device sends 7-bit ASCII characters to the test platform and the received message in the test platform is same as the one sent from the LTE device. | | |
| 2.61 | MT 3GPP2 SMS Encoded using 7 bit ASCII | The LTE device receives message encoded in 7-bit ASCII character set from the test platform and there is no difference between the received message and sent message from the test platform. | | |

| | | | | |
|---|---|---|---|---|
| 2.62 | MO 3GPP SMS Encoded Using GSM 7- bit | The LTE device sends 3GPP SMS message encoded in GSM-7 bit character set. The message received on the test platform is the same as the one sent from DUT. | | |
| 2.63 | MT 3GPP SMS Encoded Using GSM 7- bit | The LTE device receives message encoded using GSM 7-bit from the test platform and the text in the received is the same as entered on the test platform. | | |
| 2.64 | MO 3GPP2 SMS Encoded Using GSM 7- bit | The LTE device sends 3GPP2 SMS message encoded in GSM-7 bit character set. The message received on the test platform is the same as the one sent from DUT. | | |
| 2.65 | MT 3GPP2 SMS Encoded Using GSM 7- bit | The LTE device receives message encoded using GSM 7-bit from the test platform and the text in the received is the same as entered on the test platform. | | |
| 2.66 | MO 3GPP2 SMS Encoded Using UCS-2(ISO/IEC 10646-1) | The LTE device sends message with text encoded using UCS-2 character set. Message shall include all the character as entered on DUT. | | |
| 2.67 | MT 3GPP2 SMS Encoded Using UCS-2(ISO/IEC 10646-1) | The LTE device receives the message successfully and the text in the received message is the same as entered on the test platform. | | |
| 2.68 | MO 3GPP SMS Encoded Using UCS-2(ISO/IEC 10646-1) | The LTE device sends message with text encoded using UCS-2 character set. Message shall include all the character as entered on DUT. | | |
| 2.69 | MT 3GPP SMS Encoded Using UCS-2(ISO/IEC 10646-1) | The LTE device receives the message successfully and the text in the received message is the same as entered on the test platform. | | |
| 2.70 | MT 3GPP2 SMS Encoded Using IA5 (ITU-T T.50) | The LTE device receives the message successfully and the text in the received message is the same as entered on the test platform. | | |
| 2.71 | MT 3GPP2 SMS Encoded Latin (ISO 8859-1) | The LTE device receives the message successfully and the text in the received message is the same as entered on the test platform. | | |
| 2.72 | MT SMS Messages storage Function 3GPP SMS | There are no class 2 messages on device memory storage area in steps c and g.<br>There are no class 2 messages stored in UICC (USIM) message storage area in steps d and h. Device does not store Class 2 messages with Protocol Identifier (TP-PID) set to "(U)SIM Data Download" on either device or UICC message storage area. | | |
| 2.73 | MT SIM OTA Wake UP SMS after IMS Registration using the IMSI-Based SIP URI | The UE receives SIM OTA wake up message for the SIM OTA client in the UISM.<br><br>The UE makes an administrative PDN connection request to facilitate the SIM OTA session. | | |

## 2.91 References VZ_TC_LTESMS_6708

Change requests may cause modification to the specifications listed below. Please refer to www.3gpp.org for the latest version of the 3GPP specifications. Verizon Wireless LTE 3GPP Band 13 specifications are available at opennetwork.verizonwireless.com.

1. "Verizon Wireless LTE 3GPP Band 13 Network Access Device Requirements"
2. "Verizon Wireless LTE 3GPP Band 13 Test Equipment List"
3. "Verizon Wireless LTE 3GPP Band 13 Device Conformance Test Process"
4. "Verizon Wireless LTE 3GPP Band 13 Lab Conformance Test Plan"
5. "Verizon Wireless LTE SMS Device Requirements"
6. "Verizon Wireless LTE Supplementary Signaling Conformance Test Plan"

# RequirementCoverageForTestPlan

## 2.15 MOBILE TERMINATED SMS MESSAGE- 3GPP SMS VZ_TC_LTESMS_6306

| Requirement Name | Requirement Plan Id | Created By | Created Date |
|---|---|---|---|
| SMS over IMS Support | LTEB13NAC | Admin User | 11-07-0013 14:26:10 |

## 2.21 MT 3GPP SMS MESSAGE- VERIFY SIP CALL FLOW VZ_TC_LTESMS_6316

| Requirement Name | Requirement Plan Id | Created By | Created Date |
|---|---|---|---|
| The device shall be capable of receiving SMS messages in both 3GPP and 3GPP2 SMS formats. The device shall inspe | LTESMS | Admin User | 01-07-0014 12:05:21 |

## 2.23 MO 3GPP SMS MESSAGE SIZE MORE THAN 1 SEGMENT OF TEXT VZ_TC_LTESMS_6318

| Requirement Name | Requirement Plan Id | Created By | Created Date |
|---|---|---|---|
| The device shall be capable of receiving SMS messages in both 3GPP and 3GPP2 SMS formats. The device shall inspe | LTESMS | Admin User | 01-07-0014 12:05:21 |

## 2.24 2.24APPLICATION DIRECTED SMS- OTADM VZ_TC_LTESMS_6319

| Requirement Name | Requirement Plan Id | Created By | Created Date |
|---|---|---|---|
| APPLICATION DIRECTED SMS | IMS | Admin User | 12-09-0013 12:42:51 |
| DIRECTED SMS | IMS | Admin User | 12-09-0013 12:43:38 |

2.26 SMS MESSAGES STORAGE SETTING (DEFAULT) - 3GPP SMS
VZ_TC_LTESMS_6320

| Requirement Name | Requirement Plan Id | Created By | Created Date |
|---|---|---|---|
| USER LTE PROGRAMMING - SMSWRITEUICC PARAMETER | LTEB13NAC | Admin User | 11-07-0013 14:27:27 |

2.28 SMS MESSAGES STORAGE SETTING (MODIFIED) - 3GPP SMS
VZ_TC_LTESMS_6321

| Requirement Name | Requirement Plan Id | Created By | Created Date |
|---|---|---|---|
| USER LTE PROGRAMMING - SMSWRITEUICC PARAMETER | LTEB13NAC | Admin User | 11-07-0013 14:27:27 |

2.30 MO 3GPP SMS RETRY BEHAVIOR-DEFAULT SIP T1, TIMER F AND T2 TIMERS
VZ_TC_LTESMS_6323

| Requirement Name | Requirement Plan Id | Created By | Created Date |
|---|---|---|---|
| If the MO SMS is in 3gpp format, device shall in the second attempt use the same TP-Message-Reference (TP-MR) as | LTESMS | Admin User | 01-07-0014 12:05:27 |

2.32 MO 3GPP SMS RETRY BEHAVIOR-MODIFIED SIP T1, TIMER F AND T2 TIMERS VZ_TC_LTESMS_6325

| Requirement Name | Requirement Plan Id | Created By | Created Date |
|---|---|---|---|
| If the MO SMS is in 3gpp format, device shall in the second attempt use the same TP-Message-Reference (TP-MR) as | LTESMS | Admin User | 01-07-0014 12:05:27 |

2.34 MO 3GPP SMS  SIP ERRORS VZ_TC_LTESMS_6332

| Requirement Name | Requirement Plan Id | Created By | Created Date |
|---|---|---|---|
| SMS over IMS - overview | LTESMS | Admin User | 01-07-0014 12:05:38 |

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## 2.36 MO 3GPP SMS RETRY BEHAVIOR-DEFAULT SMS STORAGE SETTING VZ_TC_LTESMS_6341

| Requirement Name | Requirement Plan Id | Created By | Created Date |
|---|---|---|---|
| If the MO SMS is in 3gpp format, device shall in the second attempt use the same TP-Message-Reference (TP-MR) as | LTESMS | Admin User | 01-07-0014 12:05:27 |

## 2.38 MO 3GPP SMS RETRY BEHAVIOR-MODIFIED SMS STORAGE SETTING VZ_TC_LTESMS_6344

| Requirement Name | Requirement Plan Id | Created By | Created Date |
|---|---|---|---|
| If the MO SMS is in 3gpp format, device shall in the second attempt use the same TP-Message-Reference (TP-MR) as | LTESMS | Admin User | 01-07-0014 12:05:27 |

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|---|---|---|---|
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## 2.39 DEVICE IMS REGISTRATION CONTROL PARAMETERS- DEFAULT VZ_TC_LTESMS_6347

| Requirement Name | Requirement Plan Id | Created By | Created Date |
|---|---|---|---|
| SMS over IMS - overview | LTESMS | Admin User | 01-07-0014 12:05:38 |

## 2.40 DEVICE IMS REGISTRATION CONTROL PARAMETER- MODIFIED VZ_TC_LTESMS_6348

| Requirement Name | Requirement Plan Id | Created By | Created Date |
|---|---|---|---|
| SMS over IMS - overview | LTESMS | Admin User | 01-07-0014 12:05:38 |

## 2.51 DEVICE IMS INTERACTION- IPSEC CONFIDENTIALITY PROTECTION VZ_TC_LTESMS_6355

| Requirement Name | Requirement Plan Id | Created By | Created Date |
|---|---|---|---|
| SMS over IMS - overview | LTESMS | Admin User | 01-07-0014 12:05:38 |

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|---|---|---|---|
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## 2.55 MT 3GPP CONCATENATED SHORT MESSAGE (MORE THAN 1 SEGMENT OF TEXT) VZ_TC_LTESMS_6358

| Requirement Name | Requirement Plan Id | Created By | Created Date |
|---|---|---|---|
| SMS over IMS - overview | LTESMS | Admin User | 01-07-0014 12:05:38 |

## 2.59 MO 3GPP SMS - MESSAGE STATUS REPORT VZ_TC_LTESMS_6360

| Requirement Name | Requirement Plan Id | Created By | Created Date |
|---|---|---|---|
| The user interface and the user notifications for this SMS feature are handled by the device user interface or t | LTESMS | Admin User | 01-07-0014 12:05:31 |

## 2.62 MO 3GPP SMS ENCODED USING GSM 7- BIT VZ_TC_LTESMS_6363

| Requirement Name | Requirement Plan Id | Created By | Created Date |
|---|---|---|---|
| The device shall support the following character sets for both MO and MT SMS messages:7-bit ASCII (ANSI X3.4) | LTESMS | Admin User | 01-07-0014 12:05:24 |

## 2.63 MT 3GPP SMS ENCODED USING GSM 7- BIT VZ_TC_LTESMS_6364

| Requirement Name | Requirement | Created | Created Date |
|---|---|---|---|

| | Plan Id | By | |
|---|---|---|---|
| The device shall support the following character sets for both MO and MT SMS messages:7-bit ASCII (ANSI X3.4) | LTESMS | Admin User | 01-07-0014 12:05:24 |

2.68 MO 3GPP SMS Encoded Using UCS-2(ISOIEC 10646-1) VZ_TC_LTESMS_6369

| Requirement Name | Requirement Plan Id | Created By | Created Date |
|---|---|---|---|
| The device shall support the following character sets for both MO and MT SMS messages:7-bit ASCII (ANSI X3.4) | LTESMS | Admin User | 01-07-0014 12:05:24 |

2.69 MT 3GPP SMS Encoded Using UCS-2(ISOIEC 10646-1) VZ_TC_LTESMS_6370

| Requirement Name | Requirement Plan Id | Created By | Created Date |
|---|---|---|---|
| The device shall support the following character sets for both MO and MT SMS messages:7-bit ASCII (ANSI X3.4) | LTESMS | Admin User | 01-07-0014 12:05:24 |

2.72 MT SMS Messages storage Function - 3GPP SMS VZ_TC_LTESMS_6373

| Requirement Name | Requirement Plan Id | Created By | Created Date |
|---|---|---|---|
| SMS over IMS - overview | LTESMS | Admin User | 01-07-0014 12:05:38 |
| Support for ISIM and USIM | LTESMS | Admin User | 01-07-0014 12:05:15 |

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## 2.73 MT SIM OTA Wake Up SMS After IMS Registration Using the IMSI-based SIP URI VZ_TC_LTESMS_6374

| Requirement Name | Requirement Plan Id | Created By | Created Date |
|---|---|---|---|
| All devices shall support administrative SMS messages for the OTADM application and the SIM OTA application (Ann | LTESMS | Admin User | 01-07-0014 12:05:37 |

## 2.90 Test Results Template VZ_TC_LTESMS_6707

| Requirement Name | Requirement Plan Id | Created By | Created Date |
|---|---|---|---|
| SMS over IMS - overview | LTESMS | Admin User | 01-07-0014 12:05:38 |

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## 2.91 References VZ_TC_LTESMS_6708

| Requirement Name | Requirement Plan Id | Created By | Created Date |
|---|---|---|---|
| SMS over IMS - overview | LTESMS | Admin User | 01-07-0014 12:05:38 |