Message Access Profile (MAP)

Bluetooth® Test Suite

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1 Scope

This Bluetooth document contains the Test Suite Structure (TSS) and Test Cases (TC) for testing the Message Access Profile (MAP).

The objective of this test suite is to provide a basis for interoperability for Bluetooth devices giving a high probability of air interface interoperability between different manufacturers’ Bluetooth devices.
2 References, Definitions, and Abbreviations

This Bluetooth document incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter.

[1] Bluetooth Core Specification 2.1+EDR or later
[5] Generic Object Exchange Profile Test Suite, v2.0 or later
[6] Infrared Data Association, IrDA Object Exchange Protocol (IrOBEX), Version 1.5 or later

2.1 Definitions and Abbreviations

All definitions and abbreviations required are found in [1], [2], and [3].

In particular the following abbreviations apply.

<table>
<thead>
<tr>
<th>Abbreviation or Acronym</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>IM</td>
<td>Instant Messaging</td>
</tr>
<tr>
<td>MAS</td>
<td>Message Access Service</td>
</tr>
<tr>
<td>MMS</td>
<td>Multimedia Message Service</td>
</tr>
<tr>
<td>MNS</td>
<td>Message Notification Service</td>
</tr>
<tr>
<td>SMS</td>
<td>Short Message Service</td>
</tr>
</tbody>
</table>

*Table 2.1: Abbreviations and acronyms*
3 Test Suite Structure (TSS)

3.1 Test Strategy

This document describes the test procedures for testing of MAP. MAP is dependent upon the Generic Object Exchange Profile (GOEP) and tests from the GOEP test suite are required to test parts of the MAP functionality. The GOEP tests are referred to in test case mapping table within this document.

Whenever a test case defined by this document requires functionality from external networks, such as receiving or sending messages, this can be performed by a real network or a suitable network simulator.

Message Access Profile interoperability test suite structure (1)

![Test Case Diagram]

Figure 3.1: MAP Interoperability Test Structure Representation (1)
Message Access Profile interopability test suite structure (2)

MapSupportedFeatures Bits functional components

MCE
- Advertise MNS MapSupportedFeatures
- Advertise MNS MapSupportedFeatures during MAS connection
- Advertise MNS MapSupportedFeatures during MNS connection
- OBEX Connect request with MapSupportedFeatures

MSE
- Advertise MAS MapSupportedFeatures
- Advertise MAS MapSupportedFeatures during MAS connection
- Respond to OBEX connect request with MapSupportedFeatures

Uploading Feature functional components

MCE
- Upload a message to the MSE
- Upload a message to a conversation to the MSE
- Modify the 'owner status'
- Retrieve the 'owner status'

MSE
- Receive a message from the MCE and store it
- Receive a message from the MCE and send it to the network

Session Management functional components

MCE
- Open a MAP session with MAS only
- Open a MAP session with MAS and MNS
- Close a MAP MNS session with active MAS and MNS
- Close a MAP session with MAS only
- Open multiple MAS and one MSN
- Close multiple active MAS and active MNS

MSE
- Respond to a MAP session opening request with MAS only
- Open a MAP session opening request for MAS and MNS
- Close a MAP MNS session with active MAS and MNS
- Close a MAP session with MAS only
- Respond to multiple MAP session opening requests for MAS
- Respond to multiple MAP session requests for MAS and MNS
- Close active MAS and MNS sessions
- Close multiple active MAS and active MNS sessions

Message Forwarding feature functional components

MCE
- Forward a message without downloading the message to the MSE
- Forward a message without downloading the attachments to the MSE
- Modify a message and forward it to the MCE

MSE
- Receive a message that has been forwarded by the MCE

Figure 3.2: MAP Interoperability Test Structure Representation (2)
Message Access Profile interopability test suite structure (3)

Browsing Feature functional components

MCE
- Read the folder structure
- Select a folder
- Retrieve a list of messages
- Retrieve a filtered list of messages
- Retrieve an email message
- Retrieve an MMS message
- Retrieve an SMS message
- Modify the 'read'-status of a message
- Initiate an Inbox Update on the MSE
- Retrieve an IM message
- Retrieve a list of conversations
- Retrieve a filtered list of conversations
- Retrieve DatabaseIdentifier and FolderVersionCounter
- Retrieve Conversation-Listing, Counter, Size and DatabaseIdentifier
- Retrieve a list of conversations filtered by LastActivity
- Retrieve a list of conversations filtered by read status
- Retrieve a list of conversations filtered by recipient
- Retrieve a list of conversations filtered by message handle
- Modify the 'message extended data'-status of a message

MSE
- Return folder structure information
- Set the current folder
- Return a list of messages
- Return a filtered list of messages
- Return an email message
- Return an MMS message
- Return an SMS message in native format
- Return an SMS message trans-coded to UTF-8
- Update the 'read'-status of a message
- Update Inbox
- Return an IM message
- Update Folder Version Counter
- Update Conversation Version Counter
- Update Conversation-Listing Version Counter
- Return a list of conversations
- Return a list of conversations filtered by a specific conversation
- Return a list of messages in format v1.1
- Return DatabaseIdentifier and FolderVersionCounter
- Return Conversation-Listing, Counter, Size and DatabaseIdentifier
- Return a list of conversations filtered by LastActivity
- Return a list of conversations filtered by read status
- Return a list of conversations filtered by recipient
- Return a list of conversations filtered by message handle
- Create a new conversation
- Participant status change counter behavior
- Update the 'owner status'
- Return the 'owner status'
- Update the 'message extended data'-status of a message

Figure 3.3: MAP Interoperability Test Structure Representation (3)

3.2 Test Groups
This section defines the structure for applicable tests. The TSS is composed of nested test groups organized in a top down approach.

Figure 3.1, Figure 3.2, and Figure 3.3 summarize the TSS for the MAP interoperability tests. The groups are described hereunder.
3.2.1 MAP Session Management:
Tests related to the OBEX session management functionality.

3.2.2 MAP Notification Registration:
Tests verifying the MAP feature 'Notification Registration' which enables the MCE to control the Message Notification. This feature is part of the Message Access Service.

3.2.3 MAP Notification:
Tests verifying the MAP feature 'Notification' which provides functionality for sending event reports from the MSE to the MCE (e.g., about incoming messages). This feature is part of the Message Notification Service.

3.2.4 MAP Browsing:
Tests verifying the MAP feature 'Browsing' which provides functionality for the MCE to browse through the MCE's message repository and to retrieve messages from it. This feature is part of the Message Access Service.

3.2.5 MAP Delete:
Tests verifying the MAP feature 'Delete' which provides functionality to delete messages on the MSE on request of the MCE. This feature is part of the Message Access Service.

3.2.6 MAP Upload:
Tests verifying the MAP feature 'Upload' which provides functionality to upload messages on the MSE for sending or storage. This feature is part of the Message Access Service.

3.2.7 MAS Instance Information:
Tests verifying the MAP feature 'MAS Instance Information' which provides functionality for the MCE to retrieve user displayable information regarding an instance over a secure connection.

3.2.8 Supported Features Bits:
Tests if the feature bits that advertise support for various features conform to the MAP ICS [4].

3.2.9 Message Forwarding Message Handling:
Tests verifying the MAP feature 'Message Forwarding' which provide functionality to directly forward a message without the need to download and re-upload the complete message potentially including attachment(s) via the Bluetooth link.
## 4 Test Cases

### 4.1 Introduction

#### 4.1.1 Test Case Identification Conventions

Test cases shall be assigned unique identifiers per the conventions in [2]. The convention used here is `<spec abbreviation>/<IUT role>/<class>/<feat>/<func>/<subfunc>/<cap>/<xx>-<nn>-<yy>`.

Bolded ID parts shall appear in the order prescribed. Non-bolded ID parts (if applicable) shall appear between the bolded parts. The order of the non-bolded parts may vary from test suite to test suite, but shall be consistent within each individual test suite.

Testing of MAP functionality includes a set of tests from the GOEP test suite the required GOEP tests are referred to in this TCMT per the following convention `<spec abbreviation>/<IUT role>/GOEP/<GOEP TC Identification>`.

<table>
<thead>
<tr>
<th>Identifier Abbreviation</th>
<th>Spec Identifier <code>&lt;spec abbreviation&gt;</code></th>
</tr>
</thead>
<tbody>
<tr>
<td>MAP</td>
<td>Message Access Profile</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Identifier Abbreviation</th>
<th>Role Identifier <code>&lt;IUT role&gt;</code></th>
</tr>
</thead>
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*Table 4.1: MAP TC Feature Naming Convention*
4.1.2 Conformance

When conformance is claimed, all capabilities indicated as mandatory for this Specification shall be supported in the specified manner (process-mandatory). This also applies for all optional and conditional capabilities for which support is indicated. All mandatory capabilities, and optional and conditional capabilities for which support is indicated, are subject to verification as part of the Bluetooth Qualification program.

The Bluetooth Qualification Program may employ tests to verify implementation robustness. The level of implementation robustness that is verified varies from one Specification to another and may be revised for cause based on interoperability issues found in the market.

Such tests may verify:

- That claimed capabilities may be used in any order and any number of repetitions that is not excluded by the Specification, OR
- That capabilities enabled by the implementations are sustained over durations expected by the use case, OR
- That the implementation gracefully handles any quantity of data expected by the use case, OR
- That in cases where more than one valid interpretation of the Specification exist, the implementation complies with at least one interpretation and gracefully handles other interpretations OR
- That the implementation is immune to attempted security exploits.

A single execution of each of the required tests is required in order to constitute a Pass Verdict. However, it is noted that in order to provide a foundation for interoperability, it is necessary that a qualified implementation consistently and repeatedly pass any of the applicable tests.

In any case, where a member finds an issue with the Test Plan Generator, the Test Case as described in the Test Suite, or with the Test System utilized, the Member is required to notify the responsible party via an errata request such that the issue may be addressed.

4.1.3 Pass/Fail Verdict Conventions

Each test case has an Expected Outcome section, which outlines all the detailed pass criteria conditions that shall be met by the IUT to merit a Pass Verdict.

The convention in this test suite is that, unless there is a specific set of fail conditions outlined in the test case, then the IUT fails the test case as soon one of the pass criteria conditions cannot be met and in case this occurs the outcome of the test shall be the Fail Verdict.

4.2 Session Management

The purpose of the tests described in this section is to check that the MAP sessions can be established and terminated properly.

4.2.1 IUT – Message Client Equipment (MCE)

The purpose of the tests described in this section is to check that the Message Client Equipment can properly establish and terminate MAP sessions.
4.2.1.1 MAP/MCE/MSM/BV-01-I [MCE opens a MAP session with Message Access Service only]

- Test Purpose
  Verify that the MCE can start a MAP session that involves only the Message Access Service.

- Reference
  [3] 6.4.1

- Initial Condition
  - IUT: The IUT and the Lower Tester have been paired.
  - Lower Tester: The Lower Tester is in discoverable and connectable mode.

- Test Procedure
  The IUT establishes a MAP session with the Lower Tester by sending an OBEX CONNECT to the Lower Tester according to the connection parameters defined by the Lower Tester's MAS SDP record.

- Expected Outcome
  Pass verdict
  - The OBEX CONNECT response messages related to the MAS have been exchanged properly so the MAS service is established.

4.2.1.2 MAP/MCE/MSM/BV-02-I [MCE opens a MAP session with Message Access Service and Message Notification Service]

- Test Purpose
  Verify that the MCE can start a MAP session that involves both the Message Access Service and Message Notification.

- Reference
  [3] 6.4.2

- Initial Condition
  - IUT: The IUT and the Lower Tester have been paired. MCE supports Notification feature.
  - Lower Tester: The Lower Tester is in discoverable and connectable mode.

- Test Procedure
  1. The IUT establishes a MAP session with the Lower Tester by connecting to the OBEX Message Access Service of the Lower Tester.
  2. The IUT sends the notification status 'on' to the Lower Tester using the function 'SetNotificationRegistration'.
  3. The Lower Tester connects to the OBEX Message Notification Service of the IUT.
• Expected Outcome
  
  Pass verdict
  
  - The OBEX CONNECT response messages of both the MAS and MNS have been exchanged properly AND
  - Both the Message Access Service and the Message Notification Service are established.

 4.2.1.3  MAP/MCE/MSM/BV-03-I [MCE closes a MAP session when both the Message Access Service and the Message Notification Service are active]

• Test Purpose
  
  Verify that the MCE can terminate a MAP session.

• Reference
  
  [3] 6.4.4

• Initial Condition
  
  The IUT is engaged in a MAP session with the Lower Tester. Both the Message Access Service and Message Notification Service are in use.

• Test Procedure
  
  1. The IUT finishes the MNS session by switching the Notification ‘off’ (function SetNotificationRegistration).
  2. The Lower Tester disconnects the MNS session by sending an OBEX DISCONNECT.
  3. The IUT disconnects the MAS session by sending an OBEX DISCONNECT.

• Expected Outcome
  
  Pass verdict
  
  - Both the Message Access Service session and the Message Notification Service sessions are closed AND
  - The OBEX DISCONNECT response messages for MAS have been exchanged properly AND
  - The OBEX DISCONNECT response messages for MNS have been exchanged properly or MNS transport channel is disconnected by the IUT.

 4.2.1.4  MAP/MCE/MSM/BV-04-I [MCE closes a MAP session when only the Message Access Service is active]

• Test Purpose
  
  Verify that the MCE can terminate a MAP session.

• Reference
  
  [3] 6.4.4

• Initial Condition
  
  The IUT is engaged in a MAP session with the Lower Tester. Only the Message Access Service is in use.
4.2.1.5 MAP/MCE/MSM/BV-13-I [MCE opens multiple MAS and one MNS with Notification turned on]

• Test Purpose
Verify that the MCE can open a MAP session with at least two MAS and one MNS active.

• Reference
[3] 6.4.4

• Initial Condition
- Both the Lower Tester and the IUT support multiple MAP instances simultaneously (i.e. SMS, MMS, multiple email accounts). The MCE supports Notification feature.
- The IUT and the Lower Tester have been paired.
- Lower Tester: The Lower Tester is in discoverable and connectable mode.

• Test Procedure
1. The IUT sends the Lower Tester a SDP Search request for Message Access Server. The Lower Tester replies with at least two Service Record Handles.
2. The IUT connects to the Lower Tester’s two instances and sends the notification status to ‘on’ for each use. This may be done in any order.
3. As soon as the first notification registration is set to ‘on’ the Lower Tester connects to the notification channel.

• Expected Outcome
Pass verdict
- Both the Message Access Service sessions and the Message Notification Service sessions are open AND
- The OBEX CONNECT response messages of both the MAS and MNS have been exchanged properly.

4.2.1.6 MAP/MCE/MSM/BV-14-I [MCE closes multiple active MAS and active MNS sessions with Notification turned off first]

• Test Purpose
Verify that the MCE can close a MAP session with at least two MAS and one MNS active.

• Reference
[3] 6.4.4
• **Initial Condition**
  - Both the Lower Tester and the IUT support multiple MAP instances simultaneously (i.e. SMS, MMS, multiple email accounts). The MCE supports Notification feature.
  - A MAP session with at least two active MAS and one MNS is ongoing between the IUT and the Lower Tester.
  - The IUT has registered notifications on for at least two MAS instances.

• **Test Procedure**
  1. The IUT, for both instances, sets the notification status to ‘off’ and disconnects the MAS connections. This may be done in any order.
  2. As soon as both instances have unregistered notifications, the Lower Tester shall disconnect the notification channel.

• **Expected Outcome**
  **Pass verdict**
  - Both the Message Access Service sessions and the Message Notification Service sessions are closed AND
  - The OBEX DISCONNECT response messages for MAS have been exchanged properly AND
  - The OBEX DISCONNECT response messages for MNS have been exchanged properly or MNS transport channel is disconnected by the IUT.

### 4.2.2 IUT – Message Server Equipment (MSE)

The purpose of the tests described in this section is to check that the Message Server Equipment device can properly respond to MAP session establishment and Notification requests by the Message Client Equipment (MCE) device.

#### 4.2.2.1 MAP/MSE/MSM/BV-05-I [MSE responds to an open MAP session request for the Message Access Service]

• **Test Purpose**
  Verify that the MSE can properly respond to a MAP session establishment request.

• **Reference**
  [3] 6.4.1

• **Initial Condition**
  - Lower Tester: The IUT and the Lower Tester have been paired.
  - IUT: The IUT is in discoverable and connectable mode.

• **Test Procedure**
  The Lower Tester connects to the IUT by sending an OBEX CONNECT request to the Message Access Service of the IUT.
• **Expected Outcome**
  
  **Pass verdict**
  
  - The IUT responds with an OBEX CONNECT response.

**4.2.2.2 MAP/MSE/MSM/BV-06-I [MSE responds to an open MAP session request with Message Access Service and Message Notification Service]**

• **Test Purpose**
Verify that the MSE can properly respond to a MAP session establishment request.

• **Reference**
[3] 6.4.2

• **Initial Condition**
  - Lower Tester: The IUT and the Lower Tester have been paired. MCE supports Notification feature.
  - IUT: The IUT is in discoverable and connectable mode.

• **Test Procedure**
  1. The Lower Tester connects to the IUT by sending an OBEX CONNECT request to the Message Access Service of the IUT.
  2. The Lower Tester sends the notification status ‘on’ to the IUT using the function ‘SetNotificationRegistration’.
  3. The IUT connects to the Lower Tester by sending an OBEX CONNECT request to the Message Notification Service of the Lower Tester.

• **Expected Outcome**
  
  **Pass verdict**
  
  - The IUT responds with an OBEX CONNECT response and subsequently connects to the Message Notification Service of the Lower Tester.

**4.2.2.3 MAP/MSE/MSM/BV-07-I [MSE closes a MAP session when both MAS and MNS are active]**

• **Test Purpose**
Verify that the MSE can close a MAP session.

• **Reference**
[3] 6.4.4

• **Initial Condition**
A MAP session with active MAS and MNS is ongoing between the IUT and the Lower Tester.

• **Test Procedure**
  1. The Lower Tester sends the notification status ‘off’ to the IUT using the function ‘SetNotificationRegistration’.
  2. The IUT disconnects the MAP MNS session by sending an OBEX DISCONNECT.
3. The Lower Tester disconnects the MAP MAS session by sending an OBEX DISCONNECT.

   • Expected Outcome
     Pass verdict
     - Both the Message Access Service session and the Message Notification Service sessions are closed AND
     - The OBEX DISCONNECT response messages of both the MAS and MNS have been exchanged properly.

4.2.2.4 MAP/MSE/MSM/BV-08-I [MSE closes a MAP session when only the Message Access Service is active]

   • Test Purpose
     Verify that the MSE can close a MAP session.

   • Reference
     [3] 6.4.4

   • Initial Condition
     A MAP session with active MAS is ongoing between the IUT and the Lower Tester.

   • Test Procedure
     1. The Lower Tester disconnects the MAP MAS session by sending an OBEX DISCONNECT.
     2. The IUT receives an OBEX DISCONNECT and finishes the MAP session.

   • Expected Outcome
     Pass verdict
     - The Message Access Service session is closed AND
     - The OBEX DISCONNECT response messages of the MAS have been exchanged properly.

4.2.2.5 MAP/MSE/MSM/BV-09-I [MSE responds to multiple open MAP session requests for the Message Access Service]

   • Test Purpose
     Verify that the MSE can properly respond to multiple MAP session establishment requests.

   • Reference
     [3] 6.4.1, 7.1.1

   • Initial Condition
     - Both the Lower Tester and the IUT support multiple MAP instances simultaneously (i.e. SMS, MMS, multiple email accounts).
     - Lower Tester: The IUT and the Lower Tester have been paired.
     - IUT: The IUT is in discoverable and connectable mode.
• Test Procedure
  1. The Lower Tester sends the IUT SDP Search Request for Message Access Server. The IUT replies with multiple Service Record Handles.
  2. The Lower Tester connects to the IUT by sending an OBEX CONNECT request sequentially to each Message Access Service instance of the IUT.

• Expected Outcome
  Pass verdict
  
  - The IUT responds with an OBEX CONNECT response for each Message Access Service (response code ‘SUCCESS’).

4.2.2.6 MAP/MSE/MSM/BV-10-I [MSE responds to multiple open MAP session requests with Message Access Service and Message Notification Service]

• Test Purpose
  Verify that the MSE can properly respond to multiple MAP session establishment requests.

• Reference
  [3] 6.4.2, 7.1.2

• Initial Condition
  - Both the Lower Tester and the IUT support multiple MAP instances simultaneously (i.e. SMS, MMS, multiple email accounts)
  - Lower Tester: The IUT and the Lower Tester have been paired. MCE supports Notification feature.
  - IUT: The IUT is in discoverable and connectable mode.

• Test Procedure
  1. The Lower Tester sends the IUT SDP Search Request for Message Access Server. The IUT replies with multiple Service Record Handles.
  2. The Lower Tester connects to the IUT by sending an OBEX CONNECT request sequentially to each Message Access Service instance of the IUT.
  3. The Lower Tester sends the notification status ‘on’ to each Message Access Service instance of the IUT by using the function ‘SetNotificationRegistration’.
  4. The IUT connects to the Lower Tester by sending an OBEX CONNECT request to the Message Notification Service of the Lower Tester.

• Expected Outcome
  Pass verdict
  
  - The IUT responds with each OBEX CONNECT response (response code ‘SUCCESS’) and subsequently connects to the Message Notification Service of the Lower Tester.
4.2.2.7 MAP/MSE/MSM/BV-11-I [MSE closes multiple active MAS and active MNS sessions with Notification turned off first]

• Test Purpose
  Verify that the MSE can properly respond to multiple MAP session establishment requests.

• Reference
  [3] 6.4.4

• Initial Condition
  - Both the Lower Tester and the IUT support multiple MAP instances simultaneously (i.e. SMS, MMS, multiple email accounts).
  - A MAP session with at least two active MAS and one MNS is ongoing between the IUT and the Lower Tester.
  - The Lower Tester has registered notifications on for at least two MAS instances.

• Test Procedure
  1. The Lower Tester sends the notification status 'off' to the IUT using the function 'SetNotificationRegistration' for each registered MAS.
  2. The IUT disconnects the MAP MNS session by sending an OBEX DISCONNECT.
  3. The Lower Tester disconnects each MAP MAS session by sending an OBEX DISCONNECT.

• Expected Outcome
  Pass verdict
  - Both the Message Access Service sessions and the Message Notification Service sessions are closed AND
  - The OBEX DISCONNECT response messages of both the MAS and MNS have been exchanged properly.

4.2.2.8 MAP/MSE/MSM/BV-12-I [MSE closes multiple active MAS and active MNS sessions without Notifications being turned off first]

• Test Purpose
  Verify that the MSE can close a MAP session with at least two active MAS and one MNS without having the client send Notification Registration off for the different instances.

• Reference
  [3] 6.4.4

• Initial Condition
  - Both the Lower Tester and the IUT support multiple MAP instances simultaneously (i.e. SMS, MMS, multiple email accounts)
  - A MAP session with at least two active MAS and one MNS is ongoing between the IUT and the Lower Tester.
  - The Lower Tester has registered notifications on for at least two MAS instances.
• Test Procedure
  1. The Lower Tester disconnects the all the MAP MAS sessions by sending an OBEX DISCONNECT for each instance.
  2. The IUT disconnects the MAP MNS session by sending an OBEX DISCONNECT.

• Expected Outcome
  Pass verdict
  - Both the Message Access Service sessions and the Message Notification Service sessions are closed AND
  - The OBEX DISCONNECT response messages of both the MAS and MNS have been exchanged properly.

4.3 Notification Registration Feature
The purpose of the tests described in this section is to check that the normal behavior of the components necessary to realize the Notification Registration feature.

4.3.1 IUT – Message Client Equipment (MCE)
The purpose of the tests described in this section is to check that the Message Client Equipment device can properly take advantage of the Notification Registration feature.

4.3.1.1 MAP/MCE/MNR/BV-01-I [MCE switches Notification to ‘off’ status]
• Test Purpose
  Verify that the MCE can switch off the Notification of the MSE.

• Reference
  [3] 5.2

• Initial Condition
  The IUT and the Lower Tester have established a MAP session and both the Message Access Service and the Message Notification Service are active (Notification status ‘on’).

• Test Procedure
  The IUT sends the notification status ‘off’ to the Lower Tester using the function ‘SetNotificationRegistration’.

• Expected Outcome
  Pass verdict
  - The request of the ‘SetNotificationRegistration’ function is well formatted according to [3] AND
  - Message Notification Service is terminated either by the Lower Tester sending an OBEX DISCONNECT to the IUT or the IUT disconnecting the MNS transport channel.
4.3.1.2  MAP/MCE/MNR/BV-02-I [MCE switches Notification to ‘on’ status]

- **Test Purpose**
  Verify that the MCE can switch on the Notification of the MSE.

- **Reference**
  [3] 5.2

- **Initial Condition**
  The IUT and the Lower Tester have established a MAP session and the Message Notification Service is not connected (Notification status 'off').

- **Test Procedure**
  1. The IUT sends the notification status ‘on’ to the Lower Tester using the function ‘SetNotificationRegistration’.
  2. The Lower Tester connects to the OBEX Message Notification Service of the IUT.

- **Expected Outcome**
  Pass verdict
  - The request of the ‘SetNotificationRegistration’ function is well formatted according to [3] AND
  - The Lower Tester connects to the IUT’s MNS by sending an OBEX CONNECT to the IUT.

4.3.2  IUT – Message Server Equipment (MSE)

The purpose of the tests described in this section is to check that the Message Server Equipment device can properly implement the Notification Registration feature.

4.3.2.1  MAP/MSE/MNR/BV-03-I [MSE terminates Message Notification]

- **Test Purpose**
  Verify that the MSE can terminate the Message Notification.

- **Reference**
  [3] 5.2

- **Initial Condition**
  The IUT and the Lower Tester have established a MAP session and both the Message Access Service and the Message Notification Service are active (Notification status ‘on’).

- **Test Procedure**
  The Lower Tester sends the notification status ‘off’ to the IUT using the function ‘SetNotificationRegistration’.
• Expected Outcome
  Pass verdict
  - The response of the ‘SetNotificationRegistration’ function is well formatted according to [3] AND
  - The IUT terminates the MNS session by sending an OBEX DISCONNECT to the Lower Tester.

4.3.2.2  MAP/MSE/MNR/BV-04-I [MSE starts Message Notification]
• Test Purpose
  Verify that the MSE can establish a Message Notification.

• Reference
  [3] 5.2

• Initial Condition
  The IUT and the Lower Tester have established a MAP session and the Message Notification Service
  is not connected (Notification status ‘off’).

• Test Procedure
  The Lower Tester sends the notification status ‘on’ to the IUT using the function
  ‘SetNotificationRegistration’.

• Expected Outcome
  Pass verdict
  - The response of the ‘SetNotificationRegistration’ function is well formatted according to [3] AND
  - The IUT connects to the Lower Tester’s MNS by sending an OBEX CONNECT to the Lower Tester.

4.4  Browsing Feature
The purpose of the tests described in this section is to check that the components that are specific to the
Browsing feature are properly implemented.

4.4.1  IUT – Message Client Equipment (MCE)
The purpose of the tests described in this section is to check that the components that are specific to the
Browsing feature are properly implemented by the MCE.

4.4.1.1  MAP/MCE/MMB/BV-01-I [MCE reads the folder structure of the MSE]
• Test Purpose
  Verify that the MCE can retrieve a Folders Listing on the MSE.

• Reference
  [3] 5.2
• Initial Condition
  - The IUT and the Lower Tester have established a MAP session.
  - Lower Tester: The Lower Tester contains at least 1 non-null folder object.

• Test Procedure
  1. The IUT sends a ‘GetFoldersListing’ request to at least one of the MAP virtual folders supported by the Lower Tester.
  2. The Lower Tester delivers the requested folder-listing object.

• Expected Outcome
  Pass verdict
  - The request of the ‘GetFoldersListing’ function is well formatted according to [3] AND
  - The folder can be displayed properly on the IUT.

4.4.1.2 MAP/MCE/MMB/BV-02-I [MCE selects the current folder on MSE]
• Test Purpose
  Verify that the MCE can set the current folder on the MSE.

• Reference
  [3] 5.3

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session.
  - Lower Tester: The Lower Tester contains at least 1 non-null folder object.

• Test Procedure
  The IUT sends a ‘SetFolder’ command to the Lower Tester, targeting one of the MAP virtual folders supported by the Lower Tester.

• Expected Outcome
  Pass verdict
  - The request of the ‘SetFolder’ function is well formatted according to [3] AND
  - The current folder on the MSE is set to the requested folder.

4.4.1.3 MAP/MCE/MMB/BV-03-I [MCE retrieves a list of messages]
• Test Purpose
  Verify that the MCE can retrieve a messages-listing from the MSE.

• Reference
  [3] 3.1.6, 5.5
• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - Lower Tester: The Lower Tester contains at least one folder that is non empty.

• Test Procedure
  1. The IUT requests the messages-listing object of the current folder.
  2. The Lower Tester delivers the requested messages-listing object.

• Expected Outcome
  Pass verdict
  - The request of the ‘GetMessagesListing’ function is well formatted according to [3] AND
  - The IUT is able to receive the messages-listing object and correctly display it.

4.4.1.4 MAP/MCE/MBB/BV-19-I [MCE retrieves a filtered list of messages]
• Test Purpose
  Verify that the MCE can retrieve a filtered messages-listing from the MSE using all supported filtering parameters.

• Reference
  [3] 5.5, 5.5.4

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - IUT: The IUT has set the current folder of the Lower Tester to a folder with a large number of messages with different values for the message attributes type, delivery date, read status, recipient, originator and priority.
  - Lower Tester: The Lower Tester contains at least one folder with a large number of messages with different values for the message attributes type, delivery date, read status, recipient, originator and priority.

• Test Procedure
  1. The IUT iteratively requests a messages-listing object of the current folder by using each of the supported filtering parameters:
     • FilterMessageType: to filter out the messages which are not of the delivered type; to be done for all types supported by both the MSE and MCE, if this filtering type is supported by the MCE
     • FilterPeriodBegin only: to filter out the messages older than the delivered value of FilterPeriodBegin, if this filtering type is supported by the MCE
     • FilterPeriodEnd only: to filter out the messages more recent than the delivered value of FilterPeriodEnd, if this filtering type is supported by the MCE
     • FilterPeriodBegin and FilterPeriodEnd: to filter out the messages outside the period defined by these values, if this filtering type is supported by the MCE
• FilterReadStatus: to filter out the messages which are not of the delivered read status; to be done both for status values 'read' and 'unread', if this filtering type is supported by the MCE
• FilterRecipient: to filter out the messages where not at least a substring is matching the delivered value, if this filtering type is supported by the MCE
• FilterOriginator: to filter out the messages where not at least a substring is matching the delivered value, if this filtering type is supported by the MCE
• FilterPriority: to filter out the messages which are not of the delivered priority; to be done both for priority values 'high' and 'non-high', if this filtering type is supported by the MCE

2. The Lower Tester delivers the requested messages-listing object.

• Expected Outcome
  
  Pass verdict
  
  - The request of the 'GetMessagesListing' function is well formatted according to [3] AND
  - The request includes filtering application parameters as supported by the MCE AND
  - The IUT is able to receive the messages-listing object AND
  - The messages-listing object is correctly filtered.

• Notes
  
  The IUT shall demonstrate the support of all filtering parameters as declared in Table 20 of the MAP.ICS [4].

4.4.1.5 MAP/MCE/MBB/BV-04-I [MCE retrieves an email message]

• Test Purpose
  
  Verify that the MCE can retrieve an email message from the MSE.

• Reference
  
  [3] 5.6, 3.1.3, 3.1.6

• Initial Condition
  
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - IUT: The IUT has set the current folder of the Lower Tester to a folder that includes at least one email with only textual content. The IUT has retrieved the messages-listing of this folder.
  - Lower Tester: The Lower Tester contains at least one folder that includes at least one email with only textual content.

• Test Procedure
  
  1. The IUT requests one of the email message objects contained in the messages-listing object.
  2. The Lower Tester delivers the requested message object.
• **Expected Outcome**

  **Pass verdict**

  - The request of the ‘GetMessage’ function is well formatted according to [3] AND
  - The IUT is able to receive the message object and correctly display it.

**4.4.1.6 MAP/MCE/MMB/BV-17-I [MCE retrieves an MMS message]**

• **Test Purpose**

  Verify that the MCE can retrieve an MMS message from the MSE.

• **Reference**

  [3] 5.6, 3.1.3, 3.1.6

• **Initial Condition**

  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - IUT: The IUT has set the current folder of the Lower Tester to a folder that includes at least one MMS with only textual content. The IUT has retrieved the messages-listing of this folder.
  - Lower Tester: The Lower Tester contains at least one folder that includes at least one MMS with only textual content.

• **Test Procedure**

  1. The IUT requests one of the MMS message objects contained in the messages-listing object.
  2. The Lower Tester delivers the requested message object.

• **Expected Outcome**

  **Pass verdict**

  - The request of the ‘GetMessage’ function is well formatted according to [3] AND
  - The IUT is able to receive the message object and correctly display it.

**4.4.1.7 MAP/MCE/MMB/BV-06-I [MCE retrieves an SMS]**

• **Test Purpose**

  Verify that the MCE can retrieve an SMS message either in native format or with text trans-coded to UTF-8 from the MSE.

• **Reference**

  [3] 5.6, 3.1.3, 3.1.6

• **Initial Condition**

  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - IUT: The IUT has set the current folder of the Lower Tester to a folder that includes at least one GSM-SMS or CDMA-SMS, as supported by the declared message types of the IUT, with textual content. The IUT has retrieved the messages-listing of this folder.
- Lower Tester: The Lower Tester contains at least one folder that includes at least one GSM-SMS or CDMA-SMS, as supported by the declared message types of the IUT, with textual content.

• Test Procedure
  1. The IUT requests one of the SMS message objects contained in the messages-listing object in native format (function ‘GetMessage’ attribute ‘Charset’=\textless native\textgreater or with text trans-coded to UTF-8 (function ‘GetMessage’ attribute ‘Charset’=\textless UTF-8\textgreater).
  2. The Lower Tester delivers the requested message object.

• Expected Outcome
  Pass verdict

- The request of the ‘GetMessage’ function is well formatted according to [3] AND
- The IUT is able to receive the message object and correctly display it.

4.4.1.8 MAP/MCE/MMB/BV-07-I [MCE modifies the ‘read’ status of a message]

• Test Purpose
  Verify that the MCE can set the status of a message on the MSE.

• Reference
  [3] 5.7

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - IUT: The IUT has set the current folder of the Lower Tester to one non-empty folder. The IUT has retrieved the messages-listing of this folder.
  - Lower Tester: The Lower Tester contains at least one folder that is non-empty. All the messages on the Lower Tester have the status “Unread”.

• Test Procedure
  1. The IUT requests the Lower Tester to change the status of one message that was contained in the messages-listing object from “Unread” to “Read”.
  2. The Lower Tester repeats the test for each message type supported by the IUT.

• Expected Outcome
  Pass verdict

- The request of the ‘SetMessageStatus’ function is well formatted according to [3] AND
- The status of the messages has been set to ‘read’ as requested.
4.4.1.9 MAP/MCE/MBM/BV-08-I [MCE initiates an update of the MSE’s inbox]

• Test Purpose
Verify that the MCE can initiate the MSE to update its inbox with new messages loaded from its corresponding remote mailbox.

• Reference
[3] 5.9

• Initial Condition
The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.

• Test Procedure
1. The IUT requests the update of the messages-listing of the Lower Tester’s ‘Inbox’ folder.
2. The Lower Tester simulates a mailbox connection to a remote mailbox and adds a new message to the message listing in its ‘Inbox’.
3. The IUT requests the messages-listing of the ‘Inbox’.

• Expected Outcome
Pass verdict
- The request of the 'UpdateInbox' function is well formatted according to [3] AND
- The IUT is able to request receive the messages-listing of the Lower Tester’s ‘Inbox’ folder updated by the new message.

4.4.1.10 MAP/MCE/MBM/BV-21-I [MCE retrieves an bMessage with type ‘IM’]

• Test Purpose
Verify that the MCE sends a correctly formatted GetMessage request for type ‘IM’.

• Reference
[3] 5.6, 3.1.3, 3.1.6

• Initial Condition
- The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
- IUT: The IUT has set the current folder of the Lower Tester to a folder that includes at least one IM message with only textual content. The IUT has retrieved the messages-listing of this folder.
- Lower Tester: The Lower Tester contains at least one folder that includes at least one IM message with only textual content.

• Test Procedure
1. The IUT requests one of the IM message objects contained in the messages-listing object.
2. The Lower Tester delivers the requested message object.
• Expected Outcome
  Pass verdict
  - The request of the ‘GetMessage’ function is well formatted according to [3] AND
  - The IUT is able to request receive the message object and correctly display it.

4.4.1.11 MAP/MCE/MMB/BV-26-I [MCE retrieves a list of conversations]
• Test Purpose
  Verify that the MCE sends a correctly formatted request for a Conversation-Listing.

• Reference
  [3] 5.13

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - Lower Tester: The Lower Tester is configured to contain a Conversation-Listing object.

• Test Procedure
  The IUT is triggered to request a Conversation-Listing from the Lower Tester.

• Expected Outcome
  Pass verdict
  - The request for the Conversation-Listing is correctly formatted according to [3] AND
  - The IUT is able to receive the Conversation-listing object and correctly display it.

4.4.1.12 MAP/MCE/MMB/BV-27-I [MCE retrieves a filtered list of conversations]
• Test Purpose
  Verify that the MCE sends a correctly formatted request for a messages-Listing of all messages of a specific conversation.

• Reference
  [3] 5.5

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.

• Test Procedure
  The IUT is triggered to request a Messages-Listing of all messages of a specific conversation.
• Expected Outcome

Pass verdict

- The request for the Messages-Listing is correctly formatted according to [3] AND
- The request for the Messages-Listing contains the application parameter ConversationID with a valid conversation ID.

4.4.1.13 MAP/MCE/MB/MB-BV-28-I [MCE retrieves DatabaseIdentifier and FolderVersionCounter]

• Test Purpose

Verify that the MCE sends a correctly formatted request for a messages-Listing with MaxListCount=0 to receive DatabaseIdentifier and FolderVersionCounter.

• Reference

[3] 5.5

• Initial Condition

- The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.

• Test Procedure

The IUT is triggered to request a Messages-Listing to receive DatabaseIdentifier and FolderVersionCounter.

• Expected Outcome

Pass verdict

- The request for the Messages-Listing is correctly formatted according to [3] and has MaxListCount set to zero.

4.4.1.14 MAP/MCE/MB/BV-29-I [MCE retrieves Conversation-Listing, Counter, Size and DatabaseIdentifier]

• Test Purpose

Verify that the MCE sends a correctly formatted request for a Conversation-Listing with MaxListCount=0 to receive the ConversationListingVersionCounter, ConversationListingSize and DatabaseIdentifier.

• Reference

[3] 5.13, 3.1.14, 3.1.15

• Initial Condition

- The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.

• Test Procedure

The IUT is triggered to request a Conversation-Listing to receive ConversationListingVersionCounter, ConversationListingSize and DatabaseIdentifier.
• Expected Outcome
  Pass verdict

    - The request for the Conversation-Listing is correctly formatted according to [3] and has MaxListCount set to zero.

4.4.1.15  MAP/MCE/MMB/BV-30-I [MCE retrieves list of conversations filtered by LastActivity]

• Test Purpose
  Verify that the MCE sends a correctly formatted request for a Conversation-Listing with Filtering for LastActivity.

• Reference
  [3] 5.13

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.

• Test Procedure
  The IUT is triggered to request a Conversation-Listing with Filtering for LastActivity.

• Expected Outcome
  Pass verdict

    - The request for the Conversation-Listing is correctly formatted according to [3] and contains valid values for FilterLastActivityBegin and FilterLastActivityEnd.

4.4.1.16  MAP/MCE/MMB/BV-31-I [MCE retrieves list of conversations filtered by read status]

• Test Purpose
  Verify that the MCE sends a correctly formatted request for a Conversation-Listing with Filtering by read status.

• Reference
  [3] 5.13

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.

• Test Procedure
  The IUT is triggered to request a Conversation-Listing with Filtering by read status.
• Expected Outcome
  Pass verdict
  - The request for the Conversation-Listing is correctly formatted according to [3] and contains a valid value for read status.

4.4.1.17 MAP/MCE/MMB/BV-32-I [MCE retrieves list of conversations filtered by recipient]

• Test Purpose
  Verify that the MCE sends a correctly formatted request for a Conversation-Listing with Filtering by recipient.

• Reference
  [3] 5.13

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.

• Test Procedure
  The IUT is triggered to request a Conversation-Listing with Filtering by recipient.

• Expected Outcome
  Pass verdict
  - The request for the Conversation-Listing is correctly formatted according to [3] and contains a valid value for FilterRecipient.

4.4.1.18 MAP/MCE/MMB/BV-33-I [MCE retrieves list of conversations filtered by message handle]

• Test Purpose
  Verify that the MCE sends a correctly formatted request for a Messages-Listing with Filtering by message handle.

• Reference
  [3] 5.5

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.

• Test Procedure
  The IUT is triggered to request a Messages-Listing with Filtering by message handle.
• Expected Outcome
  Pass verdict
  - The request for the Messages-Listing is correctly formatted according to [3] and contains the application parameter FilterMessageHandle with a valid message handle.

4.4.1.19 MAP/MCE/MMB/BV-48-I [MCE requests to change message extended data]
• Test Purpose
  To verify the MCE sends a correctly formatted request to change the extended data of a message.

• Reference

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.

• Test Procedure
  The IUT sends a 'SetMessageStatus' request to the Lower Tester with new values for the extended data.

• Expected Outcome
  Pass verdict
  - The request of the 'SetMessageStatus' function is well formatted according to [3].

4.4.2 IUT – Message Server Equipment (MSE)
The purpose of the tests described in this section is to check that the components that are specific to the Browsing feature are properly implemented by the MSE.

4.4.2.1 MAP/MSE/MMB/BV-09-I [MSE returns folder structure information to the MCE]
• Test Purpose
  Verify that the MSE can return a Folders Listing to the MCE.

• Reference
  [3] 5.4

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session.
  - IUT: The IUT contains at least 1 non-null folder object.

• Test Procedure
  The Lower Tester sends a 'GetFoldersListing' request to at least one of the MAP virtual folders supported by the IUT.
• **Expected Outcome**
  
  **Pass verdict**
  
  - The response of the ‘GetFoldersListing’ function is well formatted according to [3] **AND**
  - The requested folder can be displayed properly on the Lower Tester.

### 4.4.2.2 MAP/MSE/MMB/BV-10-I [MSE sets its current folder]

- **Test Purpose**
  
  Verify that the MSE changes the current folder as requested by the MCE.

- **Reference**
  
  [3] Section 5.3

- **Initial Condition**
  
  - The IUT and the Lower Tester have established a MAP session.
  - IUT: The IUT contains at least 1 non-null folder object.

- **Test Procedure**
  
  The Lower Tester sends a ‘SetFolder’ request targeting one of the MAP virtual folders supported by the IUT.

- **Expected Outcome**
  
  **Pass verdict**
  
  - The response of the ‘SetFolder’ function is well formatted according to [3] **AND**
  - The current folder on the MSE is set to the requested folder.

### 4.4.2.3 MAP/MSE/MMB/BV-11-I [MSE returns a list of messages]

- **Test Purpose**
  
  Verify that the MSE can return a messages-listing object to the MCE.

- **Reference**
  
  [3] 3.1.6, 5.5

- **Initial Condition**
  
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - Lower Tester: The Lower Tester has set the current folder to one non-empty folder.
  - IUT: The IUT contains at least 1 non-null folder object.

- **Test Procedure**
  
  The Lower Tester requests the messages-listing object of the current folder.
• Expected Outcome

  Pass verdict

  - The response of the ‘GetMessagesListing’ function is well formatted according to [3] AND
  - The Lower Tester is able to receive the messages-listing object and correctly display it.

4.4.2.4 MAP/MSE/MB/BV-20-I [MSE returns a filtered list of messages]

• Test Purpose

  Verify that the MSE can return a filtered messages-listing to the MCE.

• Reference

  [3] 5.5

• Initial Condition

  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - Lower Tester: The Lower Tester has set the current folder of the IUT with a large number of messages with different values for the message attributes type, delivery date, read status, recipient, originator and priority.
  - IUT: The IUT contains at least one folder with a large number of messages with different values for the message attributes type, delivery date, read status, recipient, originator and priority.

• Test Procedure

  1. The Lower Tester iteratively requests messages-listing objects of the current folder by using filtering parameters:

     - FilterMessageType: to filter out the messages which are not of the delivered type; to be done for all types supported by both the MSE
     - FilterPeriodBegin only: to filter out the messages older than the delivered value of FilterPeriodBegin
     - FilterPeriodEnd only: to filter out the messages more recent than the delivered value of FilterPeriodEnd
     - FilterPeriodBegin and FilterPeriodEnd: to filter out the messages outside the period defined by these values
     - FilterReadStatus: to filter out the messages which are not of the delivered read status; to be done both for status values 'Read' and 'Unread'
     - FilterRecipient: to filter out the messages where not at least a substring is matching the delivered value
     - FilterOriginator: to filter out the messages where not at least a substring is matching the delivered value
     - FilterPriority: to filter out the messages which are not of the delivered priority; to be done both for priority values 'high' and 'non-high'

  2. The IUT delivers the requested messages-listing objects.
• Expected Outcome
  Pass verdict
  - The response of the ‘GetMessagesListing’ function is well formatted according to [3] AND
  - The Lower Tester is able to receive the messages-listing object AND
  - The messages-listing object is correctly filtered.

4.4.2.5  MAP/MSE/MBB/BV-12-I [MSE returns an email message]
• Test Purpose
  Verify that the MSE can return an email message to the MCE.

• Reference
  [3] 5.6, 3.1.3, 3.1.6

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - Lower Tester: The Lower Tester has set the current folder to a folder that includes at least one email with only textual content. The Lower Tester has retrieved the messages-listing of this folder.
  - IUT: The IUT contains at least one folder that includes at least one email with only textual content.

• Test Procedure
  1. The Lower Tester requests one of the email message objects contained in the messages-listing.
  2. The IUT delivers the requested message object.

• Expected Outcome
  Pass verdict
  - The response of the ‘GetMessage’ function is well formatted according to [3] AND
  - The Lower Tester is able to receive the message object and correctly display it.

4.4.2.6  MAP/MSE/MBB/BV-18-I [MSE returns an MMS message]
• Test Purpose
  Verify that the MSE can return an MMS message to the MCE.

• Reference
  [3] 5.6, 3.1.3, 3.1.6

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - Lower Tester: The Lower Tester has set the current folder to a folder that includes at least one MMS with only textual content. The Lower Tester has retrieved the messages-listing of this folder.
- IUT: The IUT contains at least one folder that includes at least one MMS with only textual content.

• Test Procedure
  1. The Lower Tester requests one of the MMS message objects contained in the messages-listing.
  2. The IUT delivers the requested message object.

• Expected Outcome
  Pass verdict
  - The response of the ‘GetMessage’ function is well formatted according to [3] AND
  - The Lower Tester is able to receive the message object and correctly display it.

4.4.2.7 MAP/MSE/MBM/BV-13-I [MSE returns an SMS message in native format]
• Test Purpose
  Verify that the MSE can return an SMS message in native format to the MCE.

• Reference
  [3] 5.6, 3.1.3, 3.1.6

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - Lower Tester: The Lower Tester has set the current folder to a folder that includes at least one GSM-SMS and/or one CDMA-SMS with textual content. The Lower Tester has retrieved the messages-listing of this folder.
  - IUT: The IUT contains at least one folder that includes at least one GSM-SMS and/or one CDMA-SMS with textual content.

• Test Procedure
  If the IUT supports message type GSM-SMS:
  1. The Lower Tester requests one of the GSM-SMS message objects contained in the messages-listing in native format (function ‘GetMessage’ attribute ‘Charset’=<native>).
  2. The IUT delivers the requested message object.
  
  If the IUT supports message type CDMA-SMS:
  1. The Lower Tester requests one of the CDMA-SMS message objects contained in the messages-listing in native format (function ‘GetMessage’ attribute ‘Charset’=<native>).
  2. The IUT delivers the requested message object.

• Expected Outcome
  Pass verdict
  - The response of the ‘GetMessage’ function is well formatted according to [3] AND
  - For each of the supported message types GSM-SMS and/or CDMA-SMS the Lower Tester is able to receive the message object and correctly display it.
4.4.2.8 MAP/MSE/MMB/BV-14-I [MSE returns an SMS message trans-coded to UTF-8]

• Test Purpose
  Verify that the MSE can return an SMS message with text trans-coded to UTF-8 to the MCE.

• Reference
  [3] 5.6, 3.1.3, 3.1.6

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - Lower Tester: The Lower Tester has set the current folder to a folder that includes at least one GSM-SMS and/or one CDMA-SMS with textual content. The Lower Tester has retrieved the messages-listing of this folder.
  - IUT: The IUT contains at least one folder that includes at least one GSM-SMS or CDMA-SMS with textual content.

• Test Procedure
  1. The Lower Tester requests one of the SMS message objects contained in the messages-listing with text trans-coded to UTF-8 (function ‘GetMessage’ attribute ‘Charset’=<UTF-8>).
  2. The IUT delivers the requested message object as text trans-coded to UTF-8.

• Expected Outcome
  Pass verdict

  - The response of the ‘GetMessage’ function is well formatted according to [3] AND
  - The Lower Tester is able to receive the message object and correctly display it.

4.4.2.9 MAP/MSE/MMB/BV-22-I [MSE returns an IM message]

• Test Purpose
  Verify that the MSE correctly responds to a request for a bMessage in format 1.1 with message type “IM”.

• Reference
  [3] 5.6, 3.1.3, 3.1.6

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - Lower Tester: The Lower Tester has set the current folder to a folder that includes at least one IM message with only textual content.

• Test Procedure
  1. The Lower Tester requests one of the IM message objects contained in the messages-listing object.
  2. The IUT delivers the requested message object.
• Expected Outcome

Pass verdict

- The response to the ‘GetMessage’ function is well formatted with a valid bMessage of type ‘IM’ according to [3] AND
- The Lower Tester is able to receive the message object and correctly display it.

4.4.2.10 MAP/MSE/MBB/BV-15-I [MSE updates the ‘read’ status of a message]
• Test Purpose

Verify that the MSE can set the status of a message as requested by the MCE.

• Reference

[3] 5.7

• Initial Condition

- The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
- IUT: The IUT contains at least one folder that is non-empty. All the messages on the IUT have the status “Unread”.
- Lower Tester: The Lower Tester has set the current folder to one non-empty folder. The Lower Tester has retrieved the messages-listing of this folder.

• Test Procedure

1. The Lower Tester requests the IUT to change the status of one message that was contained in the messages-listing object from “Unread” to “Read”.
2. The Lower Tester repeats the test for each message type supported by the IUT.

• Expected Outcome

Pass verdict (to be verified for each supported message type)

- The response of the ‘SetMessageStatus’ function is well formatted according to [3] AND
- The status of the messages has been set to ‘read’ as requested AND if the Lower Tester has received a ‘SUCCESS’ response from the IUT.

4.4.2.11 MAP/MSE/MBB/BV-16-I [MSE updates its inbox folder]
• Test Purpose

Verify that, on demand of the MCE, the MSE is able to update its inbox with new messages loaded from its corresponding remote mailbox.

• Reference

[3] 5.9

• Initial Condition

- The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
• **Test Procedure**
  1. A new message not currently included in the IUT’s ‘Inbox’ message listing has been sent to the remote mailbox of the IUT.
  2. On request of the Lower Tester the IUT contacts the remote mailbox, loads the new message and updates its ‘Inbox’ folder.
  3. The Lower Tester requests the messages-listing of the ‘Inbox’.

• **Test Condition**
  IUT supports a message type and a related service which is not pushed or forwarded instantly from the remote mailbox to the MSE device but has to be retrieved actively from a remote mailbox.

• **Expected Outcome**
  
  **Pass verdict**
  - The response of the ‘UpdateInbox’ function is well formatted according to [3] AND
  - The Lower Tester is able to receive the messages-listing of the IUT’s ‘Inbox’ folder and correctly display it with the new message OR
  - If the IUT does not allow the polling of its mailbox it shall answer with a ‘Not implemented’ error response.

4.4.2.12  **MAP/MSE/MMB/BV-23-I [Update Folder Version Counter]**

• **Test Purpose**
  Verify that the MSE correctly updates the Folder version counter when adding a message to a folder.

• **Reference**
  [3] 3.1.15, 5.5, 3.1.9

• **Initial Condition**
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - Lower Tester: The Lower Tester has retrieved the current value of FolderVersionCounter by having executed GetMessagesListing.

• **Test Procedure**
  1. On the IUT, a message is added to a folder.
  2. The Lower Tester retrieves the value for FolderVersionCounter by executing a GetMessagesListing requests.

• **Expected Outcome**
  
  **Pass verdict**
  - The value for FolderVersionCounter is updated according to [3] after the message has been added on the IUT.
4.4.2.13 MAP/MSE/MB/BV-24-I [Update Conversation Version Counter]

• Test Purpose
  Verify that the MSE correctly updates the Conversation version counter when adding a participant to a conversation.

• Reference
  [3] 3.1.15, 5.13, 3.1.9

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - Lower Tester: The Lower Tester has retrieved the current value of the Conversation Version Counter, e.g., by having executed GetConversationListing commands.

• Test Procedure
  1. On the IUT, a participant is added to a conversation.
  2. The Lower Tester retrieves the value for Conversation version counter by executing GetConversationListing requests.

• Expected Outcome
  Pass verdict
  - The values of the Conversation Version Counter are updated according to [3] after the participant has been added on the IUT.

4.4.2.14 MAP/MSE/MB/BV-25-I [Update Conversation-Listing Version Counter]

• Test Purpose
  Verify that the MSE correctly updates the Conversation-Listing version counter when creating a conversation.

• Reference
  [3] 3.1.15, 5.13, 3.1.9

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - Lower Tester: The Lower Tester has retrieved the current value of the Conversation-Listing Version Counter by having executed a GetConversationListing request.

• Test Procedure
  1. On the IUT, create a new conversation.
  2. The Lower Tester retrieves the values of the Conversation-Listing version counter by executing GetConversationListing requests.
• Expected Outcome
  Pass verdict
  - The value of the Conversation-Listing Version Counter is updated according to [3] after the conversation has been created on the IUT.

4.4.2.15 MAP/MSE/MBM/BV-34-I [MSE returns a list of conversations]
  • Test Purpose
    Verify that the MSE correctly responds to a request for a Conversation-Listing.

  • Reference
    [3] 5.13, 3.1.9

  • Initial Condition
    - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
    - IUT: The IUT is configured to contain a Conversation-Listing object.

  • Test Procedure
    The Lower Tester requests a Conversation-Listing from the IUT.

  • Expected Outcome
    Pass verdict
    - The response to the Conversation-Listing request is correctly formatted according to [3].

4.4.2.16 MAP/MSE/MBM/BV-35-I [MSE returns a list of conversations filtered by a specific conversation]
  • Test Purpose
    Verify that the MSE correctly responds to a request for a Messages-Listing of all messages of a specific conversation.

  • Reference
    [3] 5.5, 3.1.6

  • Initial Condition
    - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
    - IUT: The IUT is configured to contain a Messages-Listing object for a specific conversation.

  • Test Procedure
    The Lower Tester requests a Messages-Listing of a specific conversation from the IUT.
• Expected Outcome
  Pass verdict
    - The response to the Messages-Listing request is correctly formatted according to [3].
    - The response contains the specific messages of the requested conversation.

4.4.2.17 MAP/MSE/MMB/BV-36-I [MSE returns a list of messages in format v1.1]
• Test Purpose
  Verify that the MSE correctly responds to a request for a Messages-Listing in format 1.1.

• Reference
  [3] Section 5.5, 3.1.6

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - IUT: The IUT is configured to contain a Messages-Listing object.
  - Lower Tester: The Lower Tester has set its MapSupportedFeatures Bit 9 for Messages-Listing Format Version v1.1.

• Test Procedure
  The Lower Tester requests a Messages-Listing from the IUT.

• Expected Outcome
  Pass verdict

4.4.2.18 MAP/MSE/MMB/BV-37-I [MSE returns DatabaseIdentifier and FolderVersionCounter]
• Test Purpose
  Verify that the MSE correctly responds to a request for a Messages-Listing with MaxListCount=0 including DatabaseIdentifier and FolderVersionCounter.

• Reference
  [3] 5.5, 3.1.14, 3.1.15

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.

• Test Procedure
  The Lower Tester sends a GetMessageListing request with MaxListCount set to zero.
• Expected Outcome
  Pass verdict
  - The MSE returns DatabaseIdentifier and FolderVersionCounter in the GetMessageListing response according to [3].

### 4.4.2.19 MAP/MSE/MBB/BV-38-I [MSE returns ConversationListingVersionCounter, ConversationListingSize and DatabaseIdentifier]

• Test Purpose
  Verify that the MSE correctly responds to a request for a Conversation-Listing with MaxListCount=0 including ConversationListingVersionCounter, ConversationListingSize and DatabaseIdentifier.

• Reference
  [3] 5.13, 3.1.14, 3.1.15

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.

• Test Procedure
  The Lower Tester sends a GetConversationListing request with MaxListCount set to zero.

• Expected Outcome
  Pass verdict
  - The MSE returns the ConversationListingVersionCounter, ConversationListingSize and DatabaseIdentifier in the GetConversationListing response according to [3].

### 4.4.2.20 MAP/MSE/MBB/BV-39-I [MSE returns a list of conversations filtered by LastActivity]

• Test Purpose
  Verify that the MSE correctly responds to a request for a Conversation-Listing with Filtering for LastActivity.

• Reference
  [3] 5.13

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - The IUT has a conversation with more than one message from within a known activity period.

• Test Procedure
  The Lower Tester sends a GetConversationListing request with FilterLastActivityBegin and FilterLastActivityEnd set to be within the known activity period of the messages in the requested conversation.
• Expected Outcome
  Pass verdict
  - The MSE returns all messages from the requested conversation that fall into the requested activity period in the GetConversationListing response according to [3].
  - The GetConversationListing response is correctly formatted according to [3].

4.4.2.21 MAP/MSE/MBB/BV-40-I [MSE returns a list of conversations filtered by read status]

• Test Purpose
  Verify that the MSE correctly responds to a request for a Conversation-Listing with Filtering by read status.

• Reference
  [3] 5.13

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - The IUT has a conversation with more than one message with a known read status.

• Test Procedure
  The Lower Tester sends a GetConversationListing request with FilterReadStatus set to the known status of the messages in the requested conversation.

• Expected Outcome
  Pass verdict
  - The MSE returns all messages of the request read status from the requested conversation in the GetConversationListing response according to [3].
  - The GetConversationListing response is correctly formatted according to [3].

4.4.2.22 MAP/MSE/MBB/BV-41-I [MSE returns a list of conversations filtered by recipient]

• Test Purpose
  Verify that the MSE correctly responds to a request for a Conversation-Listing with Filtering by recipient.

• Reference
  [3] 5.13

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - The IUT has a conversation with more than one message with a known recipient.
• Test Procedure
  The Lower Tester sends a GetConversationListing request with FilterRecipient set to the known recipient of the messages in the requested conversation.

• Expected Outcome
  Pass verdict
  - The MSE returns all messages of the request recipient from the requested conversation in the GetConversationListing response according to [3].
  - The GetConversationListing response is correctly formatted according to [3].

4.4.2.23 MAP/MSE/MMB/BV-42-I [MSE returns a list of conversations filtered by message handle]

• Test Purpose
  Verify that the MSE correctly responds to a request for a Messages-Listing with Filtering by message handle.

• Reference
  [3] 5.5

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - The IUT has a conversation with more than one message with a known message handle.

• Test Procedure
  The Lower Tester sends a GetMessagesListing request with FilterMessageHandle set to a valid message handle value.

• Expected Outcome
  Pass verdict
  - The MSE returns the Messages-Listing object of the requested message in the GetMessagesListing response according to [3].
  - The GetMessagesListing response is correctly formatted according to [3].

4.4.2.24 MAP/MSE/MMB/BV-43-I [MSE creates a new conversation]

• Test Purpose
  Verify that the MSE updates the Conversation-Listing version counter when a new conversation is being created.

• Reference
  [3] 3.1.15, 4.5
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- **Initial Condition**
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - The Message Notification Service is active between IUT and the Lower Tester
  - Lower Tester: The Lower Tester has set the current folder of the IUT to one non-empty folder which is not the 'Delete' folder. The Lower Tester has retrieved the Conversation-Listing of this folder.
  - IUT: The IUT contains at least one folder which is not the 'Delete' folder and contains a message of type IM.

- **Test Procedure**
  On the IUT, create a new conversation.

- **Expected Outcome**
  - **Pass verdict**
    - The IUT sends a 'SendEvent' request with EventType ConversationChanged.
    - The IUT updates the value of the Conversation-ListingVersionCounter.

4.4.2.25 MAP/MSE/MBM/BV-44-I [MSE participant status change counter behavior]

- **Test Purpose**
  Verify that the MSE does not change the conversation counter and Conversation-Listing counters when the presence, chat-state and LastActivity of a participant are changed.

- **Reference**
  [3] 5.13, 3.1.15

- **Initial Condition**
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - The Message Notification Service is active between IUT and the Lower Tester
  - Lower Tester: The Lower Tester has set the current folder of the IUT to one non-empty folder which is not the 'Delete' folder. The Lower Tester has retrieved the Conversation-Listing of this folder.
  - IUT: The IUT contains at least one folder which is not the 'Delete' folder and contains a message of type IM.

- **Test Procedure**
  1. On the IUT, change the presence, chat-state and LastActivity of a participant.
  2. The Lower Tester sends a ‘GetConversationListing’ request to the IUT.
• Expected Outcome
  Pass verdict
  - The IUT returns a ConversationListing with unchanged conversation and Conversation_ListingVersionCounter.

4.4.2.26  MAP/MSE/MBM/BBV-45-I [MSE responds to owner status change request]

• Test Purpose
  Verify that the MSE correctly responds to a request to change the presence, chat state and last activity datetime of the owner.

• Reference
  [3] 5.11

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.

• Test Procedure
  The Lower Tester sends a ‘SetOwnerStatus’ request to the IUT with new values for presence, chat state and last activity.

• Expected Outcome
  Pass verdict
  - The ‘SetOwnerStatus’ response is well formatted according to [3].

4.4.2.27  MAP/MSE/MBM/BBV-46-I [MSE returns owner status]

• Test Purpose
  Verify that the MSE correctly responds to a request to get the presence, chat state and last activity datetime of the owner.

• Reference

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.

• Test Procedure
  The Lower Tester sends a ‘GetOwnerStatus’ request to the IUT with a valid value for the ConversationID.
• Expected Outcome
  Pass verdict
  - The 'GetOwnerStatus' response is well formatted according to [3].

**4.4.2.28 MAP/MSE/MBB/BV-47-I [MSE responds to message extended data change request]**

• Test Purpose
  Verify that the MSE correctly responds to a request to change the extended data of a message.

• Reference
  [3] 3.1.13, 5.7

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.

• Test Procedure
  The Lower Tester sends a ‘SetMessageStatus’ request to the IUT with new values for the extended data.

• Expected Outcome
  Pass verdict
  - The ‘SetMessageStatus' response is well formatted according to [3].

## 4.5 Delete Feature

The purpose of the tests described in this section is to check that the components that are specific to the Delete feature are properly implemented.

### 4.5.1 IUT – Message Client Equipment (MCE)

The purpose of the tests described in this section is to check that the components that are specific to the Delete feature are properly implemented by the MCE.

#### 4.5.1.1 MAP/MCE/MMD/BV-01-I [MCE deletes a message on the MSE]

• Test Purpose
  Verify that the MCE can delete a message on the MSE.

• Reference
  [3] 5.7

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - IUT: The IUT has set the current folder of the Lower Tester to one non-empty folder which is not the 'Delete' folder. The IUT has retrieved the messages-listing of this folder.
- Lower Tester: The Lower Tester contains at least one folder that is non empty and which is not the 'Delete' folder.

**Test Procedure**

1. The IUT requests the Lower Tester to change the status of one message that was contained in the messages-listing object to "Delete".
2. The IUT repeats the test for each message type supported by the IUT.

**Expected Outcome**

*Pass verdict (to be verified for each supported message type)*

- The request of the 'SetMessageStatus' function is well formatted according to [3] AND
- The status of the messages has been set to 'delete' and has been shifted to the 'Delete' folder.

### 4.5.1.2 MAP/MCE/MMD/BV-03-I [MCE requests removal of a message]

**Test Purpose**

Verify that the MCE sends a correctly formatted request to permanently remove a message on the MSE.

**Reference**

[3] 4.4

**Initial Condition**

- The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
- IUT: The IUT has set the current folder of the Lower Tester to one non-empty folder which is not the 'Delete' folder. The IUT has retrieved the Conversation-Listing of this folder.
- Lower Tester: The Lower Tester contains at least one folder that is non empty and which is not the 'Delete' folder and contains a message of type IM.

**Test Procedure**

The IUT requests the Lower Tester to change the status of one message of type IM that was contained in the Conversation-listing object to "Delete".

**Expected Outcome**

*Pass verdict*

- The request of the 'SetMessageStatus' function is well formatted according to [3] AND
- The status of the message has been set to 'delete' and has been shifted to the 'Delete' folder.
4.5.2 IUT – Message Server Equipment (MSE)

The purpose of the tests described in this section is to check that the components that are specific to the Delete feature are properly implemented by the MSE.

4.5.2.1 MAP/MSE/MMD/BV-02-I [MSE deletes a message]

- **Test Purpose**
  Verify that the MSE can delete a message on request of the MCE.

- **Reference**
  [3] 5.7

- **Initial Condition**
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - IUT: The current folder of the IUT has been set to one non-empty folder which is not the 'Delete' folder. The Lower Tester has retrieved the messages-listing of this folder.
  - Lower Tester: The Lower Tester has received a folders listing that is non empty and which is not of the ‘Delete’ folder.

- **Test Procedure**
  The Lower Tester requests the IUT to change the status of one message that was contained in the messages-listing object to “Delete”. The Lower Tester repeats the test for each message type supported by the IUT.

- **Expected Outcome**
  Pass verdict (to be verified for each supported message type)
  - The response of the ‘SetMessageStatus’ function is well formatted according to [3] AND
  - The status of the messages has been set to ‘delete’ and has been shifted to the ‘Delete’ folder.

4.5.2.2 MAP/MSE/MMD/BV-05-I [MSE removes a message]

- **Test Purpose**
  Verify that the MSE correctly responds to a request to permanently remove a message.

- **Reference**
  [3] 4.4

- **Initial Condition**
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service and Message Notification Service are active.
  - Lower Tester: The Lower Tester has set the current folder of the IUT to one non-empty folder which is not the 'Delete' folder. The Lower Tester has retrieved the Conversation-Listing of this folder.
  - IUT: The IUT contains at least one folder that is non empty and which is not the ‘Delete’ folder and contains a message of type IM.
• **Test Procedure**
  
  The Lower Tester requests the IUT to change the status of one message of type IM that was contained in the Conversation-Listing object to "deleted".

• **Expected Outcome**
  
  **Pass verdict**
  
  - The IUT sends a 'SetMessageStatus' response that is well formatted according to [3] AND
  - The IUT sends a 'SendEvent' request with EventType 'MessageRemoved' or 'MessageDeleted' depending on the implementation of the IUT.

4.6 Uploading Feature

The purpose of the tests described in this section is to check that the components that are specific to the Uploading feature are properly implemented.

4.6.1 IUT – Message Client Equipment (MCE)

The purpose of the tests described in this section is to check that the components that are specific to the Uploading feature are properly implemented by the MCE.

4.6.1.1 MAP/MCE/MMU/BV-01-I [MCE uploads a message to the MSE]

• **Test Purpose**
  
  Verify that the MCE can upload a message to the MSE.

• **Reference**
  
  [3] 5.8

• **Initial Condition**
  
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - IUT: The IUT contains at least one message.

• **Test Procedure**
  
  The IUT sends a 'PushMessage' request to one of the MAP virtual folders supported by the Lower Tester. The IUT repeats the test for each message type supported by the IUT.

• **Expected Outcome**
  
  **Pass verdict (to be verified for each supported message type)**
  
  - The request of the 'PushMessage' function is well formatted according to [3] AND
  - The message is received by the Lower Tester and stored correctly in the addressed folder.
4.6.1.2 MAP/MCE/MMU/BV-04-I [MCE uploads a conversation message to the MSE]

- **Test Purpose**
  Verify that the MCE sends a correctly formatted request to add a message to a conversation.

- **Reference**
  [3] 5.8

- **Initial Condition**
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - IUT: The IUT contains at least one message of type IM.

- **Test Procedure**
  The IUT sends a 'PushMessage' request with a valid ConversationID Application Parameter.

- **Expected Outcome**
  Pass verdict
  - The request of the 'PushMessage' function is well formatted according to [3] AND
  - The message is received by the Lower Tester and stored correctly in the addressed conversation.

4.6.1.3 MAP/MCE/MMU/BV-05-I [MCE requests to change the owner status]

- **Test Purpose**
  Verify that the MCE sends a correctly formatted request to change the presence, chat state and last activity datetime of the owner.

- **Reference**
  [3] 5.11

- **Initial Condition**
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.

- **Test Procedure**
  The IUT sends a 'SetOwnerStatus' request to the Lower Tester with new values for presence, chat state and last activity.

- **Expected Outcome**
  Pass verdict
  - The request of the 'SetOwnerStatus' function is well formatted according to [3].
4.6.1.4 MAP/MCE/MMU/BV-06-I [MCE requests the owner status]

• Test Purpose
  Verify that the MCE sends a correctly formatted request to get the presence, chat state and last activity datetime of the owner.

• Reference

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.

• Test Procedure
  The IUT sends a 'GetOwnerStatus' request to the Lower Tester with a valid value for the ConversationID.

• Expected Outcome
  Pass verdict
  - The request of the 'GetOwnerStatus' function is well formatted according to [3].

4.6.2 IUT – Message Server Equipment (MSE)
The purpose of the tests described in this section is to check that the components that are specific to the Uploading feature are properly implemented by the MSE.

4.6.2.1 MAP/MSE/MMU/BV-02-I [MSE receives a message from the MCE for storage]

• Test Purpose
  Verify that the MSE can receive a message uploaded by the MCE.

• Reference
  [3] 5.8

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - IUT: The IUT shall have at least one folder different from the outbox folder.
  - Lower Tester: The Lower Tester contains at least one message. At least one of the messages on the Lower Tester contains a valid ConversationID parameter.

• Test Procedure
  The Lower Tester sends a 'PushMessage' request to the IUT. The Lower Tester repeats the test for each message type supported by the IUT.
• Expected Outcome
  Pass verdict (to be verified for each supported message type)
  - The response of the ‘PushMessage’ function is well formatted according to [3] AND
  - The message is received by the IUT and stored correctly in the addressed folder.

4.6.2.2 MAP/MSE/MMU/BV-03-I [MSE receives a message from the MCE and sends it to the network]

• Test Purpose
  Verify that the MSE can send a message as requested by the MCE.

• Reference
  [3] 5.8

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - Lower Tester: The Lower Tester contains at least one message.

• Test Procedure
  The Lower Tester sends a ‘PushMessage’ request to the IUT. The Lower Tester repeats the test for each message type supported by the IUT.

• Expected Outcome
  Pass verdict (to be verified for each supported message type)
  - The response of the ‘PushMessage’ function is well formatted according to [3] AND
  - The message has been sent by the IUT AND
  - The message has been shifted from the 'Outbox' folder to the 'Sent' folder.

4.7 Notification Feature

The purpose of the tests described in this section is to check that the normal behavior of the components necessary to realize the Notification feature.

4.7.1 IUT – Message Client Equipment (MCE)

The purpose of the tests described in this section is to check that the Message Client Equipment device can properly take advantage of the Notification feature and the Extended MAP-Event-Report Feature.
4.7.1.1 MAP/MCE/MMN/BV-01-I [MCE receives a message notification (MAP-Event-Report Version 1.0)]

• Test Purpose
  Verify that the MCE is properly notified of a new message.

• Reference
  [3] 5.1

• Initial Condition
  - The Lower Tester’s SDP Record does not contain the MapSupportedFeatures SDP attribute.
  - The IUT and the Lower Tester have established a MAP session and the Message Notification Service is active.

• Test Procedure
  1. The Lower Tester sends a message notification to the IUT, in order to advertise the arrival of a new message.
  2. The Lower Tester repeats the test for each message type supported by the IUT.

• Expected Outcome
  Pass verdict (to be verified for each supported message type)
  - The IUT can receive and decode the event-report object AND
  - The response of the ‘SendEvent’ function is well formatted according to [3] AND
  - The message arrival event is signaled to the user.

• Notes
  This test checks for legacy compatibility.

4.7.1.2 MAP/MCE/MMN/BV-03-I [MCE can receive a MAP-Event-Report Version 1.1]

• Test Purpose
  Verify that the MCE can correctly receive and parse a version 1.1 MAP-Event-Report.

• Reference
  [3] 3.1.7.2

• Initial Condition
  - The Lower Tester’s SDP Record does contain the MapSupportedFeatures SDP attribute and the MAP-Event-Report 1.1 bit is set.
  - The IUT and the Lower Tester have established a MAP session and the Message Notification Service is active.

• Test Procedure
  The Lower Tester sends MAP-Event-Reports to the IUT, one per event type.
• Expected Outcome
  Pass verdict (to be verified for each event type)
  - The IUT can receive and decode the version 1.1 event-report objects AND
  - The response of the ‘SendEvent’ function is well formatted according to [3].

4.7.1.3  MAP/MCE/MMN/BV-05-I [MCE requests to filter notifications]
• Test Purpose
  Verify that the MCE sends a correctly formatted request to filter notifications.

• Reference
  [3] 5.14

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service and Message Notification Service are active.

• Test Procedure
  The IUT sends a ‘SetNotificationFilter’ request to the Lower Tester.

• Expected Outcome
  Pass verdict
  - The ‘SetNotificationFilter’ request is well formatted according to [3].

4.7.2  IUT – Message Server Equipment (MSE)

The purpose of the tests described in this section is to check that the Message Server Equipment device can properly implement the Notification feature and the Extended MAP-Event-Report Feature.

4.7.2.1  MAP/MSE/MMN/BV-02-I [MSE sends a message notification (MAP-Event-Report Version 1.0)]]
• Test Purpose
  Verify that the MSE can send a message notification.

• Reference
  [3] 5.1

• Initial Condition
  - The Lower Tester’s SDP Record does not contain the MapSupportedFeatures SDP attribute.
  - The IUT and the Lower Tester have established a MAP session and the Message Notification Service is active.
  - IUT: The attribute ‘MASInstanceID’ of the related SDP record has the value i.
• Test Procedure
  1. The IUT receives a new message.
  2. The IUT repeats the test for each message type supported by the IUT.

• Expected Outcome

Pass verdict (to be verified for each supported message type)

- The IUT sends an event-report object to the Lower Tester AND
- The request of the 'SendEvent' function is well formatted according to [3] and its application parameter MASInstanceID has the value i AND
- The message arrival event is signaled to the user.

4.7.2.2 MAP/MSE/MMN/BV-04-I [MSE sends a MAP-Event-Report Version 1.1]

• Test Purpose
Verify that the MSE can correctly generate and send version 1.1 MAP-Event-Reports. In this case a new Message event.

• Reference
[3] 5.1

• Initial Condition
- The Lower Tester’s SDP Record does contain the MapSupportedFeatures SDP attribute and the MAP-Event-Report 1.1 bit is set.
- The IUT and the Lower Tester have established a MAP session and the Message Notification Service is active.
- IUT: The attribute 'MASInstanceID' of the related SDP record has the value i.

• Test Procedure
  1. The IUT receives a new message.
  2. The IUT repeats the test for each message type supported by the IUT.

• Expected Outcome
Pass verdict (to be verified for each supported message type)

- The IUT sends a version 1.1 event-report object to the Lower Tester AND
- The request of the 'SendEvent' function is well formatted according to [3] and its application parameter MASInstanceID has the value i AND
- The message arrival event is signaled to the user.

4.7.2.3 MAP/MSE/MMN/BV-06-I [MSE responds to notification filter]

• Test Purpose
Verify that the MSE correctly responds to a request to filter notifications.

• Reference
[3] 5.14
• **Initial Condition**
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service and the Message Notification Service is active.

• **Test Procedure**
  The Lower Tester sends a ‘SetNotificationFilter’ request to the IUT.

• **Expected Outcome**
  **Pass verdict**
  - The IUT sends a ‘SetNotificationFilter’ response AND
  - The ‘SetNotificationFilter’ response is well formatted according to [3].

**4.7.2.4 MAP/MSE/MMN/BV-07-I [MSE sends event-report in format v1.2]**
• **Test Purpose**
  Verify that the MSE sends an event-report in format 1.2.

• **Reference**
  [3] 3.1.7.3

• **Initial Condition**
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service and Message Notification Service are active.

• **Test Procedure**
  The IUT sends a ‘SendEvent’ request to the Lower Tester.

• **Expected Outcome**
  **Pass verdict**
  - The IUT sends a ‘SendEvent’ request and is well formatted according to [3] AND
  - The MAP-event-report is in format v1.2.

**4.7.2.5 MAP/MSE/MMN/BV-08-I [MSE sends event-report MessageExtendedDataChanged]**
• **Test Purpose**
  Verify that the MSE sends a “MessageExtendedDataChanged” event-report when the extended data of a message is changed.

• **Reference**
  [3] 3.1.7, 5.1

• **Initial Condition**
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service and Message Notification Service are active.
4.7.2.6  MAP/MSE/MMN/BV-09-I [MSE considers notification filtering]

- **Test Purpose**
  Verify that the read status of a message is changed on the MSE, after the read status notification has been disabled via notification filtering, and ensure there is no event-report for the read status.

- **Reference**
  [3] 3.1.7, 5.14

- **Initial Condition**
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service and Message Notification Service are active.
  - The Lower Tester has successfully disabled the read status notification on the IUT.

- **Test Procedure**
  The read status of a message on the IUT is changed.

- **Expected Outcome**
  Pass verdict
  - The IUT does not send an event-report for the read status.

4.7.2.7  MAP/MSE/MMN/BV-10-I [MSE sends event-report on presence change]

- **Test Purpose**
  Verify that the MSE sends a ‘ParticipantPresenceChanged’ event-report when the presence of a participant is changed.

- **Reference**
  [3] 3.1.7, 5.1

- **Initial Condition**
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service and Message Notification Service are active.

- **Test Procedure**
  The IUT is triggered to change the presence of a participant.
• Expected Outcome
  Pass verdict
  - The IUT sends a 'SendEvent' request and it is well formatted according to [3] AND
  - The 'SendEvent' request contains the 'ParticipantPresenceChanged' event-report.

4.7.2.8 MAP/MSE/MMN/BV-11-I [MSE sends event-report on chat-state change]
• Test Purpose
  Verify that the MSE sends a 'ParticipantChatStateChanged' event-report when the chat-state of a participant is changed.

• Reference
  [3] 3.1.7, 5.1

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service and Message Notification Service are active.

• Test Procedure
  The IUT is triggered to change the chat-state of a participant.

• Expected Outcome
  Pass verdict
  - The IUT sends a 'SendEvent' request and it is well formatted according to [3] AND
  - The 'SendEvent' request contains the 'ParticipantChatStateChanged' event-report.

4.7.2.9 MAP/MSE/MMN/BV-12-I [MSE sends event-report on participant addition]
• Test Purpose
  Verify that the MSE sends a 'ConversationChanged' event-report when a participant is added to a conversation.

• Reference
  [3] 3.1.7, 5.1

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service and Message Notification Service are active.

• Test Procedure
  The IUT is triggered to add a participant to a conversation.
• Expected Outcome
  Pass verdict
  - The IUT sends a 'SendEvent' request and it is well formatted according to [3] AND
  - The 'SendEvent' request contains the 'ConversationChanged' event-report.

4.7.2.10 MAP/MSE/MMN/BV-13-I [MSE sends event-report on participant removal]
• Test Purpose
  Verify that the MSE sends a 'ConversationChanged' event-report when a participant is removed from a conversation.

• Reference
  [3] 3.1.7, 5.1

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service and Message Notification Service are active.

• Test Procedure
  The IUT is triggered to remove a participant from a conversation.

• Expected Outcome
  Pass verdict
  - The IUT sends a 'SendEvent' request and it is well formatted according to [3] AND
  - The 'SendEvent' request contains the 'ConversationChanged' event-report.

4.7.2.11 MAP/MSE/MMN/BV-14-I [MSE sends event-report on message removal]
• Test Purpose
  Verify that the MSE sends a 'MessageRemoved' event-report when a message is removed from a conversation.

• Reference
  [3] 3.1.7, 5.1

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service and Message Notification Service are active.

• Test Procedure
  The IUT is triggered to remove (not delete) a message.
• Expected Outcome

Pass verdict

- The IUT sends a 'SendEvent' request and it is well formatted according to [3] AND
- The 'SendEvent' request contains the 'MessageRemoved' event-report.

4.7.2.12 MAP/MSE/MMN/BV-15-I [MSE sends event-report on presence change of the owner]

• Test Purpose

Verify that the MSE sends a ‘ParticipantPresenceChanged’ event-report when the presence of the owner is changed on the IUT.

• Reference

[3] 3.1.7

• Initial Condition

- The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service and Message Notification Service are active.

• Test Procedure

The IUT is triggered to change the presence of the owner.

• Expected Outcome

Pass verdict

- The IUT sends a ‘SendEvent’ request and it is well formatted according to [3] AND
- The ‘SendEvent’ request contains the 'ParticipantPresenceChanged' event-report.

4.7.2.13 MAP/MSE/MMN/BV-16-I [MSE sends event-report on chat-state change of the owner]

• Test Purpose

Verify that the MSE sends a ‘ParticipantChatStateChanged’ event-report when the chat state of the owner is changed on the IUT.

• Reference

[3] 3.1.7, 5.1

• Initial Condition

- The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service and Message Notification Service are active.

• Test Procedure

The IUT is triggered to change the chat state of the owner.
• Expected Outcome
  Pass verdict
  - The IUT sends a ‘SendEvent’ request and it is well formatted according to [3] AND
  - The ‘SendEvent’ request contains the 'ParticipantChatStateChanged' event-report.

4.8  Instance Information Feature
The purpose of the tests described in this section is to check that the normal behavior of the components necessary to realize the MAS Instance Information Feature.

4.8.1  IUT – Message Client Equipment (MCE)
The purpose of the tests described in this section is to check that the Message Client Equipment device can properly take advantage of the Instance Information Feature.

4.8.1.1  MAP/MCE/MMI/BV-01-I [MCE reads the MAS-instance information from the MSE]
• Test Purpose
  Verify that the MCE can retrieve user-readable information about the MAS-instance from the MSE.

• Reference
  [3] 5.10

• Initial Condition
  - The IUT and the Lower Tester have established a MAP MAS connection.

• Test Procedure
  1. The IUT sends a ‘GetMASInstanceInformation’ request to the Lower Tester.
  2. The Lower Tester delivers the requested MAS-instance information in the Body/End of Body header of its response.

• Expected Outcome
  Pass verdict
  - The request of the ‘GetMASInstanceInformation’ function is well formatted according to [3] AND
  - The MAS-instance information string can be properly retrieved by the IUT.

• Notes
  The information in the Body/End of Body header is a UTF8 string.

4.8.2  IUT – Message Server Equipment (MSE)
The purpose of the tests described in this section is to check that the Message Server Equipment device can properly implement the Instance Information feature.
4.8.2.1 MAP/MSE/MMI/BV-02-I [MSE returns the MAS-instance information to the MCE]

- **Test Purpose**
  Verify that the MSE can return user-readable information about the MAS-instance to the MCE.

- **Reference**
  [3] 5.10

- **Initial Condition**
  - The IUT and the Lower Tester have established a MAP MAS connection.

- **Test Procedure**
  1. The IUT receives a ‘GetMASInstanceInformation’ request from the Lower Tester.
  2. The IUT delivers the requested MAS-instance information in the Body/End of Body header of its response.

- **Expected Outcome**
  **Pass verdict**
  - The response of the ‘GetMASInstanceInformation’ function is well formatted according to [3] AND
  - The MAS-instance information string retrieved by the Lower Tester corresponds to the IUT’s instance.

- **Notes**
  The information in the Body/End of Body header is a UTF8 string.

4.9 SDP MapSupportedFeatures Bits

The purpose of the tests described in this section is to check that the MapSupportedFeatures advertised in the SDP record match the supported features listed in the Implementation Conformance Statement [4].

4.9.1 IUT – Message Client Equipment (MCE)

The purpose of the tests described in this section is to check that the Message Client Equipment device can properly take advantage of the SDP MapSupportedFeatures Bits.

4.9.1.1 MAP/MCE/MFB/BV-01-I [MCE MNS MapSupportedFeatures bits]

- **Test Purpose**
  Verify that the MCE correctly advertises the correct feature bits in the MNS SDP record.

- **Reference**
  [3] 7.1

- **Initial Condition**
  - The IUT is in discoverable and connectable mode.

- **Test Procedure**
  The Lower Tester retrieves the MapSupportedFeatures attribute from the MNS SDP record.
• Expected Outcome
  Pass verdict
  - The feature bits correspond to the Implementation Conformance Statement (ICS) [4].

4.9.1.2 MAP/MCE/MFB/BV-03-I [MCE MNS MapSupportedFeatures bits after MAS connection establishment]

• Test Purpose
  Verify that the MCE correctly advertises the correct feature bits in the MNS SDP record during MAS connection.

• Reference
  [3] 7.1

• Initial Condition
  - The IUT and the Lower Tester have established a MAP MAS connection.
  - There is no MAP MNS connection that exists between the IUT and the Lower Tester.

• Test Procedure
  The Lower Tester retrieves the MapSupportedFeatures attribute from the MNS SDP record.

• Expected Outcome
  Pass verdict
  - The feature bits correspond to the Implementation Conformance Statement (ICS) [4].

4.9.1.3 MAP/MCE/MFB/BV-04-I [MCE MNS MapSupportedFeatures bits after MNS connection establishment]

• Test Purpose
  Verify that the MCE correctly advertises the correct feature bits in the MNS SDP record during MNS connection.

• Reference
  [3] 7.1

• Initial Condition
  - The IUT and the Lower Tester have established a MAP MNS connection.

• Test Procedure
  The Lower Tester retrieves the MapSupportedFeatures attribute from the MNS SDP record.

• Expected Outcome
  Pass verdict
  - The feature bits correspond to the Implementation Conformance Statement (ICS) [4].
4.9.1.4 MAP/MCE/MFB/BV-06-I [MCE sends an OBEX connect request with its MAPSupportedFeatures bitmask]

- **Test Purpose**
  Verify that the MCE sends its MapSupportedFeatures in the OBEX Connect request if the MSE declares support for the feature “MapSupportedFeatures in Connect Request” in its SDP record.

- **Reference**
  [3] 6.4.1

- **Initial Condition**
  - The Lower Tester declares support for the feature “MapSupportedFeatures in Connect Request” in its SDP record
  - The IUT and the Lower Tester have been paired
  - The Lower Tester is in discoverable and connectable mode.

- **Test Procedure**
  The IUT establishes a MAP session with the Lower Tester by sending an OBEX Connect request to the Lower Tester according to the connection parameter defined by the Lower Tester’s MAS SDP record.

- **Expected Outcome**
  Pass verdict
  - The OBEX Connect request from the IUT contains the MapSupportedFeatures Application Parameter according to its supported features AND
  - The OBEX Connect response messages related to the MAS have been exchanged properly so the MAS service is established.

4.9.2 IUT – Message Server Equipment (MSE)

The purpose of the tests described in this section is to check that the Message Server Equipment device can properly implement the SDP MapSupportedFeatures Bits.

4.9.2.1 MAP/MSE/MFB/BV-02-I [MSE MAS MapSupportedFeatures bits]

- **Test Purpose**
  Verify that the MSE correctly advertises the correct MapSupportedFeatures bits in the MAS SDP record.

- **Reference**
  [3] 7.1

- **Initial Condition**
  - The IUT is in discoverable and connectable.

- **Test Procedure**
  The Lower Tester retrieves the MapSupportedFeatures attribute from the MAS SDP record.
• Expected Outcome
  Pass verdict
  - The feature bits correspond to the Implementation Conformance Statement (ICS) [4].

**4.9.2.2 MAP/MSE/MFB/BV-05-I [MSE MAS Support Feature bits during MAS connection]**

• Test Purpose
  Verify that the MSE correctly advertises the correct MapSupportedFeatures bits in the MAS SDP record during MAS connection.

• Reference
  [3] 7.1

• Initial Condition
  - The IUT and the Lower Tester have established a MAP MAS connection.

• Test Procedure
  The Lower Tester retrieves the MapSupportedFeatures attribute from the MAS SDP record.

• Expected Outcome
  Pass verdict
  - The feature bits correspond to the Implementation Conformance Statement (ICS) [4].

**4.9.2.3 MAP/MSE/MFB/BV-07-I [MSE responds to an OBEX connect request with its MapSupportedFeatures bitmask]**

• Test Purpose
  Verify that the MSE responds to an OBEX connect request if the MSE declares support for the feature "MapSupportedFeatures in Connect Request" in its SDP record.

• Reference
  [3] 6.4.1

• Initial Condition
  - The IUT declares support for the feature "MapSupportedFeatures in Connect Request" in its SDP record.
  - The IUT and the Lower Tester have been paired.
  - The IUT is in discoverable and connectable mode.

• Test Procedure
  The Lower Tester establishes a MAP session with the IUT by sending an OBEX Connect request to the IUT according to the connection parameters defined by the IUT’s MAS SDP record.
4.10 Message Forwarding Message Handling

The purpose of the tests described in this section is to verify that the components that are specific to the Message Forwarding feature are properly implemented by the MCE and the MSE.

4.10.1 IUT – Message Client Equipment (MCE)

4.10.1.1 MAP/MCE/MFMH/BV-01-I [PushMessage request including ‘MessageHandle’]

- **Test Purpose**
  Verify that the MCE sends a correctly formatted PushMessage request including MessageHandle Application Parameter.

- **Reference**
  [3] 4.7, 5.8.4.5

- **Initial Condition**
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - The Lower Tester contains at least one folder that includes at least one bmessage (type=EMAIL) with textual content and attachment.
  - The IUT has set the current folder of the Lower Tester to a folder that includes at least one bmessage (type=EMAIL) with textual content and attachment.

- **Test Procedure**
  - The Upper Tester invokes the IUT to send PushMessage request with the Application Parameter MessageHandle set to a valid message handle.

- **Expected Outcome**
  Pass verdict
  - The request of the 'PushMessage' function is correctly formatted according to [3].

4.10.1.2 MAP/MCE/MFMH/BV-02-I [PushMessage request ‘Attachment’ ‘ON’]

- **Test Purpose**
  Verify that the MCE sends a correctly formatted PushMessage request including Application Parameter ‘Attachment’=ON.

- **Reference**
  [3] 5.8.4.6
• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - The IUT has set the current folder of the Lower Tester to a folder that includes at least one bmessage (type=EMAIL) with textual content and attachment.

• Test Procedure
  - The Upper Tester invokes the IUT to send a PushMessage request with Application Parameter 'Attachment'=ON.

• Expected Outcome
  Pass verdict
  - The request of the 'PushMessage' function is well formatted according to [3].

4.10.1.3 MAP/MCE/MFMH/BV-03-I [PushMessage request ‘Attachment’ ‘OFF’]

• Test Purpose
  Verify that the MCE sends a correctly formatted PushMessage request including Application Parameter 'Attachment'=OFF.

• Reference
  [3] 5.8.4.6

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - The Lower Tester contains at least one folder that includes at least one bmessage (type=EMAIL) with textual content and attachment.
  - The IUT has set the current folder of the Lower Tester to a folder that includes at least one bmessage (type=EMAIL) with textual content and attachment.

• Test Procedure
  - The Upper Tester invokes the IUT to send a PushMessage request with Application Parameter ‘Attachment’=OFF.

• Expected Outcome
  Pass verdict
  - The request of the 'PushMessage' function is well formatted according to [3].
4.10.1.4  MAP/MCE/MFMH/BV-04-I [PushMessage request ModifyText ‘REPLACE’]

Test Purpose
Verify that the MCE sends a correctly formatted PushMessage request including Application Parameter ModifyText=REPLACE.

Reference
[3] 5.8.4.7

Initial Condition
- The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
- The Lower Tester contains at least one folder that includes at least one bmessage (type=EMAIL) with textual content and attachment.
- The IUT has set the current folder of the Lower Tester to a folder that includes at least one bmessage (type=EMAIL) with textual content and attachment.

Test Procedure
- The Upper Tester invokes the IUT to send a PushMessage request with Application Parameter ModifyText=REPLACE.

Expected Outcome
Pass verdict
- The request of the 'PushMessage' function is well formatted according [3].

4.10.1.5  MAP/MCE/MFMH/BV-05-I [PushMessage request ModifyText ‘PREPEND’]

Test Purpose
Verify that the MCE sends a correctly formatted PushMessage request including Application Parameter ModifyText=PREPEND.

Reference
[3] 5.8.4.7

Initial Condition
- The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
- The Lower Tester contains at least one folder that includes at least one bmessage (type=EMAIL) with textual content and attachment.
- The IUT has set the current folder of the Lower Tester to a folder that includes at least one bmessage (type=EMAIL) with textual content and attachment.

Test Procedure
- The Upper Tester invokes the IUT to send a PushMessage request with Application Parameter ModifyText=PREPEND.
• Expected Outcome
  Pass verdict
  - The request of the ‘PushMessage’ function is well formatted according to [3].

4.10.2  IUT – Message Server Equipment (MSE)

4.10.2.1  MAP/MSE/MFMH/BV-01-I [PushMessage response for ‘MessageHandle’]

• Test Purpose
  Verify that the MSE sends a correctly formatted response to a PushMessage request including
  MessageHandle application parameter.

• Reference
  [3] 4.7, 5.8.4.5

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the
    Message Access Service is active.
  - The IUT contains at least one folder that includes at least one bmessage (type=EMAIL) with
    textual content and attachment.
  - The Lower Tester has set the current folder of the IUT to a folder that includes at least one
    bmessage (type=EMAIL) with textual content and attachment.

• Test Procedure
  - The Lower Tester sends a PushMessage request with the Application Parameter MessageHandle
    set to a valid message handle.

• Expected Outcome
  Pass verdict
  - The IUT response to the ‘PushMessage’ request is well formatted according to [3].

4.10.2.2  MAP/MSE/MFMH/BV-02-I [PushMessage response ‘Attachment’ ‘ON’]

• Test Purpose
  Verify that the MSE sends a correctly formatted response to a PushMessage request including
  application parameter ‘Attachment’=ON.

• Reference
  [3] 5.8.4.6

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the
    Message Access Service is active.
  - The IUT contains at least one folder that includes at least one bmessage (type=EMAIL) with
    textual content and attachment.
- Lower Tester: The Lower Tester has set the current folder of the IUT to a folder that includes at least one bmessage (type=EMAIL) with textual content and attachment.

• Test Procedure
  - The Lower Tester sends a PushMessage request with Application Parameter ‘Attachment’=ON.

• Expected Outcome
  Pass verdict
  - The response of the ‘PushMessage’ function is well formatted according to [3].
  - The message is forwarded including the attachments of the original message.

4.10.2.3 MAP/MSE/MFMH/BV-03-I [PushMessage response ‘Attachment’ ‘OFF’]
• Test Purpose
Verify that the MSE sends a correctly formatted response to a PushMessage request including application parameter ‘Attachment’=OFF.

• Reference
  [3] 5.8.4.6

• Initial Condition
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - The IUT contains at least one folder that includes at least one bmessage (type=EMAIL) with textual content and attachment.
  - The Lower Tester has set the current folder of the IUT to a folder that includes at least one bmessage (type=EMAIL) with textual content and attachment.

• Test Procedure
  - The Lower Tester sends a PushMessage request with Application Parameter ‘Attachment’=OFF.

• Expected Outcome
  Pass verdict
  - The request of the ‘PushMessage’ function is well formatted according to [3].
  - The message is forwarded without attachments.

4.10.2.4 MAP/MSE/MFMH/BV-04-I [PushMessage response ModifyText ‘REPLACE’]
• Test Purpose
Verify that the MSE sends a correctly formatted response to a PushMessage request including application parameter ModifyText=REPLACE.

• Reference
  [3] 5.8.4.7
• **Initial Condition**
  - The IUT and the Lower Tester
  - The IUT contains at least one folder that includes at least one bmessage (type=EMAIL) with textual content and attachment.
  - The Lower Tester has set the current folder of the Lower IUT to a folder that includes at least one bmessage (type=EMAIL) with textual content and attachment.

• **Test Procedure**
  - The Lower Tester sends a PushMessage request with Application Parameter ModifyText=REPLACE.

• **Expected Outcome**
  **Pass verdict**
  - The response of the 'PushMessage' function is well formatted according to [3]. The message is forwarded with the textual content of the replaced text.

### 4.10.2.5 MAP/MSE/MFMH/BV-05-I [PushMessage response ModifyText ‘PREPEND’]

• **Test Purpose**
  Verify that the MSE sends a correctly formatted response to a PushMessage request including application parameter ModifyText=PREPEND.

• **Reference**
  [3] 5.8.4.7

• **Initial Condition**
  - The IUT and the Lower Tester have established a MAP session. In that MAP session, the Message Access Service is active.
  - The IUT contains at least one folder that includes at least one bmessage (type=EMAIL) with textual content and attachment.
  - The Lower Tester has set the current folder of the IUT to a folder that includes at least one bmessage (type=EMAIL) with textual content and attachment.

• **Test Procedure**
  - The Lower Tester sends a PushMessage request with Application Parameter ModifyText=PREPEND.

• **Expected Outcome**
  **Pass verdict**
  - The response of the 'PushMessage' function is well formatted according to [3].
  - The message is forwarded with the new textual content containing the prepended text and the original message.
# 5 Test Case Mapping

The Test Case Mapping Table (TCMT) maps test cases to specific capabilities in the ICS. Profiles, protocols and services may define multiple roles, and it is possible that a product may implement more than one role. The product shall be tested in all roles for which support is declared in the ICS document.

The columns for the TCMT are defined as follows:

**Item:** contains an y/x reference, where y corresponds to the table number and x corresponds to the feature number as defined in the ICS Proforma for the Message Access Profile (MAP) [4]. If the item is defined with Protocol, Profile or Service abbreviation before y/x, the table and feature number referenced are defined in the abbreviated ICS proforma document.

**Feature:** recommended to be the primary feature defined in the ICS being tested or may be the test case name.

**Test Case(s):** the applicable test case identifiers required for Bluetooth Qualification if the corresponding y/x references defined in the Item column are supported.

<table>
<thead>
<tr>
<th>Item</th>
<th>Feature</th>
<th>Test Case(s)</th>
</tr>
</thead>
</table>
| MAP 2/2 OR MAP 2/3 OR MAP 2/4 OR MAP 2/5 | Session Management MAS (MCE) | MAP/MCE/MSM/BV-01-I  
MAP/MCE/MSM/BV-04-I |
| MAP 2/1 OR MAP 2/5 | Session Management MAS and MNS (MCE) | MAP/MCE/MSM/BV-02-I  
MAP/MCE/MSM/BV-03-I |
| MAP 3/2 OR MAP 3/3 OR MAP 3/4 OR MAP 3/5 | Session Management MAS (MSE) | MAP/MSE/MSM/BV-05-I  
MAP/MSE/MSM/BV-08-I |
| MAP 3/1 OR MAP 3/5 | Session Management MAS and MNS (MSE) | MAP/MSE/MSM/BV-06-I  
MAP/MSE/MSM/BV-07-I |
| (MAP 3/2 OR MAP 3/3 OR MAP 3/4 OR MAP 3/5) AND MAP 3/2g | Session Management Multiple MAS (MSE) | MAP/MSE/MSM/BV-09-I |
| (MAP 3/1 OR MAP 3/5) AND MAP 3/2g | Session Management Multiple MAS and MNS (MSE) | MAP/MSE/MSM/BV-10-I  
MAP/MSE/MSM/BV-11-I  
MAP/MSE/MSM/BV-12-I |
| (MAP 2/1 OR MAP 2/5) AND MAP 2/2h | Session Management Multiple MAS and MNS (MCE) | MAP/MCE/MSM/BV-13-I  
MAP/MCE/MSM/BV-14-I |
| MAP 2/5a | Message Notification Registration (MCE) | MAP/MCE/MNR/BV-01-I  
MAP/MCE/MNR/BV-02-I |
| MAP 3/5a | Message Notification Registration (MSE) | MAP/MSE/MNR/BV-03-I  
MAP/MSE/MNR/BV-04-I |
<table>
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<tr>
<th>Item</th>
<th>Feature</th>
<th>Test Case(s)</th>
</tr>
</thead>
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<td>MAP 2/2 OR MAP 2/3</td>
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<td>MAP 2/2f</td>
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<td>MAP 3/7a</td>
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<td>Supported Feature Bits (MCE)</td>
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<tr>
<td>MAP 1/1 AND NOT (MAP 0/1 OR MAP 0/2)</td>
<td>Supported Feature Bits (MSE)</td>
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<td>PushMessage response 'Attachment'</td>
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<td>MAP 7b/1 AND MAP 2/3c</td>
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<td>IUT receives a GET request with SRM enabled and a SRMP wait header</td>
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<td>IUT does not include an invalid SRMP header in the PUT response</td>
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<td>MAP 10/11 AND (MAP 2/2b OR MAP 2/2c OR MAP 2/2d OR MAP 2/3b)</td>
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<td>IUT and Lower Tester include a SRMP header during the GET operation</td>
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<td>MAP 7b/1 AND (MAP 2/2b OR MAP 2/2c OR MAP 2/2d OR MAP 2/3b)</td>
<td>IUT ignores an invalid SRMP header from Server during a GET operation (SRM enabled)</td>
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<td>IUT ignores an invalid SRMP header from the Client during a GET operation (SRM enabled)</td>
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<td>MAP 7b/1 AND MAP 1/1</td>
<td>IUT (Action commands not supported) is able to reject an incoming ACTION command</td>
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<td>MAP 7b/1 AND MAP 2/1</td>
<td>IUT (Action commands not supported) is able to reject an incoming ACTION command</td>
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<td>MAP 7b/1 AND MAP 1/1</td>
<td>IUT (Reliable Sessions not supported) is able to reject the request to create a Reliable Session</td>
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<td>MAP 7b/1 AND MAP 2/1</td>
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<td>MAP/MCE/GOE/ROB/BV-02-C</td>
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*Table 5.1: Test Case Mapping*
## 6 Revision History and Contributors

### Revision History

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<td>2008-02-20</td>
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<td>2008-03-04</td>
<td>Editorials and mapping table</td>
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<td>additional test case for filtering of Messages Listing, requirement for well-formed requests/responses</td>
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<td>TSE 4416: Removed TP/MMB/BV-05-I and TCMT entry, MAP/MCE/MMB/BV-06-I (legacy test case ID TP/MMB/BV-06-I) changed to include both UTF-8 and native formats in one test case. TSE 5066: Added two test cases to Section 4.2.1 IUT – Message Client Equipment (MCE), MAP/MCE/MSM/BV-13-I and MAP/MCE/MSM/BV-14-I (legacy test case IDs TP/MSM/BV-13-I and TP/MSM/BV-14-I) and TCMT. Added two test cases to Section 4.2.2 IUT – Message Server Equipment (MSE), MAP/MSE/MSM/BV-11-I and MAP/MSE/MSM/BV-12-I (legacy test case IDs TP/MSM/BV-11-I and TP/MSM/BV-12-I) and TCMT. Also added MAP/MSE/MSM/BV-09-I and MAP/MSE/MSM/BV-10-I (legacy test case IDs TP/MSM/BV-09-I and TP/MSM/BV-10-I) to the TCMT. BTI Review Comments</td>
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<td>1.2.1.0r00</td>
<td>2015-05-20</td>
<td>TSE 6031: Corrected TCMT mapping for MAP/MCE/GOEP/SRMP/BV-06-C (legacy test case ID TP/SRMP/BV-06-C).</td>
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<td>ESR08 Update: Added MAP 1.2.1 support to TCMT by adding item 0/4 to the mapping for MAP/MCE/MFB/BV-01-I, MAP/MCE/MFB/BV-03-I, MAP/MCE/MFB/BV-04-I, MAP/MSE/MFB/BV-02-I, and MAP/MSE/MFB/BV-05-I (legacy test case IDs TP/MFB/BV-01-I, TP/MFB/BV-03-I, TP/MFB/BV-04-I, TP/MFB/BV-02-I, and TP/MFB/BV-05-I).</td>
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<td>1.2.1.0</td>
<td>2015-07-14</td>
<td>Prepared for TCRL 2015-1 publication</td>
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<td>1.2.1.1r00</td>
<td>2015-10-06</td>
<td>TSE 6406 and TSE 6701: corrected mapping for MAP/MCE/GOEP/SRMP/BV-03-C (legacy test case ID TP/SRMP/BV-03-C) by adding mapping to 15/11.</td>
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<td>1.2.2.0r00</td>
<td>2015-10-28</td>
<td>Updated version numbering to align with Specification version change to 1.2.2 for ESR09.</td>
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<tr>
<td>1.2.2.0</td>
<td>2015-12-22</td>
<td>Prepared for TCRL 2015-2 publication</td>
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<tr>
<td>1.3.0.r00</td>
<td>2015-12-08</td>
<td>Incorporated the Instant Messaging part of Instant Messaging and Message Forwarding TS CR r09</td>
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<tr>
<td>1.3.0.r01</td>
<td>2016-02-01</td>
<td>Addressing BTI comments</td>
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<tr>
<td>1.3.0.r02</td>
<td>2016-04-04</td>
<td>Accepted amendments from BTI</td>
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<td></td>
<td></td>
<td>Updated tables in section 3.1</td>
</tr>
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<td>1.3.0</td>
<td>2016-05-02</td>
<td>Approved by BTI</td>
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<td>1.3.0</td>
<td>2016-05-17</td>
<td>Specification v1.3 adopted by the Bluetooth SIG BoD</td>
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<td>1.3.0</td>
<td>2016-05-24</td>
<td>Prepared for publication</td>
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<tr>
<td>1.3.1r01</td>
<td>2016-10-13</td>
<td>Converted to new Test Case ID conventions as defined in TSTO v4.1.0. TSE 7562: Corrected mapping for MAP/MSE/MMN/BV-15-I.</td>
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<td>Revision History</td>
<td>Date</td>
<td>Comments</td>
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<td>1.3.1r02</td>
<td>2016-11-14</td>
<td>Added clarification to section 3.1 about the test strategy to use a subset of the tests in GOEP to test MAP functionality. Consequential clarifications made in section 4.1 about the naming conventions used to refer to GOEP tests.</td>
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<tr>
<td>1.3.1r03</td>
<td>2016-11-21</td>
<td>Corrected suggested mistakes in TCMT for GOEP tests that map to multiple roles.</td>
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<td>1.3.1</td>
<td>2016-12-13</td>
<td>Approved by BTI. Prepared for TCRL 2016-2 publication.</td>
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| 1.4.0r00         | 2017-02-08 | Incorporated Message Forwarding TS CR r07  
Added test cases for Message Forwarding and their TCMT:  
MAP/MCE/MFMH/BV-01-I  
MAP/MCE/MFMH/BV-02-I  
MAP/MCE/MFMH/BV-03-I  
MAP/MCE/MFMH/BV-04-I  
MAP/MCE/MFMH/BV-05-I  
MAP/MSE/MFMH/BV-01-I  
MAP/MSE/MFMH/BV-02-I  
MAP/MSE/MFMH/BV-03-I  
MAP/MSE/MFMH/BV-04-I  
MAP/MSE/MFMH/BV-05-I |
| 1.4.0r01         | 2017-03-27 | Updated template. Fixed misc. editorials.  
TSE 7972: Update TCMT for MAP/MCE/MMU/BV-06-I.  
TSE 8006: Modify Pass verdict for MAP/MCE/MSM/BV-03-I, MAP/MCE/MSM/BV-14-I, and MAP/MCE/MNR/BV-01-I to separate out MAS and MNS requirements to specify disconnect may be done by the IUT for MNS. |
<p>| 1.4.0r02         | 2017-04-13 | Addressed remaining BTI comments                                                                                                                                                                        |
| 1.4.0r03         | 2017-04-26 | TSE 8862: Update Description in TCMT for MAP/MSE/MBB/BV-25-I. Update TCMT and description for MAP/MCE/MBB/BV-29-I and MAP/MSE/MBB/BV-38-I. Update TCMT for MAP/MSE/MBB/BV-43-I. |
| 1.4.0            | 2017-05-21 | Approved by BTI. Prepared for publication.                                                                                                                                                              |
| 1.4.1r00         | 2018-04-27 | TSE 9910 (rating 3): Revised Initial Condition of the Lower Tester of test case MAP/MSE/MMU/BV-02-I.                                                                                                    |
| 1.4.1            | 2018-07-01 | Approved by BTI. Prepared for TCRL 2018-1 publication.                                                                                                                                                   |
| 1.4.1.0r00       | 2018-11-09 | Updated version number to 1.4.1.0 to align with adoption of the specification 1.4.1                                                                                                                    |</p>
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<th>Revision History</th>
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<td>1.4.1.0</td>
<td>2018-11-21</td>
<td>Approved by BTI. Prepared for TCRL 2018-2 publication.</td>
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<td>1.4.1.1r00–r01</td>
<td>2019-04-15–2019-07-12</td>
<td>TSE 11800 (rating 2): Updated TCMT for test case MAP/MSE/MMB/BV-36-I.</td>
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<td>1.4.2.0r00</td>
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<td>TSE 11638 (rating 3): Updated Initial Condition text for test cases MAP/MCE/MMU/BV-01-I and -04-I and MAP/MSE/MMU/BV-02-I and -03-I.</td>
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<td>TSE 11918: Updated version number to align with new spec version 1.4.2.</td>
</tr>
<tr>
<td>1.4.2.0</td>
<td>2019-07-28</td>
<td>Approved by BTI. Prepared for TCRL 2019-1 publication.</td>
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