Audio/Video Remote Control Profile (AVRCP)

Bluetooth® Test Suite

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1 Scope

This document contains the Test Suite Structure (TSS) and Test Cases (TC) to test the Audio/Video Remote Control Profile (AVRCP).

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.

AVRCP provides support for multiple Media Player applications within the same physical device. Therefore, the features supported by an individual Media Player application might be a subset of the physical device’s features marked in the ICS [3]. Therefore, the AVRCP IXIT document [6] allows announcing an individual Media Player application’s features, see Figure 1.1.

There shall be one IXIT table per Media Player application available on the qualified device at the time of qualification.

<table>
<thead>
<tr>
<th>Media Player A Features</th>
<th>Media Player B Features</th>
<th>Media Player X Features</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

AVRCP Device Features

ICS

Figure 1.1: IXIT Dependencies for Media Player Applications

The IXIT contains a field to specify a player name to allow a player to be selected which the browsing tests shall be run against. Furthermore, the IXIT contains fields for one empty and one non-empty folder on the IUT.
2 References, Definitions, and Abbreviations

2.1 References

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. For the purpose of this Bluetooth document, the definitions and abbreviations in [1], [2], and [4] apply.

[1] Bluetooth Core Specification
[3] Bluetooth Profile ICS Proforma for Audio/Video Remote Control Profile
[9] Bluetooth Basic Imaging Profile Specification, Versions 1.1 or later

2.2 Definitions

<table>
<thead>
<tr>
<th>Definition</th>
<th>Description</th>
</tr>
</thead>
</table>
| Standby mode        | a) for CT: no L2CAP channel for control to TG  
|                     | b) for TG: no L2CAP channel for control to CT.                               |
| Normal condition    | CT and TG are active and they are not in Park, Sniff or Hold mode.          |

Additionally, for the purpose of this Bluetooth document, the definitions given in [1] and [2] apply.
3 Test Suite Structure (TSS)

3.1 Test Strategy

The qualification of products claiming their compliance with the Bluetooth specification involves the execution of test suites. The AVRCP is qualified with a combination of conformance and interoperability tests.

This section defines the tree structure of the conformance and interoperability tests specified for AVRCP. The test suite structure (TSS) is presented in Figure 3.1 and Figure 3.2. The TSS is composed of nested test groups organized in a top down approach. The TSS shows how they will be combined with the existing AVRCP TSS figures.
AVRCP Conformance Test Suite Structure

- Connection Establishment for Browsing
  - Connection establishment for browsing initiated by CT
  - Connection establishment for browsing initiated by TG

- Connection Release for Browsing
  - Connection release for browsing initiated by CT
  - Connection release for browsing initiated by TG

- Configuration Commands
  - Get Capabilities

- Media Information Commands
  - Get Play Status
  - Get Element Attributes

- Player Application Setting
  - List Player Application Setting
  - Get Player Application Setting
  - Set Player Application Setting

- Invalid PDU
  - Invalid PDU ID

- Notification Commands
  - Register for Events
  - Notify Events

- Media Player Selection
  - SetAddressedPlayer()
  - AddressedPlayerChangedNotification
  - AvailablePlayersChangedNotification
  - SetBrowsedPlayer()
  - GetFolderItems()
  - GetTotalNumberOfItems()

- Media Content Navigation
  - ChangePath()
  - GetFolderItems()
  - GetItemAttributes()
  - UIDSChangedNotification
  - GetTotalNumberOfItems()

- Search
  - Search
  - GetFolderItems()
  - GetItemAttributes()
  - PlayItem()
  - GetTotalNumberOfItems()

- NowPlaying
  - PlayItem()
  - AddToNowPlaying()
  - NowPlayingContentChangedNotification
  - GetFolderItems()
  - GetItemAttributes()
  - GetTotalNumberOfItems()

- Cover Art
  - Image Pull
  - UID Change

- Volume Level Handling
  - SetAbsoluteVolume()
  - VolumeChangedNotification

- PASSTHROUGH Handling
  - Press and release
  - Press and hold

Figure 3.1: AVRCP Conformance Test Suite Structure Representation
In AVRCP, there are four AV/C commands to be applied to the AV/C command procedure: UNIT INFO, SUBUNIT INFO, PASS THROUGH, and VENDOR DEPENDENT commands. Note that VENDOR DEPENDENT command is out of scope of this specification.
3.2 Test Groups

3.2.1 First Level Test Group

The first level defines the test groups following the Audio/Video Remote Control Profile procedure: Connection establishment for control, connection release for control and AV/C commands as defined in [2].

For AV/C commands, they are classified into two branches; information collection and PASS THROUGH command transfer.

For Metadata Transfer conformance, the main categories of commands are Configuration, Player Application Setting, Media Information, Notification, and Invalid Commands and Basic Group Navigation.

3.2.2 Second Level Test Group

The second level defines the test groups following the procedure to establish and release connection for control defined in [2]; in both cases initiated from CT or TG.

The second level also defines the test groups following AV/C commands used in [2]: UNIT INFO command and SUBUNIT INFO command.

In addition, in the test procedure for PASS THROUGH command transfer, operation_ids defined in [2] are tested. The operation_ids for vendor unique and function keys are out of scope in this specification, with the exception of the vendor_id specified for the Bluetooth SIG for purposes of Metadata transfer.

3.2.3 Initialization

Before performing any test cases, an initialization procedure between CT and TG shall be performed to ensure that the devices have stored the information with which device they shall interoperate while performing the AVRCP. As this procedure depends on the implementation and capabilities of the devices and is not part of the AVRCP specification, it is not covered by any test cases. For all test cases, it is assumed as a general precondition that this initialization has been performed for this pair of devices.
4 Test Cases (TC)

4.1 Introduction

4.1.1 Test Case Identification Conventions

Test cases shall be assigned unique identifiers per the conventions in [4]. The convention used here is `<spec abbreviation>/<IUT role>/<class>/<feat>/<func>/<subfunc>/<cap>/<xx>-<nn>-<y>.

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.

<table>
<thead>
<tr>
<th>Identifier Abbreviation</th>
<th>Spec Identifier &lt;spec abbreviation&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVRCP</td>
<td>Audio/Video Remote Control Profile</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Identifier Abbreviation</th>
<th>Role Identifier &lt;IUT role&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT</td>
<td>Controller Role</td>
</tr>
<tr>
<td>TG</td>
<td>Target Role</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Identifier Abbreviation</th>
<th>Feature Identifier &lt;feat&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>BGN</td>
<td>Basic Group Navigation</td>
</tr>
<tr>
<td>CA</td>
<td>Cover Art</td>
</tr>
<tr>
<td>CEC</td>
<td>Connection Establishment for Control</td>
</tr>
<tr>
<td>CFG</td>
<td>Configuration Commands of Metadata Transfer</td>
</tr>
<tr>
<td>CON</td>
<td>Connection Establishment and Release for Browsing</td>
</tr>
<tr>
<td>CRC</td>
<td>Connection Release for Control</td>
</tr>
<tr>
<td>ICC</td>
<td>Information Collection for Control</td>
</tr>
<tr>
<td>INV</td>
<td>Invalid Commands</td>
</tr>
<tr>
<td>MCN</td>
<td>Media Content Navigation</td>
</tr>
<tr>
<td>MDI</td>
<td>Media Information Commands of Metadata Transfer</td>
</tr>
<tr>
<td>MPS</td>
<td>Media Player Selection</td>
</tr>
<tr>
<td>NFY</td>
<td>Notification Commands of Metadata Transfer</td>
</tr>
<tr>
<td>PAS</td>
<td>Player Application Setting Commands</td>
</tr>
<tr>
<td>PTH</td>
<td>PASS THROUGH Handling</td>
</tr>
</tbody>
</table>
PTT | PASS THROUGH Transfer
---|---
RCR | Continuation PDU Commands (Request Continuing Response)
VLH | Volume Level Handling
**Identifier Abbreviation** | **Function Identifier <func>**
CB | Content Browsing function
NP | NowPlaying function
SRC | Search function

*Table 4.1: AVRCP 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 Other General Information

Only one point-to-point configuration is considered.

4.1.4 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, the IUT fails the test case as soon one of the pass criteria conditions cannot be met. If this occurs the outcome of the test shall be the Fail Verdict.

4.2 Conformance Tests

This section lists the test cases that ensure that the IUT conforms to the requirements of the Advanced Control. Test cases in this section can be verified by testing the IUT against a standard Bluetooth implementation.

4.2.1 Connection Establishment for Browsing

Test group with the objective to verify the procedure of establishing the AVCTP browsing channel.

4.2.1.1 AVRCP/CT/CON/BV-01-C [Connection establishment for browsing – CT]

- Test Purpose
  To verify the connection establishment for browsing initiated by the CT.

- Reference
  [5],[8] 4.1.1

- Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - No AVCTP connection is established between the IUT and the Lower Tester.
  - The IUT is acting as AVRCP CT role in category 1.
  - The IUT has performed an SDP query with the Lower Tester exposing AVRCP browse support.
• Test Procedure

The Upper Tester triggers the IUT to establish an AVRCP connection.

![Diagram](attachment:image.png)

One ACL connection exists between the IUT and the test system. No AVCTP connection exists.

AVRCP Control Channel establishment

AVCTP Browsing Channel establishment

AVRCP connection initiated (Manufacturer Specific)

• Expected Outcome

Pass verdict

The IUT initiates the establishment of the AVCTP control channel and immediately afterwards the IUT initiates the establishment of the AVCTP browsing channel.

4.2.1.2 AVRCP/TG/CON/BV-02-C [Connection establishment for browsing – TG]

• Test Purpose

To verify the connection establishment for the control channel and the browsing channel, both initiated by the TG.

• Reference

[5] [8] 4.1.1

• Initial Condition

- One ACL connection exists between the IUT and the Lower Tester.
- No AVCTP connection is established between the IUT and the Lower Tester.
- The IUT is acting as AVRCP TG role in category 1.
- The IUT has performed an SDP query with the Lower Tester exposing AVRCP browse support.
• Test Procedure

The Upper Tester triggers the IUT to establish an AVRCP connection.

One ACL connection exists between the IUT and the test system.
No AVCTP connection exists.

AVRCP connection initiated (Manufacturer Specific)

AVCTP Control Channel establishment

AVCTP Browsing Channel establishment

• Expected Outcome

Pass verdict

The IUT initiates the establishment of the AVCTP control channel and immediately afterwards the IUT initiates the establishment of the AVCTP browsing channel.

4.2.1.3 AVRCP/TG/CON/BV-05-C [Connection establishment for browsing – TG initiates control channel and CT initiates browsing channel]

• Test Purpose

To verify the connection establishment for browsing channel initiated by the CT after the TG has initiated the control channel establishment.

• Reference

[5] [8] 4.1.1

• Initial Condition

- One ACL connection exists between the IUT and the Lower Tester.
- No AVCTP connection is established between the IUT and the Lower Tester.
- The IUT is acting as AVRCP TG role in category 1.
- The IUT has performed an SDP query with the Lower Tester exposing AVRCP browse support.
• Test Procedure

1. The Upper Tester triggers the IUT to initiate establishment of an AVCTP control channel.
2. Upon receipt of control channel establishment signaling from the IUT the Lower Tester initiates the establishment of an AVCTP browsing channel with the IUT.

   ![Diagram of AVCTP channel establishment and release]

• Expected Outcome

   Pass verdict

   The IUT initiates the establishment of the AVCTP control channel.

   The IUT successfully responds to the Lower Tester initiation to establish the AVCTP browsing channel.

   In the alternative scenario where the IUT supports browsing channel initiation and immediately initiates the browsing channel establishment following the control channel establishment, the IUT successfully responds to the Lower Tester’s request to initiate the browsing channel release and subsequently allows the Lower Tester to initiate the AVCTP browsing channel establishment.

4.2.2 Connection Release for Browsing

Test group with the objective to verify the procedure of releasing the AVCTP browsing channel.

4.2.2.1 AVRCP/CT/CON/BV-03-C [Connection release for browsing – CT]

• Test Purpose

   To verify the connection release for browsing initiated by the CT.

• Reference

   Section 4.1.2 of [5] [8]
• Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - An AVCTP Control and an AVCTP Browsing channel are established.
  - The IUT is acting as AVRCP CT role in category 1.

• Test Procedure
  The Upper Tester triggers the IUT to release the AVRCP connection.

  Upper Tester
  IUT
  Lower Tester

  One ACL connection exists between the IUT and the test system.
  AVCTP connection exists between the IUT and the test system.

  AVCTP Browsing Channel release
  AVCTP Control Channel release

  AVRCP connection release
  (Manufacturer Specific)

• Expected Outcome
  Pass verdict

  The IUT initiates the release of the AVCTP browsing channel and immediately afterwards the IUT initiates the release of the AVCTP control channel.

4.2.2.2 AVRCP/TG/CON/BV-04-C [Connection release for browsing – TG]
• Test Purpose
  To verify the connection release for browsing initiated by the TG.

• Reference
  Section 4.1.2 of [5] [8]

• Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - An AVCTP Control and an AVCTP Browsing channel are established.
  - The IUT is acting as AVRCP TG role in category 1.
• Test Procedure

The Upper Tester triggers the IUT to release the AVRCP connection.

Expected Outcome

Pass verdict

The IUT initiates the release of the AVCTP browsing channel and immediately afterwards the IUT initiates the release of the AVCTP control channel.

4.2.3 Media Player Selection Commands and Notifications

Objective:

To verify the commands and notifications related to Selection of Media Players.

4.2.3.1 AVRCP/CT/MPS/BV-01-C [SetAddressedPlayer – CT]

• Test Purpose

To verify the SetAddressedPlayer command issued by the CT.

• Reference

Section 6.9.1 of [5] [8]

• Initial Condition

- One ACL connection exists between the IUT and the Lower Tester.
- The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
- The IUT is acting as AVRCP CT role in category 1.
- Available PlayerIds have to be provided to the IUT. This can be achieved by executing AVRCP/CT/MPS/BV-08-C [GetFolderItems – CT].

**Test Procedure**

The Upper Tester triggers the IUT to set the addressed player.

- **Expected Outcome**
  
  **Pass verdict**

  The IUT issues a SetAddressedPlayer command with Parameter Length = 0x2 and a valid PlayerId.

4.2.3.2 **AVRCP/TG/MPS/BV-02-C [SetAddressedPlayer – TG]**

- **Test Purpose**
  
  To verify the SetAddressedPlayer response issued by the TG.

- **Reference**

  Section 6.9.1 of [5] [8]

- **Initial Condition**

  - One ACL connection exists between the IUT and the Lower Tester.
  
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
- The IUT is acting as AVRCP TG role in category 1.
- The Lower Tester has retrieved the valid PlayerIds of the IUT. This can be retrieved by executing AVRCP/TG/MPS/BV-09-C [GetFolderItems – TG].

**Test Procedure**

The Lower Tester sends a SetAddressedPlayer command containing a valid PlayerId to the IUT.

- Expected Outcome
  
  **Pass verdict**
  
  The IUT shall respond with a valid status field indicating that no error occurred.

### 4.2.3.3 AVRCP/CT/MPS/BV-03-C [SetBrowsedPlayer – CT]

**Test Purpose**

To verify the SetBrowsedPlayer command issued by the CT.

**Reference**

Section 6.9.3 of [5][8]

**Initial Condition**

- One ACL connection exists between the IUT and the Lower Tester.
- The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
The IUT is acting as AVRCP CT role in category 1.

The IUT has retrieved the list of available players on the Lower Tester. This can be achieved by executing AVRCP/CT/MPS/BV-08-C [GetFolderItems – CT].

**Test Purpose**

To verify the SetBrowsedPlayer response issued by the TG.

**Reference**

Section 6.9.3 of [5] [8]

**Initial Condition**

- One ACL connection exists between the IUT and the Lower Tester.

- The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
- The IUT is acting as AVRCP TG role in category 1.
- The Lower Tester has retrieved the valid PlayerIds of the IUT. This can be retrieved by executing AVRCP/TG/MPS/BV-09-C [GetFolderItems – TG].

**Test Procedure**

The Lower Tester sends a valid SetBrowsedPlayer command to the IUT.

![Diagram showing the flow of messages between the Lower Tester, IUT, and Upper Tester.]

- **Expected Outcome**
  - **Pass verdict**

  The IUT shall respond with a valid Status field in the SetBrowsedPlayer response. The fields UID Counter, Number of Items, Character Set Id, Folder Depth, Folder Name Size and Folder Name shall be correctly formatted reflecting the current folder.

### 4.2.3.5 AVRCP/TG/MPS/BV-05-C [AddressedPlayerChanged notification – TG]

- **Test Purpose**
  - To verify the AddressedPlayerChanged Notification issued by the TG and the procedure associated to this.

- **Reference**
  - Section 6.9.2 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
- The IUT is acting as AVRCP TG role in category 1.
- At least one player specific notification is registered with the IUT.

**Test Procedure**

1. The Lower Tester sends a RegisterNotificationCommand to the IUT to register for AddressedPlayerChanged.
2. The Upper Tester subsequently triggers a change of addressed player in the IUT by selecting a new Addressed Player.

![Diagram of test procedure]

**Expected Outcome**

**Pass verdict**

The IUT shall issue a correctly AddressedPlayerChanged notification final response with the correct value of PlayerId and UID Counter for the Player selected by the Upper Tester.

The IUT shall complete all player specific notifications with AV/C type rejected.

**4.2.3.6 AVRCP/TG/MPS/BV-06-C [PlayerFeatureBitmask – TG]**

**Test Purpose**

To verify the PlayerFeatureBitmask issued by the TG.

**Reference**

Section 6.10.2.1 of [5] [8]
• Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP TG role in category 1.
  - There is an IXIT feature list for each Media Player application on the TG [6].

• Test Procedure
  The Lower Tester sends a GetFolderItems command to the IUT.

• Expected Outcome
  Pass verdict
  The features announced in each Media Player’s feature bitmask are according to the Media Player’s IXIT entry.

4.2.3.7 AVRCP/TG/MPS/BV-07-C [AvailablePlayersChanged Notification – TG]
• Test Purpose
  To verify the AvailablePlayersChanged Notification issued by the TG.

• Reference
  Section 6.9.4 of [5] [8]
• Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP TG role in category 1.

• Test Procedure
  1. The Lower Tester sends a RegisterNotificationCommand to the IUT to register for AvailablePlayersChanged.
  2. The Upper Tester subsequently triggers a change of available players in the IUT.

  ![Diagram]

• Expected Outcome
  Pass verdict
  The IUT shall issue a correctly formatted AvailablePlayersChanged notification final response.

4.2.3.8 AVRCP/CT/MPS/BV-08-C [GetFolderItems – CT]
• Test Purpose
  To verify the GetFolderItems command issued by the CT on the Media Player List.

• Reference
  Section 6.10.4.2 of [5] [8]
• **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP CT role in category 1.

• **Test Procedure**
  The Upper Tester triggers the IUT to retrieve the MediaPlayerList.

  ```text
  GetFolderItems Command
  (MediaPlayerList, StartItem, EndItem, AttributeCount, AttributeList)
  ```

• **Expected Outcome**
  Pass verdict

  The IUT issues a GetFolderItems command with the scope of MediaPlayerList and valid parameters for StartItem, EndItem, AttributeCount and AttributeList.

4.2.3.9 **AVRCP/TG/MPS/BV-09-C [GetFolderItems – TG]**

• **Test Purpose**
  To verify the GetFolderItems response for the Media Player List issued by the TG.

• **Reference**
  Section 6.10.4.2 of [5] [8]
• **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP TG role in category 1.

• **Test Procedure**
The Lower Tester sends a valid `GetFolderItems` command to the IUT to retrieve the `MediaPlayerList`. The command contains the `MediaPlayerList` as Scope parameter and valid entries for `Start Item`, `End Item`, `AttributeCount` and `AttributeList`.

• **Expected Outcome**
  *Pass verdict*

The IUT shall respond with a correctly formatted list of available Media Player Items with correct entries for each field in each Media Player Item.

4.2.3.10 **AVRCP/TG/MPS/BV-10-C [DefaultAddressedPlayer – TG]**

• **Test Purpose**
  To verify the Default Addressed Player on the TG.

• **Reference**
  Section 6.9 of [5] [8]
• **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP TG role in category 1.
  - No SetAddressedPlayer command has been executed before.

• **Test Procedure**
The Lower Tester send the PASS THROUGH commands for Play pushed and Play released to the IUT.

• **Expected Outcome**
  **Pass verdict**
  The IUT shall respond with valid PASS THROUGH responses indicating success and shall start playing.

### 4.2.3.11 AVRCP/CT/MPS/BV-11-C [GetTotalNumberOfItems – CT]

• **Test Purpose**
  To verify the GetTotalNumberOfItems command issued by the IUT (CT) for the Media Player List scope.

• **Reference**
  Section 6.10.4.4 of [8]
• Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP CT role in category 1.

• Test Procedure
  1. The Upper Tester triggers the IUT to issue a GetTotalNumberOfItems command to the Lower Tester with the scope parameter set to Media Player List.
  2. Upon receipt of a GetTotalNumberOfItems command from the IUT, the Lower Tester issues an appropriate GetTotalNumberOfItems response message.

• Expected Outcome
  Pass verdict
  The IUT shall issue a GetTotalNumberOfItems command to the Lower Tester with the scope parameter set to Media Player List.

4.2.3.12 AVRCP/TG/MPS/BV-12-C [GetTotalNumberOfItems – TG]
• Test Purpose
  To verify the IUT (TG) correctly responds to the GetTotalNumberOfItems command issued from the CT for the Media Player List scope.

• Reference
  Section 6.10.4.4 of [8]
• Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP TG role in category 1.

• Test Procedure
  The Lower Tester issues a GetTotalNumberOfItems command to the IUT with the scope parameter set to Media Player List.

  The IUT shall issue a well-formatted GetTotalNumberOfItems response message to the Lower Tester.

  The GetTotalNumberOfItems response message shall indicate the correct number of available media players.

  The total number of items returned by the IUT shall be the correct number for the current folder as specified in the IXIT [6].

4.2.3.13 AVRCP/TG/MPS/BI-01-C [SetAddressedPlayer – TG]
• Test Purpose
  To verify the SetAddressedPlayer response issued by the TG when an invalid player is requested.

• Reference
  Section 6.9.1 of [5] [8]
• **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP TG role in category 1.
  - The Lower Tester has retrieved the valid PlayerIds of the IUT. This can be retrieved by executing AVRCP/TG/MPS/BV-09-C [GetFolderItems – TG].

• **Test Procedure**

The Lower Tester sends a SetAddressedPlayer command to the IUT with an invalid PlayerID.

![Diagram of test procedure](image)

• **Expected Outcome**

**Pass verdict**

The IUT shall respond with an 'Invalid Player Id' status response.

4.2.3.14 AVRCP/TG/MPS/BI-02-C [SetBrowsedPlayer – TG]

• **Test Purpose**

To verify the SetBrowsedPlayer response issued by the TG when an invalid player is requested.

• **Reference**

Section 6.9.3 of [5] [8]
• Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP TG role in category 1.
  - The Lower Tester has retrieved the valid PlayerIds of the IUT. This can be retrieved by executing AVRCP/TG/MPS/BV-09-C [GetFolderItems – TG].

• Test Procedure
  The Lower Tester sends a SetBrowsedPlayer command to the IUT with an invalid PlayerID.

• Expected Outcome
  Pass verdict
  The IUT shall respond with an ‘Invalid Player Id’ status response.

4.2.4 Media Content Navigation Commands and Notifications for Content Browsing
Objective:
To verify the commands and notifications related to Navigation of Media Content
4.2.4.1  AVRCP/CT/MCN/CB/BV-01-C [GetFolderItems - CT]

- Test Purpose
  To verify the GetFolderItems command issued by the CT.

- Reference
  Section 6.10.4.2 of [5] [8]

- Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP CT role in category 1.
  - The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.

- Test Procedure
  The Upper Tester triggers the IUT to retrieve the Current Folder content in the Virtual Filesystem.

- Expected Outcome
  Pass verdict
  The IUT issues a GetFolderItems command with the scope of Virtual Filesystem and valid parameters for StartItem, EndItem, AttributeCount, and AttributeList.
4.2.4.2 AVRCP/TG/MCN/CB/BV-02-C [GetFolderItems - TG]

- **Test Purpose**
  To verify the GetFolderItems response issued by the TG for a folder.

- **Reference**
  Section 6.10.4.2 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP TG role in category 1.
  - The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.

- **Test Procedure**
  The Lower Tester sends a GetFolderItems command to the IUT with the VirtualFilesystem as Scope parameter and valid entries for Start Item, End Item, AttributeCount and AttributeList.

- **Expected Outcome**
  **Pass verdict**
  The IUT shall respond with a correctly formatted list of only Folder Items and Media Items.
4.2.4.3  AVRCP/TG/MCN/CB/BV-03-C [GetFolderItems - TG]

- Test Purpose
  To verify the GetFolderItems response issued by the TG while the BrowsedPlayer is other than the AddressedPlayer.

- Reference
  Section 6.10.4.2 of [5] [8]

- Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP TG role in category 1.
  - The Lower Tester has retrieved a list of available players. This can be achieved by executing AVRCP/TG/MPS/BV-09-C [GetFolderItems – TG].
  - The IUT has at least two media player applications available.

- Test Procedure
  1. The Lower Tester sets the addressed and browsed players on the IUT to valid PlayerID values
  2. The Lower Tester sends a GetFolderItems command to the IUT with the VirtualFilesystem as Scope parameter and valid entries for Start Item, End Item, AttributeCount and AttributeList.

- Expected Outcome
  Pass verdict
  The IUT shall respond with a correctly formatted list of only Folder Items and Media Items of the current folder on PlayerB.
### 4.2.4.4 AVRCP/CT/MCN/CF/BV-04-C [ChangePath - CT]

- **Test Purpose**
  To verify the ChangePath command issued by the CT.

- **Reference**
  Section 6.10.4.1 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP CT role in category 1.
  - The IUT has retrieved the currently valid Folder UIDs on the Lower Tester. This can be achieved by executing AVRCP/CT/MCN/CF/BV-01-C [GetFolderItems - CT].
  - The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.

- **Test Procedure**
  The Upper Tester triggers the IUT to issue the ChangePath command with a valid UIDCounter, FolderUID and Direction indication FolderDown.

- **Expected Outcome**
  **Pass verdict**
  The IUT issues a ChangePath command with the valid parameters for Direction and FolderUID.
4.2.4.5 AVRCP/TG/MCN/CB/BV-05-C [ChangePath - TG]

- Test Purpose
  To verify the ChangePath response issued by the TG.

- Reference
  Section 6.10.4.1 of [5] [8]

- Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP TG role in category 1.
  - The Lower Tester is aware of the currently valid FolderUIDs exposed by the IUT. This can be achieved by executing AVRCP/TG/MCN/CB/BV-02-C [GetFolderItems - TG].
  - The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.

- Test Procedure
  The Lower Tester sends a ChangePath command to the IUT containing a currently valid UIDCounter, FolderUID and the Direction indication Folder Down.

- Expected Outcome
  Pass verdict
  The IUT shall respond with a correctly formatted ChangePath Response with the correct Number of Items of the current folder on the IUT.
4.2.4.6 AVRCP/TG/MCN/CB/BV-06-C [ChangePath - TG]

• Test Purpose
  To verify the ChangePath response issued by the TG when the Direction is FolderUp.

• Reference
  Section 6.10.4.1 of [5] [8]

• Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP TG role in category 1.
  - The IUT is in a state that allows the ChangePath direction of FolderUp.
  - The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.

• Test Procedure
  The Lower Tester sends a ChangePath command to the IUT containing the Direction indication Folder Up.

• Expected Outcome
  Pass verdict
  The IUT shall respond with a correctly formatted ChangePath Response with the correct Number of Items of the current folder on the IUT.
4.2.4.7  AVRCP/CT/MCN/CB/BV-07-C [GetItemAttributes – CT]

- **Test Purpose**
  To verify the GetItemAttributes command issued by the CT on a Media Item in the Virtual Media Player Filesystem other than the currently playing one.

- **Reference**
  Section 6.10.4.3 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP CT role in category 1.
  - The IUT is aware of the currently valid Media Item UIDs exposed by the Lower Tester. This can be achieved by executing AVRCP/CT/MCN/CB/BV-01-C [GetFolderItems - CT].
  - The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.

- **Test Procedure**
  The Upper Tester triggers the IUT to issue the GetItemAttributes command for a currently valid Media Item UID other than the currently playing media item.

- **Expected Outcome**
  **Pass verdict**
  The IUT issues a GetItemAttributes command with valid parameters for UID, UIDcounter, NumberOfAttributes and AttributeID list.
4.2.4.8 AVRCP/TG/MCN/CB/BV-08-C [GetItemAttributes – TG]

- **Test Purpose**
  To verify the GetItemAttributes response issued by the TG on a Media Item in the Virtual Media Player Filesystem other than the currently playing one.

- **Reference**
  Section 6.10.4.3 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP TG role in category 1.
  - The Lower Tester is aware of the currently valid Media Item UIDs on the IUT. This can be achieved by executing AVRCP/TG/MCN/CB/BV-02-C [GetFolderItems - TG].
  - The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.

- **Test Procedure**
  The Lower Tester sends a GetItemAttributes command to the IUT containing the VirtualFilesystem as Scope parameter and valid entries for UID, UIDcounter, Number of Attributes and AttributeID list.

<table>
<thead>
<tr>
<th>Lower Tester</th>
<th>IUT</th>
<th>Upper Tester</th>
</tr>
</thead>
<tbody>
<tr>
<td>One ACL connection exists between the IUT and the test system.</td>
<td>AVCTP connection exists between the IUT and the test system.</td>
<td></td>
</tr>
<tr>
<td>GetItemAttributes Command</td>
<td>GetItemAttributes Response</td>
<td></td>
</tr>
<tr>
<td>(Scope=VirtualFilesystem, UID, UIDcounter, NumberOfAttributes, AttributeID list)</td>
<td>(Status, Number of Attributes, Attribute Value List)</td>
<td></td>
</tr>
</tbody>
</table>

- **Expected Outcome**
  **Pass verdict**
  The IUT shall respond with a correctly formatted GetItemAttributes Response with the expected values for Number of Attributes and Attribute Value List.
4.2.4.9 AVRCP/TG/MCN/CB/BV-09-C [UIDcounter - TG]

- Test Purpose
  To verify the initial value of the UID counter if the TG is a database unaware player.

- Reference
  Section 6.10.3 of [5] [8]

- Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP TG role in category 1.
  - The IUT is reset to factory settings so that the UID counter is reset to the initial value.
  - The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.

- Test Procedure
  The Lower Tester registers with the IUT for UID change notifications. No change to the database on the IUT is applied between the reset and the RegisterNotification for EVENT_UIDS_CHANGED.

- Expected Outcome
  Pass verdict
  The IUT shall issue an InterimResponse for the EVENT_UIDS_CHANGED with a UID Counter=0.
4.2.4.10 AVRCP/TG/MCN/CM/BV-10-C [UIDcounter - TG]

• Test Purpose
To verify the initial value of the UID counter if the TG is a database aware player.

• Reference
Section 6.10.3 of [5] [8]

• Initial Condition
- One ACL connection exists between the IUT and the Lower Tester.
- The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
- The IUT is acting as AVRCP TG role in category 1.
- The IUT is reset to factory settings so that the UID counter is reset to the initial value.
- The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.

• Test Procedure
The Lower Tester registers with the IUT for UID change notifications. No change to the database on the IUT is applied between the reset and the RegisterNotification for EVENT_UIDS_CHANGED.

- Expected Outcome
Pass verdict
The IUT shall issue an InterimResponse for the EVENT_UIDS_CHANGED with 0x1<=UID Counter<=0xFFFF.
4.2.4.11 AVRCP/TG/MCN/CB/BV-11-C [UID counter - TG]

- **Test Purpose**
  To verify the TG increments the UID counter and sends a UIDChangedNotification when updates on existing UIDs occur if the TG is database aware.

- **Reference**
  Section 6.10.3 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP TG role in category 1.
  - The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.

- **Test Procedure**
  1. The Lower Tester registers with the IUT for UID change notifications.
  2. The Upper Tester triggers a database change on the IUT, e.g. by adding or removing media tracks.
  3. The Lower Tester registers with the IUT for UID change notifications. No database change occurs afterwards until after the second Interim Response has been sent to the Lower Tester.
• Expected Outcome
  
  Pass verdict

  The IUT shall issue a FinalResponse for the EVENT_UIDS_CHANGED with UIDcounterB not equal to UIDcounterA.

  The IUT shall issue an Interim response after the second Registration for the EVENT_UIDS_CHANGED with UIDcounterB.

4.2.4.12 AVRCP/CT/MCN/CB/BV-12-C [GetTotalNumberOfItems – CT]

• Test Purpose
  
  To verify the GetTotalNumberOfItems command issued by the IUT (CT) for the Virtual Media Player Filesystem scope.

• Reference
  
  Section 6.10.4.4 of [8]

• Initial Condition
  
  - One ACL connection exists between the IUT and the Lower Tester.
  - AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP CT role in category 1.
  - The IUT has successfully issued a SetBrowsedPlayer command to the player specified in [6] as the browsable player.

• Test Procedure
  
  1. The Upper Tester triggers the IUT to issue a GetTotalNumberOfItems command to the Lower Tester with the scope parameter set to Virtual Media Player Filesystem.
  2. Upon receipt of a GetTotalNumberOfItems command from the IUT, the Lower Tester issues an appropriate GetTotalNumberOfItems response message.
• Expected Outcome

Pass verdict

The IUT shall issue a GetTotalNumberOfItems command to the Lower Tester with the scope parameter set to Virtual Media Player Filesystem.

4.2.4.13 AVRCP/TG/MCN/CA/BC/BC-13-C [GetTotalNumberOfItems – TG]

• Test Purpose

To verify IUT (TG) correctly responds to the GetTotalNumberOfItems command issued from the CT for the Virtual Media Player Filesystem scope.

• Reference

Section 6.10.4.4 of [8]

• Initial Condition

- One ACL connection exists between the IUT and the Lower Tester.
- AVCTP control and browsing channels between the IUT and the Lower Tester are established.
- The IUT is acting as AVRCP TG role in category 1.
- The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in [6] as the browsable player.
- The Lower Tester has successfully issued any necessary ChangePath commands to navigate to a folder on the Browsed Player on the IUT containing at least one item as specified in the IXIT [6].

• Test Procedure

The Lower Tester issues a GetTotalNumberOfItems command to the IUT with the scope parameter set to Virtual Media Player Filesystem.
• Expected Outcome
  
  Pass verdict

  The status parameter of the GetTotalNumberOfItems response message from the IUT to the Lower Tester shall indicate the operation completed without error.

  The total number of items returned by the IUT shall be the correct number of playable media items in the current folder [6].

4.2.4.14 AVRCP/TG/MCN/CB/BI-01-C [GetFolderItems - TG]

• Test Purpose
  
  To verify the GetFolderItems response issued by the TG when the command contains invalid parameters.

• Reference
  
  Section 6.10.4.2 of [5] [8]

• Initial Condition
  
  - One ACL connection exists between the IUT and the Lower Tester.
  
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  
  - The IUT is acting as AVRCP TG role in category 1.
  
  - The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.

• Test Procedure
  
  The Lower Tester sends a GetFolderItems command to the IUT with invalid parameters: a StartItem parameter larger than the EndItem.

  **Diagram:**

  ![Diagram of test procedure](attachment:diagram.png)
**Expected Outcome**

Pass verdict

The IUT shall respond with error code 0x0B (Range out of Bounds).

### 4.2.4.15 AVRCP/TG/MCN/CB/BI-02-C [GetFolderItems - TG]

**Test Purpose**

To verify the GetFolderItems response issued by the TG for an empty folder when the command contains invalid parameters.

**Reference**

Section 6.10.4.2 of [5] [8]

**Initial Condition**

- One ACL connection exists between the IUT and the Lower Tester.
- The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
- The IUT is acting as AVRCP TG role in category 1.
- The IUT has issued ChangePath to the folder defined in the IXIT [6] as an empty folder.
- The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.

**Test Procedure**

The Lower Tester sends a GetFolderItems command to the IUT specifying the empty folder and setting StartItem=0 and EndItem=1.

![Diagram showing the test procedure](image)
• Expected Outcome

Pass verdict

The IUT shall respond with error code 0x0B (Range out of Bounds).

4.2.4.16 AVRCP/TG/MCN/CB/BI-03-C [GetFolderItems - TG]

• Test Purpose

To verify the GetFolderItems response issued by the TG when the command contains invalid parameters accessing items beyond the end of a folder.

• Reference

Section 6.10.4.2 of [5] [8]

• Initial Condition

- One ACL connection exists between the IUT and the Lower Tester.

- The AVCTP control and browsing channels between the IUT and the Lower Tester are established.

- The IUT is acting as AVRCP TG role in category 1.

- The Lower Tester has issued ChangePath to the folder defined in the IXIT [6] as a non-empty folder.

- The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.

• Test Procedure

The Lower Tester sends a GetFolderItems command to the IUT specifying the empty folder and setting StartItem=\(n+1\) and EndItem=\(n+2\), where \(n\) is the number of items in the non-empty folder as retrieved by the ChangePath command.
• Expected Outcome

Pass verdict

The IUT shall respond with error code 0x0B (Range out of Bounds).

4.2.4.17  AVRCP/TG/MCN/CB/BI-04-C [ChangePath - TG]

• Test Purpose

To verify the ChangePath response issued by the TG when an invalid Folder UID is requested.

• Reference

Section 6.10.4.1 of [5] [8]

• Initial Condition

- One ACL connection exists between the IUT and the Lower Tester.
- The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
- The IUT is acting as AVRCP TG role in category 1.
- The Lower Tester is aware of the currently valid FolderUIDs exposed by the IUT. This can be achieved by executing AVRCP/TG/MCN/CB/BV-02-C [GetFolderItems - TG].
- The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.

• Test Procedure

The Lower Tester sends a ChangePath command to the IUT containing a currently invalid UIDCounter, FolderUID and the Direction indicating Folder Down.
• Expected Outcome

Pass verdict

The IUT shall respond with an error code indicating an invalid Folder UID.

4.2.4.18 AVRCP/TG/MCN/CI/BI-05-C [UID counter - TG]

• Test Purpose

To verify the TG issues an error when receiving a command for an invalid UID counter.

• Reference

Section 6.10.3 of [5] [8]

• Initial Condition

- One ACL connection exists between the IUT and the Lower Tester.
- The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
- The IUT is acting as AVRCP TG role in category 1.
- The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.

• Test Procedure

1. The Lower Tester registers with the IUT for notification of UID change.
2. The Lower Tester sends a GetItemAttributes command to the IUT, where the value of UIDcounterB in the GetItemAttributes is different from the UIDcounterA issued by the IUT in the InterimResponse.

![Diagram of the test procedure](attachment:diagram.png)
• Expected Outcome
  
  Pass verdict
  
  The IUT shall issue a GetItemAttributes Response with Status Code UID Changed.

4.2.5 Media Content Navigation Commands and Notifications for Search

4.2.5.1 AVRCP/CT/MCN/SRC/BV-01-C [Search - CT]

• Test Purpose
  
  To verify the Search command issued by the CT.

• Reference
  
  Section 6.11 of [5] [8]

• Initial Condition
  
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP CT role in category 1.
  - The IUT is aware of the Character Sets supported by the Lower Tester.
  - The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.

• Test Procedure
  
  The Upper Tester triggers the IUT to execute a search.
• Expected Outcome
  Pass verdict

  The IUT issues a Search command with the expected parameters for Character Set, Length and Search String.

4.2.5.2 AVRCP/TG/MCN/SRC/BV-02-C [Search - TG]

• Test Purpose
  To verify the Search response issued by the TG.

• Reference
  Section 6.11 of [5] [8]

• Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP TG role in category 1.
  - The Lower Tester is aware of a valid Character Set on the IUT.
  - The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.

• Test Procedure
  The Lower Tester sends a Search command to the IUT with valid entries for all parameters.

![](image)
• Expected Outcome

Pass verdict

The IUT shall respond with a correctly formatted Search Response with correct entries for all parameters.

4.2.5.3 AVRCP/CT/MCN/SRC/BV-03-C [GetFolderItems – CT]

• Test Purpose

To verify the GetFolderItems command issued by the CT on the Search folder.

• Reference

Section 6.10.4.2 and 6.11 of [5] [8]

• Initial Condition

- One ACL connection exists between the IUT and the Lower Tester.
- The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
- The IUT is acting as AVRCP CT role in category 1.
- A successful Search Operation has been performed by the IUT with the Search results still being valid; see AVRCP/CT/MCN/SRC/BV-01-C [Search - CT].
- The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.

• Test Procedure

The Upper Tester triggers the IUT to retrieve the Search Folder content.

![Diagram](attachment://diagram.png)
• Expected Outcome

Pass verdict

The IUT issues a GetFolderItems command with the scope of Search Folder and valid parameters for StartItem, EndItem, AttributeCount and AttributeList.

4.2.5.4 AVRCP/TG/MCN/SRC/BV-04-C [GetFolderItems – TG]

• Test Purpose

To verify the GetFolderItems response for the Search Folder issued by the TG.

• Reference

Section 6.10.4.2 and 6.11 of [5] [8]

• Initial Condition

- One ACL connection exists between the IUT and the Lower Tester.
- The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
- The IUT is acting as AVRCP TG role in category 1.
- A successful Search Operation has been performed by the Lower Tester with the Search results still being valid; see AVRCP/TG/MCN/SRC/BV-02-C [Search - TG].
- The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.

• Test Procedure

The Lower Tester sends a GetFolderItems command to the IUT containing the Search Folder as Scope parameter and valid entries for Start Item, End Item, AttributeCount and AttributeList.
• Expected Outcome

Pass verdict

The IUT shall respond with a correctly formatted list of only Media Items.

4.2.5.5 AVRCP/CT/MCN/SRC/BV-05-C [GetItemAttributes – CT]

• Test Purpose

To verify the GetItemAttributes command issued by the CT on a Media Item in the Search folder other than the currently playing one.

• Reference

Section 6.10.4.3 and 6.11 of [5] [8]

• Initial Condition

- One ACL connection exists between the IUT and the Lower Tester.

- The AVCTP control and browsing channels between the IUT and the Lower Tester are established.

- The IUT is acting as AVRCP CT role in category 1.

- A successful Search Operation has been performed by the IUT with the Search results still being valid; see AVRCP/CT/MCN/SRC/BV-01-C [Search - CT].

- The IUT is aware of the currently valid Media Item UIDs exposed by the Lower Tester. This can be achieved by executing AVRCP/CT/MCN/SRC/BV-03-C [GetFolderItems – CT].

- The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.

• Test Procedure

The Upper Tester triggers the GetItemAttributes command for a currently valid Search result Media Item UID other than the currently playing media item.
GetItemAttributes Command
(Scope=SearchFolder, UID, UIDcounter, NumberOfAttributes, AttributeID list)

One ACL connection exists between the IUT and the test system.
AVCTP connection exists between the IUT and the test system.

GetItemAttributes Response

• Expected Outcome

Pass verdict

The IUT issues a GetItemAttributes command with valid parameters for UID, UIDcounter, NumberOfAttributes and AttributeID list.

4.2.5.6 AVRCP/TG/MCN/SRC/BV-06-C [GetItemAttributes – TG]

• Test Purpose

To verify the GetItemAttributes response issued by the TG on a Media Item in the Search folder other than the currently playing one.

• Reference

Section 6.10.4.3 and 6.11 of [5] [8]

• Initial Condition

- One ACL connection exists between the IUT and the Lower Tester.

- The AVCTP control and browsing channels between the IUT and the Lower Tester are established.

- The IUT is acting as AVRCP TG role in category 1.

- A successful Search Operation has been performed by the Lower Tester with the Search results still being valid; see AVRCP/TG/MCN/SRC/BV-02-C [Search - TG].

- The Lower Tester is aware of the currently valid Media Item UIDs in the Search Folder exposed by the IUT. This can be achieved by executing AVRCP/TG/MCN/SRC/BV-04-C [GetFolderItems – TG].
- The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.

**Test Procedure**

The Lower Tester sends a GetItemAttributes command to the IUT containing the Search Folder as Scope parameter and valid entries for UID, UIDcounter, Number of Attributes and AttributeID list.

- Expected Outcome
  - **Pass verdict**

  The IUT shall respond with a correctly formatted GetItemAttributes Response with the expected values for Number of Attributes and Attribute Value List.

### 4.2.5.7 AVRCP/CT/MCN/SRC/BV-07-C [GetTotalNumberOfItems – CT]

- **Test Purpose**
  
  To verify the GetTotalNumberOfItems command issued by the IUT (CT) for the Search scope.

- **Reference**
  
  Section 6.10.4.4 of [8]

- **Initial Condition**
  
  - One ACL connection exists between the IUT and the Lower Tester.
  
  - AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  
  - The IUT is acting as AVRCP CT role in category 1.
- IUT has successfully issued a SetBrowsedPlayer command to the player specified in [6] as the browsable player.

- A successful Search Operation has been performed by the IUT with the Search results still being valid; see AVRCP/CT/MCN/SRC/BV-01-C [Search - CT].

• Test Procedure

1. The Upper Tester triggers the IUT to issue a GetTotalNumberOfItems command to the Lower Tester with the scope parameter set to Search.

2. Upon receipt of a GetTotalNumberOfItems command from the IUT, the Lower Tester issues an appropriate GetTotalNumberOfItems response message.

• Expected Outcome

Pass verdict

The IUT shall issue a GetTotalNumberOfItems command to the Lower Tester with the scope parameter set to Search.

4.2.5.8 AVRCP/TG/MCN/SRC/BV-08-C [GetTotalNumberOfItems – TG]

• Test Purpose

To verify IUT (TG) correctly responds to the GetTotalNumberOfItems command issued from the CT for the Search scope.

• Reference

Section 6.10.4.4 of [8]
• **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP TG role in category 1.
  - The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in [6] as the browsable player.
  - A successful Search Operation has been performed by the Lower Tester with the Search results still being valid; see AVRCP/TG/MCN/SRC/BV-02-C [Search - TG].

• **Test Procedure**
The Lower Tester issues a GetTotalNumberOfItems command to the IUT with the scope parameter set to Search.

![Diagram of test procedure](image.png)

• **Expected Outcome**
  **Pass verdict**

The status parameter of the GetTotalNumberOfItems response message from the IUT to the Lower Tester shall indicate the operation completed without error.

The total number of items returned by the IUT shall be the correct number of playable media items in the search result as specified in the IXIT [6].
4.2.6 Media Content Navigation Commands and Notifications for NowPlaying

4.2.6.1 AVRCP/CT/MCN/NP/BV-01-C [PlayItem - CT]

- Test Purpose
  To verify the PlayItem command issued by the CT.

- Reference
  Section 6.12.1 of [5] [8]

- Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP CT role in category 1.
  - The IUT is aware of the currently playable Media Items on the Lower Tester. This can be achieved by executing AVRCP/CT/MCN/CB/BV-01-C [GetFolderItems - CT].

- Test Procedure
  The Upper Tester triggers the execution of the PlayItem command on the IUT for a currently playable Media Item on the Lower Tester in a valid Scope (Media Filesystem, Search or NowPlaying).

  ![Diagram of test procedure]

- Expected Outcome
  Pass verdict

  The IUT issues a PlayItem command with the expected parameters as triggered by the Upper Tester for Scope and UID and the currently valid UID counter.
4.2.6.2 AVRCP/TG/MCN/NP/BV-02-C [PlayItem - TG]

- **Test Purpose**
  To verify the PlayItem response issued by the TG.

- **Reference**
  Section 6.12.1 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP TG role in category 1.
  - The Lower Tester is aware of the currently playable UIDs exposed by the IUT. This can be achieved by executing `AVRCP/TG/MCN/CB/BV-02-C [GetFolderItems - TG]`.

- **Test Procedure**
  The Lower Tester sends a PlayItem Command to the IUT with valid entries for all parameters. The UID must be a UID for a currently playable UID.

- **Expected Outcome**
  Pass verdict
  The IUT shall respond with a correctly formatted PlayItem Response with the status indicating success.
4.2.6.3  AVRCP/CT/MCN/NP/BV-03-C [AddToNowPlaying - CT]

- **Test Purpose**
  To verify the AddToNowPlaying command issued by the CT.

- **Reference**
  Section 6.12.2 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP CT role in category 1.
  - The IUT is aware of the currently playable UIDs. This can be achieved by executing AVRCP/CT/MCN/CB/BV-01-C [GetFolderItems - CT].

- **Test Procedure**
  The Upper Tester triggers the AddToNowPlaying command from the IUT for a currently playable UID.

- **Expected Outcome**
  **Pass verdict**
  The IUT issues an AddToNowPlaying command with the expected parameters as triggered by the Upper Tester for Scope and UID and the currently valid UID counter.
4.2.6.4  AVRCP/TG/MCN/NP/BV-04-C [AddToNowPlaying - TG]

• Test Purpose
  To verify the AddToNowPlaying response issued by the TG.

• Reference
  Section 6.12.2 of [5] [8]

• Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP TG role in category 1.
  - The Lower Tester is aware of the currently playable UIDs on the IUT. This can be achieved by executing AVRCP/TG/MCN/CB/BV-02-C [GetFolderItems - TG].

• Test Procedure
  The Lower Tester sends an AddToNowPlaying command with a currently playable UID to the IUT.

• Expected Outcome
  Pass verdict
  The IUT shall respond with a correctly formatted AddToNowPlaying Response with the status indicating success.
4.2.6.5 AVRCP/CT/MCN/NP/BV-05-C [GetFolderItems – CT]

- **Test Purpose**
  To verify the GetFolderItems command issued by the CT on the NowPlaying folder.

- **Reference**
  Section 6.10.4.2 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP CT role in category 1.
  - The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.

- **Test Procedure**
  The Upper Tester triggers the IUT to retrieve the NowPlaying Folder content.

```
GetFolderItems Command
(NowPlaying, StartItem, EndItem,
AttributeCount, AttributeList)
Upper Tester
IUT
Lower Tester

GetFolderItems Response

GetFolderItems (NowPlaying) initiated
(Manufacturer Specific)
```

- **Expected Outcome**
  **Pass verdict**

  The IUT issues a GetFolderItems command with the scope of NowPlaying Folder and valid parameters for StartItem, EndItem, AttributeCount and AttributeList.
4.2.6.6 AVRCP/TG/MCN/NP/BV-06-C [GetFolderItems – TG]

• Test Purpose
   To verify the GetFolderItems response for the NowPlaying Folder issued by the TG.

• Reference
   Section 6.10.4.2 of [5] [8]

• Initial Condition
   - One ACL connection exists between the IUT and the Lower Tester.
   - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
   - The IUT is acting as AVRCP TG role in category 1.
   - The player on the IUT is currently playing media.
   - The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.

• Test Procedure
   The Lower Tester sends a GetFolderItems command to the IUT containing the NowPlaying Folder as Scope parameter and valid entries for Start Item, End Item, AttributeCount and AttributeList.

   ![Diagram of GetFolderItems Command Flow]

• Expected Outcome
   Pass verdict
   The IUT shall respond with a correctly formatted list of only Media Items.
4.2.6.7 AVRCP/TG/MCN/NP/BV-07-C [NowPlayingContentChanged Notification – TG]

- Test Purpose
  To verify the NowPlayingContentChanged Notification issued by the TG.

- Reference
  Section 6.9.5 of [5] [8]

- Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP TG role in category 1.
  - The EVENT_NOW_PLAYING_CONTENT_CHANGED is registered with the IUT

- Test Procedure
  The Upper Tester triggers the change of the NowPlayingFolder on the IUT.

- Expected Outcome
  **Pass verdict**
  The IUT shall issue a FinalResponse for the EVENT_NOW_PLAYING_CONTENT_CHANGED.
4.2.6.8  AVRCP/CT/MCN/NP/BV-08-C [GetItemAttributes – CT]

- **Test Purpose**
  To verify the GetItemAttributes command issued by the CT on a Media Item in the NowPlaying folder.

- **Reference**
  Section 6.10.4.3 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP CT role in category 1.
  - The IUT is aware of the currently valid UIDs in the NowPlaying folder. This can be achieved by executing AVRCP/CT/MCN/NP/BV-05-C [GetFolderItems – CT].

- **Test Procedure**
  The Upper Tester triggers the IUT to send a GetItemAttributes command for a currently valid UID in the NowPlaying folder.

  ![](diagram.png)

  - **Expected Outcome**
    **Pass verdict**
    The IUT issues a GetItemAttributes command with the Scope of NowPlaying and valid parameters for UID, UIDcounter, NumberOfAttributes and AttributeID list.
4.2.6.9 AVRCP/TG/MCN/NP/BV-09-C [GetItemAttributes – TG]

- **Test Purpose**
  To verify the GetItemAttributes response issued by the TG on a Media Item in the NowPlaying folder.

- **Reference**
  Section 6.10.4.3 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP TG role in category 1.
  - The player on the IUT is currently playing media.
  - The Lower Tester is aware of the currently valid UIDs in the NowPlaying folder. This can be achieved by executing AVRCP/TG/MCN/NP/BV-06-C [GetFolderItems – TG].

- **Test Procedure**
  The Lower Tester sends a GetItemAttributes command to the IUT containing the NowPlaying Folder as Scope parameter and valid entries for UID (other than 0x0), UID Counter, Number of Attributes, and AttributeID list.

  ![Diagram](image)

  **GetItemAttributes Command**
  (Scope=NowPlaying, UID, UIDcounter, NumberOfAttributes, AttributeID list)

  **GetItemAttributes Response**
  (Status, Number of Attributes, Attribute Value List)

- **Expected Outcome**
  **Pass verdict**
  The IUT shall respond with a correctly formatted GetItemAttributes Response with the expected values for Number of Attributes and Attribute Value List.
4.2.6.10 AVRCP/CT/MCN/NP/BV-10-C [GetTotalNumberOfItems - CT]

- **Test Purpose**
  To verify the GetTotalNumberOfItems command issued from the IUT (CT) for the Now Playing scope.

- **Reference**
  Section 6.10.4.4 of [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP CT role in category 1.
  - The IUT has successfully issued a SetBrowsedPlayer command to the player specified in [6] as the browsable player.

- **Test Procedure**
  1. The Upper Tester triggers the IUT to issue a GetTotalNumberOfItems command to the Lower Tester with the scope parameter set to Now Playing.
  2. Upon receipt of a GetTotalNumberOfItems command from the IUT, the Lower Tester issues an appropriate GetTotalNumberOfItems response message.

- **Expected Outcome**
  **Pass verdict**
  The IUT shall issue a GetTotalNumberOfItems command to the Lower Tester with the scope parameter set to Now Playing.
4.2.6.11 AVRCP/TG/MCN/NP/BV-11-C [GetTotalNumberOfItems - TG]

• Test Purpose
  To verify the IUT (TG) correctly responds to the GetTotalNumberOfItems command issued from the
  CT for the Now Playing scope.

• Reference
  Section 6.10.4.4 of [8]

• Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP TG role in category 1.
  - The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified
    in [6] as the browsable player.
  - The player on the IUT is currently playing media.

• Test Procedure
  The Lower Tester issues a GetTotalNumberOfItems command to the IUT with the scope parameter
  set to Now Playing.

  ![Diagram of test procedure]

• Expected Outcome
  Pass verdict
  The status parameter of the GetTotalNumberOfItems response message from the IUT to the Lower
  Tester shall indicate the operation completed without error.

  The total number of items returned by the IUT shall be the correct number of the currently-playable
  media items as specified in the IXIT [6].
4.2.6.12 AVRCP/TG/MCN/NP/BI-01-C [PlayItem_Invalid - TG]

- **Test Purpose**
  To verify the PlayItem response issued by the TG when an invalid UID is requested.

- **Reference**
  Section 6.12.1 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP TG role in category 1.
  - The Lower Tester is aware of the currently playable UIDs on the IUT. This can be achieved by executing AVRCP/TG/MCN/CB/BV-02-C [GetFolderItems - TG].

- **Test Procedure**
  The Lower Tester sends a PlayItem Command to the IUT with a UID that is currently not playable.

  \[
  \text{PlayItem Command (Scope, UID, UIDcounter)}
  \]

  \[
  \text{PlayItem Response (Status)}
  \]

- **Expected Outcome**
  Pass verdict
  The IUT shall respond with a correctly formatted PlayItem Response with the Status indicating the UID does not exist.
**4.2.6.13 AVRCP/TG/MCN/NP/BI-02-C [AddToNowPlaying_Invalid - TG]**

- **Test Purpose**
  To verify the AddToNowPlaying response issued by the TG when an invalid UID is requested.

- **Reference**
  Section 6.12.2 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP TG role in category 1.
  - The Lower Tester is aware of the currently valid UIDs on the IUT. This can be achieved by executing `AVRCP/TG/MCN/CB/BV-02-C [GetFolderItems - TG]`.

- **Test Procedure**
  The Lower Tester sends an AddToNowPlaying command to the IUT with an invalid UID.

- **Expected Outcome**
  **Pass verdict**
  The IUT shall respond with a correctly formatted AddToNowPlaying Response with the status indicating the UID does not exist.
4.2.7 Volume Level Handling
Test group with the objective to verify the commands and notifications related to Volume Level Handling.

4.2.7.1 AVRCP/CT/VLH/BV-01-C [Set absolute volume – CT]

• Test Purpose
  To verify the SetAbsoluteVolume command issued by the CT.

• Reference
  Section 6.13.2 of [5] [8]

• Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP connection between the IUT and the Lower Tester is completed.
  - The IUT is acting as AVRCP CT role in category 2.

• Test Procedure
  The Upper Tester triggers the IUT to send a SetAbsoluteVolume command.

• Expected Outcome
  Pass verdict
  The IUT issues a correctly formatted SetAbsoluteVolume command with a valid value of volume.
4.2.7.2 AVRCP/TG/VLH/BV-02-C [Set absolute volume – TG]

- Test Purpose
  To verify the behavior of the TG receiving a valid SetAbsoluteVolume command.

- Reference
  Section 6.13.2 of [5] [8]

- Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP connection between the IUT and the Lower Tester is completed.
  - The IUT is acting as AVRCP TG role in category 2.

- Test Procedure
  The Lower Tester sends a SetAbsoluteVolume command to the IUT with a valid value for volume.

  The IUT shall respond with a correctly formatted SetAbsoluteVolume Response with the current value for volume.
4.2.7.3 AVRCP/CT/VLH/BV-03-C [NotifyVolumeChange - CT]

- **Test Purpose**
  To verify the NotifyVolumeChange command issued by the CT.

- **Reference**
  Section 6.13.3 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP connection between the IUT and the Lower Tester is completed.
  - The IUT is acting as AVRCP CT role in category 2.

- **Test Procedure**
  The Upper Tester triggers the IUT to register for Volume Change Notification.

  ![Diagram](diagram.png)

  One ACL connection exists between the IUT and the test system.
  AVCTP connection exists between the IUT and the test system.

  RegisterNotification
  (EVENT_VOLUME_CHANGED)

  RegisterNotification Interim
  (EVENT_VOLUME_CHANGED)

- **Expected Outcome**
  Pass verdict
  The IUT shall issue a correctly formatted RegisterNotification for the EVENT_VOLUME_CHANGED.
4.2.7.4 AVRCP/TG/VLH/BV-04-C [NotifyVolumeChange - TG]

- Test Purpose
  To verify the NotifyVolumeChange response issued by the TG.

- Reference
  Section 6.13.3 of [5] [8]

- Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP connection between the IUT and the Lower Tester is completed.
  - The IUT is acting as AVRCP TG role in category 2.

- Test Procedure
  1. The Lower Tester registers with the IUT for Volume Change Notification.
  2. Subsequently the Upper Tester triggers a volume change on the IUT.

- Expected Outcome
  Pass verdict
  The IUT shall issue a FinalResponse for the EVENT_VOLUME_CHANGED with a valid value for Absolute Volume.
4.2.7.5  AVRCP/TG/VLH/BI-01-C [Set absolute volume invalid behavior TG]

- Test Purpose
  To verify the behavior of the TG receiving an invalid SetAbsoluteVolume command.

- Reference
  Section 6.13.2 of [5] [8]

- Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP connection between the IUT and the Lower Tester is completed.
  - The IUT is acting as AVRCP TG role in category 2.
  - The EVENT_VOLUME_CHANGED notification is registered at the IUT.

- Test Procedure
  The Lower Tester sends a SetAbsoluteVolume command to the IUT with an invalid value for Parameter Length (too short to carry the absolute value parameter).

- Expected Outcome
  Pass verdict
  The IUT shall respond with a correctly formatted SetAbsoluteVolume Response indicating failure.
4.2.7.6 AVRCP/TG/VIH/BI-02-C [Set Absolute Volume invalid behavior TG]

- **Test Purpose**
  To verify the behavior of the TG receiving a SetAbsoluteVolume command with the top level bit set.

- **Reference**
  Section 6.13.2 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP connection between the IUT and the Lower Tester is completed.
  - The IUT is acting as AVRCP TG role in category 2.
  - The EVENT_VOLUME_CHANGED notification is registered at the IUT.

- **Test Procedure**
  The Lower Tester sends a SetAbsoluteVolume command to the IUT with the top bit of the level parameter set.

- **Expected Outcome**
  **Pass verdict**
  The IUT shall respond with a correctly formatted SetAbsoluteVolume Response with the current value and the top bit set to zero.
4.2.7.7 AVRCP/CT/VLH/BI-03-C [Set Absolute Volume invalid behavior CT]

- **Test Purpose**
  To verify the behavior of the CT receiving a SetAbsoluteVolume Response with the top bit (bit 7) set.

- **Reference**
  Section 6.13.2 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP connection between the IUT and the Lower Tester is completed.
  - The IUT is acting as AVRCP CT role in category 2.
  - The EVENT_VOLUME_CHANGED notification is registered at the IUT.

- **Test Procedure**
  1. The Upper Tester triggers the IUT to issue a Valid Set Absolute volume command to the Lower Tester.
  2. The Lower Tester shall issue the response for Set Absolute volume Response with the top bit (bit 7) of absolute volume parameter set (Volume).

**Expected Outcome**
**Pass verdict**

The IUT shall ignore the top bit (bit 7) and consider only the lower 7 bits for the current value for volume.
4.2.7.8  AVRCP/CT/VLH/BI-04-C [Set Absolute Volume invalid behavior CT]

- **Test Purpose**
  To verify the behavior of the CT receiving an Interim and Final Response for Absolute Volume change notification with the top bit (bit 7) set.

- **Reference**
  Section 6.13.2 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP connection between the IUT and the Lower Tester is completed.
  - The IUT is acting as AVRCP CT role in category 2.
  - The EVENT_VOLUME_CHANGED notification is registered at the IUT.

- **Test Procedure**
  1. The Upper Tester triggers the IUT to register for Volume Change Notification
  2. Subsequently the Lower Tester issues an interim response EVENT_VOLUME_CHANGED with the top bit (bit 7) of absolute volume parameter set.
  3. Subsequently the Lower Tester issues a final response EVENT_VOLUME_CHANGED with the top bit (bit 7) of absolute volume parameter set.

- **Expected Outcome**
  **Pass verdict**
  The IUT shall ignore the top bit (bit 7) and consider only the lower 7 bits of the Interim and Final Response for the absolute volume on TG.
4.2.8 PASS THROUGH Handling
Test group with the objective to verify the state flag in the PASS THROUGH command is correctly set to convey the button action.

4.2.8.1 AVRCP/CT/PTH/BV-01-C [Press and release – CT]

• Test Purpose
To verify the button release is sent following a button press when the CT issues a PASS THROUGH command.

• Reference
Section 4.6.1 of [2]
Section 4.6.1 of [7]
Section 4.4.1 of [8]

• Initial Condition
- One ACL connection exists between the IUT and the Lower Tester.
- The AVCTP connection between the IUT and the Lower Tester is completed.
- The IUT is acting as AVRCP CT.

• Test Procedure
The Upper Tester triggers the IUT to issue commands for button press and release.

![Diagram showing the PASS THROUGH Handling test procedure]
• Expected Outcome

**Pass verdict**

The IUT issues a correctly formatted PASS THROUGH command with the state flag set to button press, followed within 2 seconds by a correctly formatted PASS THROUGH command with the same operation id with the state flag set to button release.

**4.2.8.2 AVRCP/CT/PTH/BV-02-C [Press and hold – CT]**

• Test Purpose

To verify that when a button to send a PASS THROUGH command is held down the CT continues to issue button presses every 2 seconds until the button is released.

• Reference

Section 4.6.1 of [2]

Section 4.6.1 of [7]

Section 4.4.1 of [8]

• Initial Condition

- One ACL connection exists between the IUT and the Lower Tester.

- The AVCTP connection between the IUT and the Lower Tester is completed.

- The IUT is acting as AVRCP CT.

• Test Procedure

The Upper Tester triggers the IUT to issue commands for button press and release. The button is held for longer than 2 seconds.
**Expected Outcome**

**Pass verdict**

The IUT issues a correctly formatted PASS THROUGH command with the state flag set to button press.

Another PASS THROUGH command with the same operation id and state flag set to button press is issued within 2 seconds of each previous PASS THROUGH command until the button is released.

At least two PASS THROUGH commands shall be sent with the state flag set to button press.

A final PASS THROUGH command with the same operation id and state flag set to button release is sent within 2 seconds of the last button press.
4.2.9 Cover Art

Test group with the objective to verify the commands and notifications related to cover art transfer.

4.2.9.1 AVRCP/CT/CA/BV-01-C [Use GetFolderItems to request Cover Art Attribute – CT]

• Test Purpose
  
  To verify that the IUT can correctly use the GetFolderItems function with the scope of Virtual Media Player Filesystem to retrieve the Cover Art Image Handle.

• Reference
  
  Section 6.10.4.2 of [8]

  Section 4.4.4 of [9]

• Initial Condition
  
  - One ACL connection exists between the IUT and the Lower Tester.
  
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  
  - The IUT is acting as AVRCP CT role in category 1.
  
  - The IUT has successfully issued a SetBrowsedPlayer command to the player specified in [6] as the browsable player.
  
  - There is an active Cover Art OBEX connection where the IUT is the OBEX client and the Lower Tester is the OBEX server.
  
  - At least one item with Cover Art is available in the default folder on the Browsed Player on the Lower Tester.

• Test Procedure
  
  1. The Upper Tester triggers the IUT to issue a GetFolderItems command to the Lower Tester with the scope parameter set to Virtual Media Player Filesystem and the attribute list containing the Cover Art Attribute.
  
  2. Upon receipt of a GetFolderItems command from the IUT, the Lower Tester issues an appropriate GetFolderItems response message.
• Expected Outcome

Pass verdict

The IUT shall issue a well-formatted GetFolderItems command to the Lower Tester.

The GetFolderItems command shall have the scope parameter set to Virtual Media Player Filesystem.

The Cover Art attribute shall be among the attributes requested in the GetFolderItems command.

• Notes

Note that although the test does not directly use the Cover Art OBEX connection, it must exist for there to be valid Image Handles available on the TG (Imaging Responder).

4.2.9.2 AVRCP/TG/CA/BV-02-C [Use GetFolderItems to request Cover Art Attribute – TG]

• Test Purpose

To verify that the IUT can correctly respond to a GetFolderItems request with the scope of Virtual Media Player Filesystem to retrieve the Cover Art Image Handle.

• Reference

Section 6.10.4.2 of [8]

Section 4.4.4 of [9]
• Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - The IUT is acting as AVRCP TG role in category 1.
  - The Tester has successfully issued a SetBrowsedPlayer command to the player specified in [6] as the browsable player.
  - There is an active Cover Art OBEX connection where the IUT is the OBEX server and the Lower Tester is the OBEX client.
  - The Tester has successfully issued any necessary ChangePath commands to navigate to a folder on the Browsed Player on the IUT containing at least one item with Cover Art [6].

• Test Procedure
The Lower Tester issues a GetFolderItems command to the IUT with the scope parameter set to Virtual Media Player Filesystem and the attribute list containing the Cover Art Attribute.

• Expected Outcome
  Pass verdict
The IUT shall issue a well-formatted GetFolderItems response message to the Lower Tester.

The GetFolderItems response message shall contain at least one item with a Cover Art Image Handle.
Notes

The linkage between the returned Image Handle and retrieval of an image is covered in other tests (AVRCP/TG/CA/BV-08-C [Use the Imaging Property Object – TG], AVRCP/TG/CA/BV-10-C [Pull an Image as a Thumbnail – TG], AVRCP/TG/CA/BV-12-C [Pull a Thumbnail – TG] and AVRCP/TG/CA/BV-14-C [Pull a Native Image – TG]). Note that although the test does not directly use the Cover Art OBEX connection, it must exist for there to be valid Image Handles available on the TG (Imaging Responder).

4.2.9.3  AVRCP/CT/CA/BV-03-C [Use GetItemAttributes to request Cover Art Attribute – CT]

Test Purpose

To verify that the IUT can correctly use the GetItemAttributes function with the scope of Virtual Media Player Filesystem to retrieve the Cover Art Image Handle.

Reference

Section 6.10.4.3 of [8]

Initial Condition

- One ACL connection exists between the IUT and the Lower Tester.
- The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
- The IUT is acting as AVRCP CT role in category 1.
- The IUT has successfully issued a SetBrowsedPlayer command to the player specified in [6] as the browsable player.
- There is an active Cover Art OBEX connection where the IUT is the OBEX client and the Lower Tester is the OBEX server.
- At least one item with Cover Art is available in the default folder on the Browsed Player at the Lower Tester.

Test Procedure

1. The Upper Tester triggers the IUT to issue a GetItemAttributes command to the Lower Tester with the scope parameter set to Virtual Media Player Filesystem and the AttributeID list containing the Cover Art AttributeID.
2. Upon receipt of a GetItemAttributes command from the IUT, the Lower Tester issues an appropriate GetItemAttributes response message.
**4.2.9.4 AVRCP/TG/CA/BV-04-C [Use GetItemAttributes to request Cover Art Attribute – TG]**

- **Test Purpose**
  To verify that the IUT can correctly respond to a GetItemAttributes with the scope of Virtual Media Player Filesystem to retrieve the Cover Art Image Handle.

- **Reference**
  - Section 6.10.4.3 of [8]
  - Section 4.5.8 of [9]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - There is an active Cover Art OBEX connection where the IUT is the OBEX server and the Lower Tester is the OBEX client.
  - The IUT is acting as AVRCP TG role in category 1.

- **Expected Outcome**

  **Pass verdict**

  The IUT shall issue a well-formatted GetItemAttributes command to the Lower Tester.

  The GetItemAttributes command has the scope parameter set to Virtual Media Player Filesystem.

  The Cover Art AttributeID is among the AttributeIDs requested in the GetItemAttributes command.
- The Tester is aware of the currently valid Media Item UIDs on the IUT. This can be achieved by executing `AVRCP/TG/MCN/CB/BV-02-C [GetFolderItems - TG].`

- The Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.

- The Tester has successfully issued any necessary ChangePath commands to navigate to a folder on the Browsed Player of the IUT, containing at least one item with Cover Art as specified in the IXIT [6].

**Test Procedure**

The Lower Tester issues a GetItemAttributes command to the IUT with the scope parameter set to Virtual Media Player Filesystem and with valid entries for UID, UID Counter, Number of Attributes and AttributeID list. The AttributeID list contains the Cover Art AttributeID.

- **Expected Outcome**

  **Pass verdict**

  The IUT shall issue a well-formatted GetItemAttributes response message to the Lower Tester. The GetItemAttributes response message shall contain at least one item with a Cover Art Image Handle.

- **Notes**

  The linkage between the returned Image Handle and retrieval of an image is covered in other tests (AVRCP/TG/CA/BV-08-C [Use the Imaging Property Object – TG], AVRCP/TG/CA/BV-10-C [Pull an Image as a Thumbnail – TG], AVRCP/TG/CA/BV-12-C [Pull a Thumbnail – TG] and AVRCP/TG/CA/BV-14-C [Pull a Native Image – TG]).
4.2.9.5 AVRCP/CT/CA/BV-05-C [Use GetElementAttributes to request Cover Art Attribute – CT]

- **Test Purpose**
  To verify that the IUT can correctly use the GetElementAttributes function to retrieve the Cover Art Image Handle of the currently playing item.

- **Reference**
  Section 6.6.1 of [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control channel between the IUT and the Lower Tester is established.
  - There is an active Cover Art OBEX connection where the IUT is the OBEX client and the Lower Tester is the OBEX server.
  - The IUT is acting as AVRCP CT role in category 1.
  - An item with Cover Art is playing on the default Addressed Player at the Lower Tester.

- **Test Procedure**
  1. The Upper Tester triggers the IUT to issue a GetElementAttributes command to the Lower Tester with the identifier parameter set to Playing and the AttributeID list containing the Cover Art AttributeID.
  2. Upon receipt of a GetElementAttributes command from the IUT, the Lower Tester issues an appropriate GetElementAttributes response message.
• Expected Outcome
  
  Pass verdict
  
  The IUT shall issue a well-formatted GetElementAttributes command to the Lower Tester.

  The GetElementAttributes command shall have the identifier parameter set to Playing.

  The Cover Art AttributeID shall be among the AttributeIDs requested in the GetElementAttributes command.

4.2.9.6  AVRCP/TG/CA/BV-06-C [Use GetElementAttributes to request Cover Art Attribute – TG]

• Test Purpose
  
  To verify that the IUT can correctly respond to a GetElementAttributes command to retrieve the Cover Art Image Handle of the currently playing item.

• Reference
  
  Section 6.6.1 of [8]

• Initial Condition
  
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control channel between the IUT and the Lower Tester is established.
  - There is an active Cover Art OBEX connection where the IUT is the OBEX server and the Lower Tester is the OBEX client.
  - The IUT is acting as AVRCP TG role in category 1.
  - An item with Cover Art is playing on the default Addressed Player at the IUT.

• Test Procedure
  
  The Lower Tester issues a GetElementAttributes command to the IUT with the identifier parameter set to Playing and the AttributeID list containing the Cover Art AttributeID.
• Expected Outcome

Pass verdict

The IUT shall issue a well-formatted GetElementAttributes response message to the Lower Tester.

The GetElementAttributes response message shall contain the Cover Art Image Handle.

• Notes

The linkage between the returned Image Handle and retrieval of an image is covered in other tests (AVRCP/TG/CA/BV-08-C [Use the Imaging Property Object – TG], AVRCP/TG/CA/BV-10-C [Pull an Image as a Thumbnail – TG], AVRCP/TG/CA/BV-12-C [Pull a Thumbnail – TG] and AVRCP/TG/CA/BV-14-C [Pull a Native Image – TG]).

4.2.9.7 AVRCP/CT/CA/BV-07-C [Use the Imaging Property Object – CT]

• Test Purpose

To verify that the IUT can correctly use the image-properties object to individually check images for versions other than the native format, and request an image in a format other than the native one or the mandatory imaging thumbnail.

• Reference

Sections 5.14, 6.6.1, 6.10.4.2 and 6.10.4.3 of [8]

Sections 4.4.6.2, 4.5.7 and 4.5.8 of [9]

• Initial Condition

- One ACL connection exists between the IUT and the Lower Tester.
- The AVCTP control channel between the IUT and the Lower Tester is established.
- If the IUT uses GetItemAttributes, the browsing channel (ALT 1 only) between the IUT and the Lower Tester is established.

- There is an active Cover Art OBEX connection where the IUT is the OBEX client and the Lower Tester is the OBEX server.

- The IUT is acting as AVRCP CT role in category 1.

- The IUT has successfully retrieved a Cover Art Image Handle by using either of the following methods:
  
  › ALT 1: The IUT issues a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player. The IUT issues the GetItemAttributes or GetFolderItems commands to the Lower Tester. At least one item with Cover Art is available in the default folder on the Browsed Player at the Lower Tester.

  › ALT 2: An item with Cover Art is playing on the default Addressed Player at the Lower Tester. The IUT issues the GetElementAttributes command to the Lower Tester.

• Test Procedure

  1. The Upper Tester triggers the IUT to issue a GetImageProperties request to the Lower Tester with the Image Handle parameter set to one of the handles retrieved during the setup of the initial condition.

  2. Upon receipt of a GetImageProperties request from the IUT, the Lower Tester issues an appropriate GetImageProperties response message containing an image-properties object.

  3. Repeat steps 1 and 2 until the Lower Tester returns an image-properties object indicating an image in a format other than the native and the mandatory imaging thumbnail. The image-properties object for the image shall at least contain a non-empty variant element with at least <variant encoding="JPEG" pixel="200*200" /> and another variant (for example, <variant encoding="GIF" pixel="640*420" />) that is different from the native image.

  4. The IUT is triggered to issue a GetImage request to the Lower Tester with the Image Handle parameter corresponding to the image identified from step 3 and an Image Descriptor parameter describing a non-thumbnail image variant.

  5. Upon receipt of a GetImage request from the IUT, the Lower Tester issues an appropriate GetImage response message.
• Expected Outcome

**Pass verdict**

The IUT shall issue a well-formatted GetImageProperties requests to the Lower Tester.

Each GetImageProperties request shall include a valid Connection ID, a Type header of "x-bt/img-properties" and a valid Image Handle.

The IUT shall issue a well-formatted GetImage request to the Lower Tester.

The GetImage request shall include a valid Connection ID, a Type header of x-bt/img-img, a valid Image Handle and a well-formatted Image Descriptor.

The Image Handle used in the GetImage request shall be that of an image that has a non-thumbnail variant.

The Image Descriptor used in the GetImage request shall describe a non-thumbnail format.

• Notes

The Lower Tester will make sure that the variant is offered in at least one format that is supported by the IUT as declared in [6] for the Cover Art feature. For IUTs that support only the mandatory imaging thumbnail format, this test does not apply.

4.2.9.8  **AVRCP/TG/CA/BV-08-C [Use the Imaging Property Object – TG]**

• Test Purpose

To verify that the IUT can correctly handle the image-properties object, and individually provide image versions other than the native format, and respond with an image in a format other than the native one or the mandatory imaging thumbnail.
• Reference
Sections 5.14, 6.6.1, 6.10.4.2 and 6.10.4.3 of [8]
Sections 4.4.6.2, 4.5.7 and 4.5.8 of [9]

• Initial Condition
- One ACL connection exists between the IUT and the Lower Tester.
- The AVCTP control channel between the IUT and the Lower Tester is established.
- If the Lower Tester uses GetIItemAttributes (ALT 1), the browsing channel between the IUT and the Lower Tester is established.
- There is an active Cover Art OBEX connection where the IUT is the OBEX server and the Lower Tester is the OBEX client.
- The IUT is acting as AVRCP TG role in category 1.
- The Lower Tester has successfully retrieved a Cover Art Image Handle by using either of the following methods:
  › ALT 1: The Lower Tester issues a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player. The Lower Tester issues the GetIItemAttributes or GetFolderItems commands to the IUT. At least one item with Cover Art is available in the default folder on the Browsed Player of the IUT.
  › ALT 2: An item with Cover Art is playing on the default Addressed Player of the IUT. The Lower Tester issues the GetElementAttributes command to the IUT.

• Test Procedure
1. The Lower Tester issues a GetImageProperties request to the IUT with the Image Handle parameter set to one of the handles retrieved during the setup of the initial condition.
2. Upon receipt of a GetImageProperties request from the Lower Tester, the IUT issues an appropriate GetImageProperties response message containing an image-properties object.
3. Repeat steps 1 and 2 until the IUT returns an image-properties object indicating an image in a format other than the native and the mandatory imaging thumbnail. The image-properties object for the image shall at least contain a non-empty variant element with at least <variant encoding="JPEG" pixel="200*200" /> and another variant (for example, <variant encoding="GIF" pixel="640*420" />) that is different from the native image.
4. The Lower Tester issues a GetImage request to the IUT with the Image Handle parameter corresponding to the image identified from step 3 and an Image Descriptor parameter describing a non-thumbnail image variant.
5. Upon receipt of a GetImage request from the Lower Tester, the IUT issues an appropriate GetImage response message.
• **Expected Outcome**

**Pass verdict**

The IUT shall respond to the GetImageProperties requests from the Lower Tester.

The IUT shall respond to the GetImage request from the Lower Tester with a non-thumbnail format Image.

• **Notes**

The IUT will make sure that the variant is offered in at least one format other than the native one or the mandatory imaging thumbnail. For IUTs that support only the mandatory imaging thumbnail format, this test does not apply.

**4.2.9.9 AVRCP/CT/CA/BV-09-C [Pull an Image as a Thumbnail – CT]**

• **Test Purpose**

To verify that the IUT can correctly retrieve the thumbnail format of the available images.

• **Reference**

Sections 5.14, 6.6.1, 6.10.4.2 and 6.10.4.3 of [8]

Section 4.5.8 of [9]

• **Initial Condition**

- One ACL connection exists between the IUT and the Lower Tester.
- The AVCTP control channel between the IUT and the Lower Tester is established.
- If the IUT uses GetItemAttributes, the browsing channel between the IUT and the Lower Tester is established.
- There is an active Cover Art OBEX connection where the IUT is the OBEX client and the Lower Tester is the OBEX server.

- The IUT is acting as AVRCP CT role in category 1.

- The IUT has successfully retrieved a Cover Art Image Handle by using either of the following methods:
  - ALT 1: The IUT issues a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player. The IUT issues the GetItemAttributes or GetFolderItems commands to the Lower Tester. At least one item with Cover Art is available in the default folder on the Browsed Player at the Lower Tester.
  - ALT 2: An item with Cover Art is playing on the default Addressed Player at the Lower Tester. The IUT issues the GetElementAttributes command to the Lower Tester.

• Test Procedure
  1. The Upper Tester triggers the IUT to issue a GetImage request to the Lower Tester with the Image Handle parameter set to one of the handles retrieved during the setup of the initial condition and an Image Descriptor parameter describing the thumbnail format.

  2. Upon receipt of a GetImage request from the IUT, the Lower Tester issues an appropriate GetImage response message.

• Expected Outcome

  Pass verdict

  The IUT shall issue a well-formatted GetImage request to the Lower Tester.

  The ConnectionID, Image Handle, and Image Descriptor parameters in the GetImage request shall be present and valid.

  The Image Descriptor parameter in the GetImage request shall describe an imaging thumbnail.
4.2.9.10 AVRCP/TG/CA/BV-10-C [Pull an Image as a Thumbnail – TG]

- **Test Purpose**
  To verify that the IUT can correctly respond to requests for the thumbnail format of the available images.

- **Reference**
  Sections 5.14, 6.6.1, 6.10.4.2 and 6.10.4.3 of [8]
  Section 4.5.8 of [9]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control channel between the IUT and the Lower Tester is established.
  - If the Lower Tester uses GetItemAttributes (ALT 1), the browsing channel between the IUT and the Lower Tester is established.
  - There is an active Cover Art OBEX connection where the Lower Tester is the OBEX client and the IUT is the OBEX server.
  - The IUT is acting as AVRCP TG role in category 1.
  - The Lower Tester has successfully retrieved a Cover Art Image Handle by using either of the following methods:
    - ALT 1: The Lower Tester issues a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player. The Lower Tester issues the GetItemAttributes or GetFolderItems commands to the IUT. At least one item with Cover Art is available in the default folder on the Browsed Player at the IUT.
    - ALT 2: An item with Cover Art is playing on the default Addressed Player at the IUT. The Lower Tester issues the GetElementAttributes command to the IUT.

- **Test Procedure**
  1. The Lower Tester issues a GetImage request to the IUT, with the Image Handle parameter set to one of the handles retrieved during the setup of the initial condition, and an Image Descriptor parameter describing the thumbnail format.
  2. Upon receipt of a GetImage request from the Lower Tester, the IUT issues an appropriate GetImage response message.
• Expected Outcome

Pass verdict

The IUT shall respond to the GetImage request from the Lower Tester with a Thumbnail Image.

4.2.9.11 AVRCP/CT/CA/BV-11-C [Pull a Thumbnail – CT]

• Test Purpose

To verify that the IUT can correctly retrieve thumbnails.

• Reference

Sections 5.14, 6.6.1, 6.10.4.2 and 6.10.4.3 of [8]

Section 4.5.9 of [9]

• Initial Condition

- One ACL connection exists between the IUT and the Lower Tester.
- The AVCTP control channel between the IUT and the Lower Tester is established.
- If the IUT uses GetItemAttributes or GetFolderItems, the browsing channel between the IUT and the Lower Tester is established.
- There is an active Cover Art OBEX connection where the IUT is the OBEX client and the Lower Tester is the OBEX server.
- The IUT is acting as AVRCP CT role in category 1.
- The IUT has successfully retrieved a Cover Art Image Handle by using either of the following methods:
  
  › ALT 1: The IUT issues a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player. The IUT issues the GetItemAttributes or GetFolderItems commands to the Lower Tester. At least one item with Cover Art is available in the default folder on the Browsed Player at the Lower Tester.
  
  › ALT 2: An item with Cover Art is playing on the default Addressed Player at the Lower Tester. The IUT issues the GetElementAttributes command to the Lower Tester.

  • Test Procedure

  1. The Upper Tester triggers the IUT to issue a GetLinkedThumbnail request to the Lower Tester with the Image Handle parameter set to the handle retrieved during the setup of the initial condition.

  2. Upon receipt of a GetLinkedThumbnail request from the IUT, the Lower Tester issues an appropriate GetLinkedThumbnail response message.

  • Expected Outcome

  Pass verdict

  The IUT shall issue a well-formatted GetLinkedThumbnail request to the Lower Tester.

  The GetLinkedThumbnail request shall include a valid Connection ID, a Type header of “x-bt/img-thm”, and a valid Image Handle.
4.2.9.12 AVRCP/TG/CA/BV-12-C [Pull a Thumbnail – TG]

- **Test Purpose**
  To verify that the IUT can correctly respond to requests for thumbnails.

- **Reference**
  Sections 5.14, 6.6.1, 6.10.4.2 and 6.10.4.3 of [8]
  Section 4.5.9 of [9]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control channel between the IUT and the Lower Tester is established.
  - If the Lower Tester uses GetItemAttributes or GetFolderItems (both ALT 1), the browsing channel between the IUT and the Lower Tester is established.
  - There is an active Cover Art OBEX connection where the IUT is the OBEX server and the Lower Tester is the OBEX client.
  - The IUT is acting as AVRCP TG role in category 1.
  - The Lower Tester has successfully retrieved a Cover Art Image Handle by using either of the following methods:
    - ALT 1: The Lower Tester issues a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player. The Lower Tester issues the GetItemAttributes or GetFolderItems commands to the IUT. At least one item with Cover Art is available in the default folder on the Browsed Player at the IUT.
    - ALT 2: An item with Cover Art is playing on the default Addressed Player at the IUT. The Lower Tester issues the GetElementAttributes command to the IUT.

- **Test Procedure**
  1. The Lower Tester issues a GetLinkedThumbnail request to the IUT with the Image Handle parameter set to the handle retrieved during the setup of the initial condition.
  2. Upon receipt of a GetLinkedThumbnail request from the Lower Tester, the IUT issues an appropriate GetLinkedThumbnail response message.
• Expected Outcome

Pass verdict

The IUT shall respond to the GetLinkedThumbnail request from the Lower Tester with a Thumbnail Image.

4.2.9.13 AVRCP/CT/CA/BV-13-C [Pull a Native Image – CT]

• Test Purpose

To verify that the IUT can correctly retrieve an available image in native format.

• Reference

Sections 5.14, 4.4.6.2, 4.4.7.2 and 4.5.8 of [9]

• Initial Condition

- One ACL connection exists between the IUT and the Lower Tester.
- The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
- There is an active Cover Art OBEX connection where the IUT is the OBEX client and the Lower Tester is the OBEX server.
- The IUT is acting as AVRCP CT role in category 1.
- The IUT has successfully retrieved a Cover Art Image Handle by using either of the following methods:
  > ALT 1: The IUT issues a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player. The IUT issues the GetItemAttributes or GetFolderItems commands
to the Lower Tester. At least one item with Cover Art is available in the default folder on the Browsed Player at the Lower Tester.

ALT 2: An item with Cover Art is playing on the default Addressed Player at the Lower Tester. The IUT issues the GetElementAttributes command to the Lower Tester.

• Test Procedure
  1. The Upper Tester triggers the IUT to issue a GetImage request to the Lower Tester with the Image Handle parameter set to the handle retrieved during the set-up of the initial condition and an empty Image Descriptor parameter.

  2. Upon receipt of a GetImage request from the IUT, the Lower Tester issues an appropriate GetImage response message.

• Expected Outcome
  Pass verdict
  The IUT shall issue a well-formatted GetImage request to the Lower Tester.
  The ConnectionID and Image Handle parameters in the GetImage request shall be present and valid.
  The Image Descriptor parameter in the GetImage request shall be empty.

4.2.9.14 AVRCP/TG/CA/BV-14-C [Pull a Native Image – TG]

• Test Purpose
  To verify that the IUT can correctly respond to requests for an available image in native format.

• Reference
  Sections 5.14, 4.4.6.2, 4.4.7.2 and 4.5.8 of [9]
• Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - There is an active Cover Art OBEX connection where the IUT is the OBEX server and the Lower Tester is the OBEX client.
  - The IUT is acting as AVRCP TG role in category 1.
  - The Lower Tester has successfully retrieved a Cover Art Image Handle by using either of the following methods:
    › ALT 1: The Lower Tester issues a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player. The Lower Tester issues the GetItemAttributes or GetFolderItems commands to the IUT. At least one item with Cover Art is available in the default folder on the Browsed Player at the IUT.
    › ALT 2: An item with Cover Art is playing on the default Addressed Player at the IUT. The Lower Tester issues the GetElementAttributes command to the IUT.

• Test Procedure
  1. The Lower Tester issues a GetImage request to the IUT with the Image Handle parameter set to the handle retrieved during the set-up of the initial condition and an empty Image Descriptor parameter.
  2. Upon receipt of a GetImage request from the Lower Tester, the IUT issues an appropriate GetImage response message.
• Expected Outcome
   Pass verdict

   The IUT shall respond to the GetImage request from the Lower Tester with a native format Image.

   The Image Descriptor parameter in the GetImage request shall be empty.

4.2.9.15 AVRCP/CT/CA/BV-15-C [Cover Art SDP Record – CT]

• Test Purpose
   To verify that the IUT can retrieve the AVRCP SDP record to determine the PSM on which the Cover Art OBEX service is running.

• Reference
   Section 8 of [8]

   Section 3.4 of [10]

   Section 5.4 of [11]

• Initial Condition
   - An L2CAP connection for SDP exists between the IUT and the Lower Tester.
   - The IUT is acting as AVRCP CT role in category 1.

• Test Procedure
   1. The Upper Tester triggers the IUT to issue an SDP query to the Lower Tester to retrieve the AVRCP Cover Art PSM from the Lower Tester.

   2. The Lower Tester issues an SDP response message conveying the AVRCP Cover Art PSM.

   3. The IUT creates an L2CAP channel on the PSM associated with the AVRCP Cover Art and then issues an OBEX CONNECT request on it.

   4. Upon receipt of an OBEX CONNECT request the Lower Tester issues an appropriate OBEX CONNECT response.
• Expected Outcome

**Pass verdict**

The IUT shall use SDP to request the PSM associated with AVRCP Cover Art.

The IUT shall create an L2CAP channel on the PSM published in the Lower Tester’s AVRCP SDP record.

The IUT shall issue an OBEX CONNECT [0x80] request on the created L2CAP channel.

4.2.9.16 AVRCP/TG/CA/BV-16-C [Cover Art SDP Record – TG]

• Test Purpose

To verify that the IUT correctly publishes an AVRCP SDP record indicating support for the Cover Art feature and the PSM on which the Cover Art OBEX service is running.

• Reference

  Section 8 of [8]

  Section 3.4 of [10]

  Section 5.4 of [11]

• Initial Condition

  - An L2CAP connection for SDP exists between the IUT and the Lower Tester.

  - The IUT is acting as AVRCP TG role in category 1.
• Test Procedure
1. The Lower Tester issues an SDP query to the IUT to retrieve the AVRCP Cover Art PSM from the IUT.
2. The IUT issues an SDP response message conveying the AVRCP Cover Art PSM.
3. The Lower Tester issues an OBEX CONNECT request on an L2CAP channel created on the PSM associated with AVRCP Cover Art obtained from the IUT after step 2.
4. Upon receipt of an OBEX CONNECT request the IUT issues an appropriate OBEX CONNECT response.

• Expected Outcome
  Pass verdict

The IUT shall respond with an appropriate SDP response, which contains the requested attribute containing the L2CAP PSM associated with AVRCP Cover Art.

The OBEX CONNECT response from the IUT shall be well-formatted and indicates success.

4.2.9.17 AVRCP/CT/CA/BV-17-C [UIDs Changed During Cover Art – CT]
• Test Purpose
  To verify that when there is an OBEX Cover Art connection and the Lower Tester is a database aware player, the IUT disconnects OBEX connection when Lower Tester issues a UIDs Changed notification.

• Reference
  Sections 6.10.3.3, 6.10.4.2 and 6.10.4.3 of [8]

  Section 4.5.8 of [9]
• Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - There is an active Cover Art OBEX connection where the IUT is the OBEX client and the Lower Tester is the OBEX server.
  - The IUT is acting as AVRCP CT role in category 1.
  - The Browsed Player and the default Addressed Player at the Lower Tester are the same player, called the Cover Art Player.
  - At least one item with Cover Art is available in the default folder on the Cover Art Player.
  - The Cover Art Player is database-aware.
  - The IUT has registered for a UIDs Changed notification via the AVRCP RegisterNotification command.

• Test Procedure
  1. The Lower Tester issues a Register Notification response message to the IUT with the EventID parameter set to EVENT_UIDS_CHANGED.
  2. As a result of receiving notification, the IUT issues an OBEX DISCONNECT request to the Lower Tester.
  3. The Lower Tester sends an appropriate OBEX DISCONNECT response to the IUT, and upon successful response, the OBEX connection is disconnected.
  4. The IUT issues an AVRCP RegisterNotification command to the Lower Tester with the EventID parameter set to EVENT_UIDS_CHANGED to register again for notification of UID changes.
  5. The Lower Tester issues an appropriate AVRCP RegisterNotification interim response to the IUT. Note that the OBEX DISCONNECT transaction in steps 2-3 and the Register notification transaction in steps 4-5 can occur in either order.
  6. Subsequent to successful disconnection, the IUT issues an OBEX CONNECT request to the Lower Tester.
  7. The Lower Tester sends an appropriate OBEX CONNECT response to the IUT, and upon successful response, the OBEX connection is established.
  8. The IUT issues a request for a Cover Art Image Handle to the Lower Tester using either the AVRCP GetFolderItems or GetItemAttributes command.
  9. The Lower Tester sends an appropriate response to the command from step 8, which if successful, contains a Cover Art Image Handle.
 10. The IUT sends a GetImage or GetLinkedThumbnail request to the Lower Tester with the Image Handle parameter set to the handle received in step 9.
 11. The Lower Tester sends an appropriate GetImage or GetLinkedThumbnail response message to the IUT, which if successful, contains the requested image.
• Expected Outcome

Pass verdict

The IUT shall issue a well-formed and valid OBEX DISCONNECT request.

The IUT shall issue a well-formed RegisterNotification command with the EventID parameter set to EVENT_UIDS_CHANGED.

The IUT shall issue a well-formed and valid OBEX CONNECT request.

The IUT shall issue a well-formed and valid GetFolderItems or GetItemAttributes command.

The IUT shall issue a well-formed and valid GetImage request, with the Image Handle parameter set to the handle supplied by the Lower Tester.
4.2.9.18 AVRCP/CT/CA/BV-18-C [Database-Unaware Folder Change During Cover Art – CT]

- **Test Purpose**
  
  To verify that when there is an OBEX Cover Art connection and the Lower Tester is a database-unaware player, then when the IUT changes folder, OBEX is disconnected by the IUT.

- **Reference**
  
  Sections 6.6.1, 6.10.4.1, 6.10.4.2 and 6.10.4.3 of [8]
  
  Sections 4.5.8 and 4.5.9 of [9]

- **Initial Condition**
  
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - There is an active Cover Art OBEX connection where the IUT is the OBEX client and the Lower Tester is the OBEX server.
  - The IUT is acting as AVRCP CT role in category 1.
  - The Browsed Player and the default Addressed Player at the Lower Tester are the same player, called the Cover Art Player.
  - At least one item with Cover Art is available in the default folder on the Cover Art Player.
  - The Cover Art Player is database-unaware but supports browsing.

- **Test Procedure**
  
  1. The Upper Tester triggers the IUT to issue a request for a Cover Art Image Handle to the Lower Tester using either the AVRCP GetFolderItems or GetItemAttributes command.
  2. The Lower Tester sends an appropriate response to the command from step 1, which if successful, contains a Cover Art Image Handle.
  3. The IUT issues an AVRCP ChangePath command to the Lower Tester to navigate to another part of the virtual filesystem.
  4. The Lower Tester issues an appropriate ChangePath response message to the IUT.
  5. Upon receipt of a successful ChangePath response, the IUT issues an OBEX DISCONNECT request.
  6. The Lower Tester sends an appropriate OBEX DISCONNECT response to the IUT, and upon successful response, the OBEX connection is disconnected.
  7. Subsequent to successful disconnection, the IUT issues an OBEX CONNECT request to the Lower Tester.
  8. The Lower Tester sends an appropriate OBEX CONNECT response to the IUT, and upon successful response, the OBEX connection is established.
  9. The IUT issues a request for a Cover Art Image Handle to the Lower Tester using either the AVRCP GetFolderItems or GetItemAttributes commands.
10. The Lower Tester sends an appropriate response to the command from step 9, which if successful, contains a Cover Art Image Handle.

11. The IUT sends a GetImage or GetLinkedThumbnail request to the Lower Tester with the Image Handle parameter set to the handle received in step 10.

12. The Lower Tester sends an appropriate GetImage or GetLinkedThumbnail response to the IUT, which if successful, contains the requested image.

• Expected Outcome

**Pass verdict**

The IUT shall issue a well-formed and valid GetFolderItems or GetItemAttributes command.

The IUT shall issue a well-formed and valid ChangePath command.

The IUT shall issue a well-formed and valid OBEX DISCONNECT request.

The IUT shall issue a well-formed and valid OBEX CONNECT request.

The IUT shall issue a well-formed and valid GetImage or GetLinkedThumbnail request, with the Image Handle parameter set to the handle supplied by the Lower Tester after OBEX reconnection.
4.2.9.19 AVRCP/TG/CA/B1-01-C [Retrieval of Cover Art Attribute with no OBEX connection – TG]

- **Test Purpose**
  To verify that when the Lower Tester attempts to retrieve the Cover Art attribute when no OBEX connection exists, the IUT does not return an image handle.

- **Reference**
  Section 6.10.4.2 of [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - No OBEX connection exists.
  - The IUT is acting as AVRCP TG role in category 1.
  - The Tester has successfully issued a SetBrowsedPlayer command to the player specified in [6] as the browsable player.
  - The Tester has successfully issued any necessary ChangePath commands to navigate to a folder on the Browsed Player of the IUT, containing at least one item with Cover Art [6].

- **Test Procedure**
  The Lower Tester issues a GetFolderItems command to the IUT, with the scope parameter set to Virtual Media Player Filesystem, and the attribute list containing only the Cover Art Attribute.
• **Expected Outcome**

  *Pass verdict*

  The IUT shall issue a well-formed GetFolderItems response.

  The number of returned items in the response shall be 0 and the Item List is empty.

  **4.2.9.20  AVRCP/TG/CA/BI-04-C [Retrieval of Cover Art Attribute with no OBEX connection using GetItemAttributes – TG]**

  • **Test Purpose**

    To verify that the IUT does not return an image handle, when the Lower Tester attempts to retrieve the Cover Art attribute using GetItemAttributes when no OBEX connection exists.

  • **Reference**

    Section 6.10.4.3 of [8]

  • **Initial Condition**

    - One ACL connection exists between the IUT and the Lower Tester.
    - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
    - No OBEX connection exists.
    - The IUT is acting as AVRCP TG role in category 1.
    - The Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.
    - The Tester has successfully issued any necessary ChangePath commands to navigate to a folder on the Browsed Player of the IUT, containing at least one item with Cover Art [6].

  • **Test Procedure**

    The Lower Tester issues a valid GetItemAttributes command to the IUT with the scope parameter set to Virtual Media Player Filesystem and the AttributeID list containing only the Cover Art AttributeID.
• Expected Outcome

Pass verdict

The IUT shall issue a well-formed GetItemAttributes response.

The GetItemAttributes response shall not contain an Attribute Value for the Cover Art Attribute for any elements.

4.2.9.21 AVRCP/TG/CA/BI-05-C [Retrieval of Cover Art Attribute with no OBEX connection using GetElementAttributes – TG]

• Test Purpose

To verify that the IUT does not return an image handle, when the Lower Tester attempts to retrieve the Cover Art attribute using GetElementAttributes when no OBEX connection exists.

• Reference

Section 6.6.1 of [8]

• Initial Condition

- One ACL connection exists between the IUT and the Lower Tester.
- The AVCTP control channel between the IUT and the Lower Tester is established.
- No OBEX connection exists.
- The IUT is acting as AVRCP TG role in category 1.
- An item with Cover Art is currently playing on the default Addressed Player on the IUT.
• Test Procedure
  The Lower Tester issues a valid GetElementAttributes command to the IUT with the identifier parameter set to Playing and the AttributeID list containing only the Cover Art AttributeID.

  ![Diagram](image)

  - Expected Outcome
    Pass verdict
    The IUT shall issue a well-formed GetElementAttributes response.
    The GetElementAttributes response shall not contain an Attribute Value for the Cover Art Attribute.

4.2.9.22 AVRCP/TG/CA/BI-06-C [Request of Unsupported Image Type – TG]

• Test Purpose
  To verify that when the IUT receives a request for an unsupported image type it can respond correctly.

• Reference
  Section 4.5.8 of [9]

• Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  - There is an active Cover Art OBEX connection where the IUT is the OBEX server and the Lower Tester is the OBEX client.
  - The IUT is acting as AVRCP TG role in category 1.
- The Lower Tester is aware of the currently valid Media Item UIDs on the IUT. This can be achieved by executing AVRCP/TG/MCN/CM/BV-02-C [GetFolderItems - TG].

- The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.

- The Lower Tester has successfully issued any necessary ChangePath commands to navigate to a folder on the Browsed Player of the IUT containing at least one item with Cover Art [6].

- The Lower Tester has issued a GetItemAttributes command to the IUT with the scope parameter set to Virtual Media Player Filesystem and valid entries for UID, UIDcounter, Number of Attributes and AttributeID list. The AttributeID list contains the Cover Art AttributeID.

- The Lower Tester issues a GetImageProperties to receive the imaging properties supported by the IUT.

**Test Procedure**

The Lower Tester issues a well-formed GetImage request to the IUT, with the Image Handle set to a valid handle discovered during the setup of the initial condition, and an Image Descriptor parameter describing an image format unsupported by the IUT, according to the imaging properties received in the Initial Conditions.

**GET Request:**

\[
\text{GetImage(Image handle, Image descriptor with format not supported by IUT)}
\]

**GET Response:**

\[
\text{OBEX error code}
\]

**Expected Outcome**

**Pass verdict**

The IUT shall issue a well-formed GetImage response.

The GetImage response shall contain a well-formed OBEX error code (e.g. ‘Not Acceptable’, etc).
4.2.9.23 AVRCP/TG/CA/BI-07-C [Request of Unsupported Image Type without browsing – TG]

- **Test Purpose**
  
  To verify that when the IUT receives a request for an unsupported image type it can respond correctly.

- **Reference**
  
  Section 4.5.8 of [9]

- **Initial Condition**
  
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control channel between the IUT and the Lower Tester is established.
  - There is an active Cover Art OBEX connection where the IUT is the OBEX server and the Lower Tester is the OBEX client.
  - The IUT is acting as AVRCp TG role in category 1.
  - An item with Cover Art is currently playing on the Addressed Player on the IUT. The tester issues the getElementAttributes command to the IUT.
  - The Lower Tester issues a GetImageProperties to receive the imaging properties supported by the IUT.

- **Test Procedure**

  The Lower Tester issues a well-formed GetImage request to the IUT, with the Image Handle set to a valid handle discovered during the setup of the initial condition, and an Image Descriptor parameter describing an image format unsupported by the IUT, according to the imaging properties received in the Initial Conditions.

```
GET Request:
GetImage(Image handle, Image descriptor with format not supported by IUT)

GET Response:
OBEX error code
```
**4.2.9.24  AVRCP/TG/CA/BI-08-C [Use GetFolderItems to request Cover Art Attribute – TG]**

- **Expected Outcome**
  
  Pass verdict

  The IUT shall issue a well-formed GetImage response.

- **Test Purpose**
  
  To verify that when the Lower Tester attempts to retrieve the Cover Art attribute using GetFolderItems, and when no item in the selected folder has associated Cover Art, then the IUT does not return an image handle.

- **Reference**
  
  Section 6.10.4.2 of [8]

  Section 4.4.4 of [9]

- **Initial Condition**

  - One ACL connection exists between the IUT and the Lower Tester.
  
  - The AVCTP control and browsing channels between the IUT and the Lower Tester are established.
  
  - There is an active Cover Art OBEX connection where the IUT is the OBEX server and the Lower Tester is the OBEX client.
  
  - The IUT is acting as AVRCP TG role in category 1.
  
  - The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in the IXIT [6] as the browsable player.
  
  - The Lower Tester has successfully issued any necessary ChangePath commands to navigate to a folder on the Browsed Player of the IUT, containing only items with no associated Cover Art as specified in the IXIT [6].

- **Test Procedure**

  The Lower Tester issues a GetFolderItems command to the IUT with the scope parameter set to Virtual Media Player Filesystem and the attribute list containing the Cover Art Attribute.
• Expected Outcome

Pass verdict

The IUT shall issue a well-formatted GetFolderItems response message to the Lower Tester.

The GetFolderItems response message shall not contain a Cover Art Image Handle.

• Notes

Note that although the test does not directly use the Cover Art OBEX connection it must exist for there to be valid Image Handles available on the TG (Imaging Responder).

4.2.9.25 AVRCP/TG/CA/BI-09-C [Use GetItemAttributes to request Cover Art Attribute – TG]

• Test Purpose

To verify that when the Lower Tester attempts to retrieve the Cover Art attribute using GetItemAttributes, and when the selected item has no associated Cover Art, then the IUT does not return an image handle.

• Reference

Section 6.10.4.3 of [8]

Section 4.5.8 of [9]

• Initial Condition

- One ACL connection exists between the IUT and the Lower Tester.

- The AVCTP control channel between the IUT and the Lower Tester is established.

- There is an active Cover Art OBEX connection where the IUT is the OBEX server and the Lower Tester is the OBEX client.
- The IUT is acting as AVRCP TG role in category 1.
- The Lower Tester is aware of the currently valid Media Item UIDs on the IUT. This can be achieved by executing AVRCP/TG/MCN/CB/BV-02-C [GetFolderItems - TG].
- The Lower Tester has successfully issued a SetBrowsedPlayer command to the player specified in [6] as the browsable player.
- The Lower Tester has successfully issued any necessary ChangePath commands to navigate to a folder on the Browsed Player on the IUT containing only items with no associated Cover Art [6].

• Test Procedure

The Lower Tester issues a GetItemAttributes command to the IUT, with the scope parameter set to Virtual Media Player Filesystem, and valid entries for UID, UIDcounter, Number of Attributes and AttributeID list. The AttributeID list contains the Cover Art AttributeID.

```
GetItemAttributes (Virtual Filesystem)
(Cover Art Attribute)
Upper TesterIUTLower Tester
OBEX connection where IUT is server
AVCTP control connection
AVCTP browsing connection
GetItemAttributes Response
(No Cover Art Image Handle)
Cover Art attribute is requested
```

• Expected Outcome

Pass verdict

The IUT shall issue a well-formatted GetItemAttributes response message to the Lower Tester.

The GetItemAttributes response message shall not contain a Cover Art Image Handle.

4.2.9.26 AVRCP/TG/CA/BI-10-C [Use GetElementAttributes to request Cover Art Attribute – TG]

• Test Purpose

To verify that when the Lower Tester attempts to retrieve the Cover Art attribute using GetElementAttributes with the Playing identifier, and when the selected element has no associated Cover Art, that the IUT does not return an image handle.
- Reference
  Section 6.6.1 of [8]

- Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP control channel between the IUT and the Lower Tester is established.
  - There is an active Cover Art OBEX connection where the IUT is the OBEX server and the Lower Tester is the OBEX client.
  - The IUT is acting as AVRCP TG role in category 1.
  - An item with no associated Cover Art is playing on the default Addressed Player at the IUT.

- Test Procedure
  The Lower Tester issues a GetElementAttributes command to the IUT with the identifier parameter set to Playing and the AttributeID list containing the Cover Art AttributeID.

- Expected Outcome
  Pass verdict
  The IUT shall issue a well-formatted GetElementAttributes response message to the Lower Tester.
  The GetElementAttributes response message shall not contain a Cover Art Image Handle.
4.3 Interoperability Tests

4.3.1 Media Player Selection tests

4.3.1.1 Listing of available media players

- Test Case ID(s)
  
  AVRCP/CT/MPS/BV-01-I
  
  AVRCP/TG/MPS/BV-01-I

- Test Purpose
  
  CT: To verify the CT is able to request the list of available Media Players announced by the TG.

  TG: To verify that the TG returns the complete list of available Media Players.

- Reference
  
  Section 5.9 and 6.9 of [5]

- Initial Condition
  
  A connection for control is established.

- Test Procedure
  
  CT: Initiate the action on the CT to list the Media Players available on the TG.

  TG: No action is required.

- Expected Outcome
  
  Pass verdict

  The CT displays the list of Media Players that are available on the TG.

4.3.1.2 Availability of media players

- Test Case ID(s)
  
  AVRCP/CT/MPS/BV-02-I
  
  AVRCP/TG/MPS/BV-02-I

- Test Purpose
  
  CT: To verify the CT is able to access each Media Player announced as available by the TG.

  TG: To verify that each Media Player announced by the TG can be accessed without additional user interaction on the TG device.

- Reference
  
  Section 5.9 and 6.9 of [5]
• **Initial Condition**
  - A connection for control is established.
  
  - The list of available Media Players is available on the CT. This can be retrieved by executing `AVRCP/CT/MPS/BV-01-I - Listing of available media players`.

• **Test Procedure**
  
  **CT:** For each Media Player in the list of available Media Players, initiate an action on the CT, e.g. browsing or playing a title.

  **TG:** No action is required.

• **Expected Outcome**

  **Pass verdict**

  An action can be performed on each of the available Media Players without any user interaction required on the TG device.

### 4.3.1.3 PASS THROUGH functionality of Media Players

• **Test Case ID(s)**

  `AVRCP/CT/MPS/BV-03-I`
  
  `AVRCP/TG/MPS/BV-03-I`

• **Test Purpose**

  **CT:** To verify the CT can send the PASS THROUGH commands to the TG.

  **TG:** To verify that each Media Player on the TG reacts to the PASS THROUGH commands as announced in the IXIT [6] according to the operation_id list table in Section 7 Appendix A – Operation_id List Tables.

• **Reference**

  Section 5.9, 4.4.1, and 4.5 of [5]

• **Initial Condition**

  - A connection for control is established.

  - The list of available Media Players is available on the CT. This can be retrieved by executing `AVRCP/CT/MPS/BV-01-I - Listing of available media players`.

• **Test Procedure**

  **CT:** Initiate the required user actions (e.g. press button) to perform all operations that are listed in the IXIT MediaPlayerFeature table for each Media Player in [6].

  **TG:** No action is required.
• Expected Outcome
  
  Pass verdict

  The TG reacts to all performed PASS THROUGH commands sent from the CT according to the “Expected operation to be performed by the TG” of the section “operation_id list” in Section 7 Appendix A – Operation_id List Tables without any user interaction on the TG.

4.3.2 Media Content Navigation tests for Content Browsing

4.3.2.1 Browsing of the current folder

• Test Case ID(s)
  
  AVRCP/CT/MCN/CB/BV-01-I
  
  AVRCP/TG/MCN/CB/BV-01-I

• Test Purpose
  
  CT: To verify the CT is able to browse the current folder on the TG.

  TG: To verify the TG correctly browses the current folder requested by the CT.

• Reference
  
  Section 5.13 of [5]

• Initial Condition
  
  - A connection for control is established.
  
  - An appropriate folder for browsing media content on the TG has been selected.

• Test Procedure
  
  CT: Initiate the action on the CT to browse through the media content of the currently selected folder on the TG.

  TG: No action is required.

• Expected Outcome
  
  Pass verdict

  The expected media content is displayed on the CT.
4.3.2.2 Browsing up

- Test Case ID(s)
  
  AVRCP/CT/MCN/CB/BV-02-I
  AVRCP/TG/MCN/CB/BV-02-I

- Test Purpose
  
  CT: To verify the CT is able to browse into the superordinate folder on the TG.
  
  TG: To verify the TG correctly browses into the superordinate folder as requested by the CT.

- Reference
  
  Section 5.13 of [5]

- Initial Condition
  
  - A connection for control is established.
  
  - A folder on the TG has been selected as current folder that actually has a superordinate folder.

- Test Procedure
  
  CT: Initiate the action on the CT to change into the folder superior to the current folder in the folder hierarchy (‘folder up’).
  
  TG: No action is required.

- Expected Outcome
  
  Pass verdict
  
  The CT indicates the superordinate folder as current folder.

4.3.2.3 Browsing down

- Test Case ID(s)
  
  AVRCP/CT/MCN/CB/BV-03-I
  AVRCP/TG/MCN/CB/BV-03-I

- Test Purpose
  
  CT: To verify the CT is able to change into a subfolder of the current folder on the TG and browse it.
  
  TG: To verify the TG correctly changes into a subfolder and returns its content as requested by the CT.

- Reference
  
  Section 5.13 of [5]
4.3.2.4 Playing of a track from the media player virtual file system

• Test Case ID(s)
  AVRCP/CT/MCN/CB/BV-04-I
  AVRCP/TG/MCN/CB/BV-04-I

• Test Purpose
  CT: To verify the CT is able to start playback of a track offered by the TG in the Virtual Media Player Filesystem and correctly displays the NowPlaying list.

  TG: To verify the TG correctly plays a track from the Virtual Media Player Filesystem requested by the CT and updates the NowPlaying folder accordingly.

• Reference
  Section 5.10 of [5]

• Initial Condition
  - A connection for control is established.
  - A folder on the TG has been selected as current folder that actually contains at least one media track.

• Test Procedure
  CT: Initiate the action on the CT to start playback of a track from the Virtual Filesystem.

  TG: No action is required.

• Expected Outcome
  Pass verdict

  The desired media track is played on the TG.
4.3.2.5 Change in media database

- **Test Case ID(s)**
  - AVRCP/CT/MCN/CB/BV-05-I
  - AVRCP/TG/MCN/CB/BV-05-I

- **Test Purpose**
  CT: To verify the CT correctly handles a database change notified by the TG.
  TG: To verify the TG correctly handles a change within its media database (e.g. exchange of memory card).

- **Reference**
  Section 6.10.3.1 of [5] [8]

- **Initial Condition**
  - A Connection for control is established.
  - The CT has already accessed part of the database on the TG. This can be achieved e.g. by executing AVRCP/CT/MCN/CB/BV-01-I - Browsing of the current folder.

- **Test Procedure**
  CT: No action is required.
  TG: Initiate the action on the TG to apply a change to the media database.

- **Expected Outcome**
  Pass verdict
  The CT indicates it correctly handles the database change on the TG, e.g. by updating the information displayed.

4.3.2.6 Metadata from virtual file system

- **Test Case ID(s)**
  - AVRCP/CT/MCN/CB/BV-06-I
  - AVRCP/TG/MCN/CB/BV-06-I

- **Test Purpose**
  CT: To verify the CT is able to request metadata information for a track other than currently playing one from the Virtual Filesystem.
  TG: To verify the TG correctly returns the metadata information for the track from the Virtual Filesystem list as requested by the CT.

- **Reference**
  Section 5.13.2 and 6.10.1.2 of [5] [8]
• Initial Condition
  - A connection for control is established.
  - The TG is currently playing a track.

• Test Procedure
  CT: Initiate the action on the CT to request metadata information for a track other than the currently playing one from the Virtual Filesystem.
  TG: No action required.

• Expected Outcome
  Pass verdict
  The CT displays the correct metadata information for the desired track.

4.3.2.7  AVRCP/TG/MCN/CB/BV-07-I [Browsing of a folder if the player is not addressed]
• Test Purpose
  TG: To verify the CT is able to correctly browse the folder on a player that is not the currently addressed player as requested by the CT.

• Reference
  Section 5.13, 6.9 and 6.10.1.2 of [5] [8]

• Initial Condition
  - A connection for control is established.
  - Multiple Players are available on the TG with at least one Player supporting Browsing.

• Test Procedure
  Initiate the action on the CT to select a Player as the currently addressed one, e.g. by playing a track. Then browse into a Player different from that addressed Player.

• Test Condition
  There is a Player available on the TG that supports browsing and the OnlyBrowsableWhenAddressed bit is not set in the Player Feature bitmask.

• Expected Outcome
  Pass verdict
  The CT is able to retrieve the media content of the browsed Player on the TG as requested.

4.3.2.8  AVRCP/TG/MCN/CB/BI-08-C [Browsing of a folder in the player only when addressed]
• Test Purpose
  TG: To verify that TG is able to reject browsing requests when browsing of non-addressed players is not supported.
• Reference
Section 5.13, 6.9, and 6.10.1.2 of [5] [8]

• Initial Condition
- A connection for control is established.

• Test Procedure
Initiate the action on the CT to select a Player as the currently addressed one, e.g., by playing a track. Then browse into a Player different from that addressed Player.

• Test Condition
There is a Player available on the TG that supports browsing and the OnlyBrowsableWhenAddressed bit is set in the Player Feature bitmask.

• Expected Outcome
Pass verdict
The TG sends a properly formatted response PDU to the Lower Tester with status code = 0x13 - Player Not Addressed.

4.3.2.9 AVRCP/CT/MCN/CB/BV-09-I [CT can retrieve the Metadata virtual file system from TG with future SDP version]

• Test Purpose
To verify the CT is able to request metadata information for a track other than currently playing one from the Virtual Filesystem when the TG supports a later profile version.

• Reference
Section 5.13.2 and 6.10.1.2 of [5] [8]

• Initial Condition
- The Lower Tester supports an SDP version that is greater than the current published version, e.g. AVRCP v 1.9.
- The Lower Tester has all the bits in its Supported Features SDP attributes set, including those that are RFA.
- A connection for control is established.
- The Lower Tester acting as TG is currently playing a track.

• Test Procedure
Initiate the action on the CT to request metadata information for a track other than the currently playing one from the Virtual Filesystem.
• Expected Outcome
Pass verdict

The CT receives the correct metadata information for the desired track and can provide it to the Upper Tester.

4.3.3 Media Content Navigation tests for Search

4.3.3.1 Search Request

• Test Case ID(s)
  AVRCP/CT/MCN/SRC/BV-01-I
  AVRCP/TG/MCN/SRC/BV-01-I

• Test Purpose
  CT: To verify the CT is able to correctly submit a search request to the TG and display the results.
  TG: To verify the TG correctly responds to a search requested by the CT.

• Reference
  Section 5.12 of [5] [8]

• Initial Condition
  A connection for control is established.

• Test Procedure
  CT: Initiate the action on the CT to Search for a media item on the TG.
  TG: No action required.

• Expected Outcome
  Pass verdict

  The CT displays the expected Search Results.

4.3.3.2 Browsing of the search results

• Test Case ID(s)
  AVRCP/CT/MCN/SRC/BV-02-I
  AVRCP/TG/MCN/SRC/BV-02-I

• Test Purpose
  CT: To verify the CT is able to browse the Search Results.
  TG: To verify the TG correctly returns the content of the Search Results as requested by the CT.
• Reference
  Section 5.13.3 of [5] [8]

• Initial Condition
  - A connection for control is established.
  - A successful Search operation has been performed with the Search results still being valid. This can be achieved by executing `AVRCP/CT/MCN/SRC/BV-01-I - Search Request`.

• Test Procedure
  **CT:** Initiate the action on the CT to browse through the Search results.
  **TG:** No action required.

• Expected Outcome
  **Pass verdict**
  The CT displays the expected Search Results.

4.3.3.3 Play from search results

• Test Case ID(s)
  `AVRCP/CT/MCN/SRC/BV-03-I`
  `AVRCP/TG/MCN/SRC/BV-03-I`

• Test Purpose
  **CT:** To verify the CT is able to request to play a track from the list of Search Results.
  **TG:** To verify the TG correctly plays the track from the Search Result list requested by the CT.

• Reference
  Section 5.13.3, 6.11, and 6.10.1.2 of [5] [8]

• Initial Condition
  - A connection for control is established.
  - A successful Search operation has been performed with the Search results still being valid. This can be achieved by executing `AVRCP/CT/MCN/SRC/BV-01-I - Search Request`.

• Test Procedure
  **CT:** Initiate the action on the CT to play a media item from the Search results.
  **TG:** No action required.
• Expected Outcome
  Pass verdict

  The TG plays the selected media item.

4.3.3.4 Metadata from search results

• Test Case ID(s)

  AVRCP/CT/MCN/SRC/BV-04-I
  AVRCP/TG/MCN/SRC/BV-04-I

• Test Purpose

  CT: To verify the CT is able to request metadata information for a track other than currently playing one from the list of Search Results.

  TG: To verify the TG correctly returns the metadata information for the track from the Search Result list as requested by the CT.

• Reference

  Section 5.13.3 of [5] [8]

• Initial Condition

  - A connection for control is established.

  - A successful Search operation has been performed with the Search results still being valid. This can be achieved by executing AVRCP/CT/MCN/SRC/BV-01-I - Search Request.

• Test Procedure

  CT: Initiate the action on the CT to request metadata information for a track other than the currently playing one from the Search Results.

  TG: No action required.

• Test Condition

  The TG might or might not be currently playing a track. In case a track is currently playing, the metadata shall not be requested for the currently playing track.

• Expected Outcome

  Pass verdict

  The CT displays the correct metadata information for the desired track.
4.3.4 Media Content Navigation tests for Now Playing

4.3.4.1 Playing of a track from the NowPlaying folder

- Test Case ID(s)
  
  AVRCP/CT/MCN/NP/BV-01-I
  
  AVRCP/TG/MCN/NP/BV-01-I

- Test Purpose
  
  CT: To verify the CT is able to start playback of a track offered by the TG in the NowPlaying folder and correctly displays the NowPlaying list.
  
  TG: To verify the TG correctly plays a track from the NowPlaying folder requested by the CT.

- Reference
  
  Section 5.10 of [5] [8]

- Initial Condition
  
  - A Connection for control is established.
  
  - The NowPlaying list already contains media items.

- Test Procedure
  
  CT: Initiate the action on the CT to start playback of a track in the NowPlaying list.
  
  TG: No action required.

- Expected Outcome
  
  Pass verdict
  
  The TG starts playback of the selected track.
  
  The CT correctly displays the NowPlaying list and the currently playing item.

4.3.4.2 Adding a file system track to NowPlaying list

- Test Case ID(s)
  
  AVRCP/CT/MCN/NP/BV-02-I
  
  AVRCP/TG/MCN/NP/BV-02-I

- Test Purpose
  
  CT: To verify the CT is able to request adding a track offered by the TG in its Virtual Filesystem.
  
  TG: To verify the TG correctly adds the track selected by the CT to its NowPlayingList.

- Reference
  
  Section 5.10 of [5] [8]
• Initial Condition
  - A connection for control is established.
  - The CT has browsed into the virtual file system. This can be achieved by executing
    AVRCP/CT/MCN/CB/BV-01-I - Browsing of the current folder.

• Test Procedure
  CT: Initiate the action on the CT to add a track from the Virtual Filesystem to the NowPlaying folder.
  TG: No action required.

• Expected Outcome
  Pass verdict
  The CT correctly displays the NowPlaying list containing the newly added media item.

4.3.4.3 Adding a Search Result track to NowPlaying list

• Test Case ID(s)
  AVRCP/CT/MCN/NP/BV-03-I
  AVRCP/TG/MCN/NP/BV-03-I

• Test Purpose
  CT: To verify the CT is able to request adding a track offered by the TG in the SearchResultList.
  TG: To verify the TG correctly adds the track selected by the CT to its NowPlaying list.

• Reference
  Section 5.10 of [5] [8]

• Initial Condition
  - A connection for control is established.
  - The CT has successfully performed a Search. This can be achieved by executing
    AVRCP/CT/MCN/SRC/BV-01-I - Search Request.

• Test Procedure
  CT: Initiate the action on the CT to add a track from the Search Result List to the NowPlaying folder.
  TG: No action required.

• Expected Outcome
  Pass verdict
  The CT correctly displays the NowPlaying list containing the newly added media item.
4.3.4.4  Local change of NowPlaying list on TG

- Test Case ID(s)
  
  AVRCP/CT/MCN/NP/BV-04-I
  AVRCP/TG/MCN/NP/BV-04-I

- Test Purpose
  
  CT: To verify the CT correctly updates the NowPlaying list when it has been changed locally on the TG.

  TG: To verify the TG correctly announces a change in the NowPlaying list that has been done locally on the TG.

- Reference
  
  Section 5.10 of [5] [8]

- Initial Condition
  
  - A connection for control is established.
  - The NowPlaying list on the TG contains at least one media item.

- Test Procedure
  
  CT: No action required.

  TG: Initiate the action on the TG to change the content of the NowPlaying folder.

- Expected Outcome

  Pass verdict

  The CT correctly displays the NowPlaying list containing the newly selected media item(s).

4.3.4.5  Metadata from NowPlayingList

- Test Case ID(s)
  
  AVRCP/CT/MCN/NP/BV-05-I
  AVRCP/TG/MCN/NP/BV-05-I

- Test Purpose
  
  CT: To verify the CT is able to request metadata information for a track other than currently playing one from the NowPlaying list.

  TG: To verify the TG correctly returns the metadata information for the track from the NowPlayingList as requested by the CT.

- Reference

  Section 5.13.4 of [5] [8]
• Initial Condition
   A connection for control is established.

• Test Procedure
   **CT:** Initiate the action on the CT to request metadata information for a track other than the currently playing one from the NowPlaying folder.

   **TG:** No action required.

• Test Condition
   The TG might or might not be currently playing a track. In case a track is currently playing, the metadata shall not be requested for the currently playing track.

• Expected Outcome
   **Pass verdict**
   The CT displays the correct metadata information for the desired track.

### 4.3.4.6 Browsing the NowPlaying folder

• Test Case ID(s)
   - **AVRCP/CT/MCN/NP/BV-06-I**
   - **AVRCP/TG/MCN/NP/BV-06-I**

• Test Purpose
   **CT:** To verify the CT is able to browse the NowPlaying folder.

   **TG:** To verify the TG correctly returns the content of the NowPlaying folder as requested by the CT.

• Reference
   Section 5.13.4 of [5] [8]

• Initial Condition
   - A Connection for control is established.
   - The NowPlaying Folder contains media items.

• Test Procedure
   **CT:** Initiate the action on the CT to browse through the NowPlaying folder.

   **TG:** No action required.

• Expected Outcome
   **Pass verdict**
   The CT displays the expected media items in the NowPlaying folder.
### 4.3.4.7 Adding a playable folder to NowPlaying list

- **Test Case ID(s)**
  - AVRCP/CT/MCN/NP/BV-07-I
  - AVRCP/TG/MCN/NP/BV-07-I

- **Test Purpose**
  - **CT**: To verify the CT is able to request adding a playable folder offered by the TG in the Virtual Filesystem.
  
  **TG**: To verify the TG correctly adds the tracks from the playable folder selected by the CT to its NowPlaying list.

- **Reference**
  
  Section 5.10 of [5] [8]

- **Initial Condition**
  - A connection for control is established.
  
  - The CT has browsed into the virtual file system. This can be achieved by executing AVRCP/CT/MCN/CB/BV-01-I - Browsing of the current folder.
  
  - The current folder on the TG contains a playable folder.

- **Test Procedure**
  
  **CT**: Initiate the action on the CT to add a playable folder from the Virtual Filesystem to the NowPlaying folder.

  **TG**: No action required.

- **Expected Outcome**
  
  **Pass verdict**

  The CT correctly displays the NowPlaying list containing the media items from the playable folder.

### 4.3.5 Volume Level Handling tests

#### 4.3.5.1 Monitoring the TG volume on the CT

- **Test Case ID(s)**
  - AVRCP/CT/VLH/BV-01-I
  
  AVRCP/TG/VLH/BV-01-I

- **Test Purpose**
  
  **CT**: To verify the CT is able to correctly receive Volume Changed events from the TG.

  **TG**: To verify the TG correctly announces local volume changes to the CT.
• Reference
  Section 5.8 of [5] [8]

• Initial Condition
  - A connection for control is established.
  - Some media is playing on the TG so that the volume level change can be verified acoustically.

• Test Procedure
  **Category 2 CT:** No action required.

  **Category 2 TG:** Initiate the action on the TG to change the volume.

• Expected Outcome
  **Pass verdict**

  The Category 2 CT correctly receives the Volume Changed events from the TG and updates any corresponding local state accordingly.

  The volume on the Category 2 TG is changed.

4.3.5.2 Changing the volume

• Test Case ID(s)
  **AVRCP/CT/VLH/BV-02-I**
  **AVRCP/TG/VLH/BV-02-I**

• Test Purpose
  **CT:** To verify that the CT can correctly set the absolute volume on the TG.

  **TG:** To verify the TG changes to the absolute volume requested by the CT.

• Reference
  Section 5.8 of [5] [8]

• Initial Condition
  - A connection for control is established.
  - Some media is playing on the TG so that the volume level change can be verified acoustically.

• Test Procedure
  **Category 2 CT:** Initiate the action on the CT to set the volume on the TG.

  **Category 2 TG:** No action required.
• Expected Outcome
  Pass verdict

  The TG changes to the new volume level.

4.3.6 Cover Art Tests

4.3.6.1 Retrieval of Multiple Cover Art Images

• Test Case ID(s)
  AVRCP/CT/CA/BV-01-I
  AVRCP/TG/CA/BV-01-I

• Test Purpose
  CT: Verify that the CT can retrieve multiple Cover Art images.

  TG: Verify that the TG is able to provide multiple Cover Art images.

• Reference
  Sections 6.6.1, 6.10.4.2 and 6.10.4.3 of [8]

  Sections 4.4.3, 4.4.6.2, 4.4.6.3, 4.5.1, 4.5.7, 4.5.8, and 4.5.9 of [9]

• Initial Condition
  - One ACL connection exists between the CT and the TG.
  - The AVCTP control and browsing channels between the CT and the TG are established.
  - There is an active Cover Art OBEX connection where the TG is the OBEX server and the CT is the OBEX client.
  - A folder containing multiple media items with Cover Art on the TG has been selected and browsed to on the CT.

• Test Procedure
  CT: Initiate the action on the CT to browse through the media content and retrieve the matching Cover Art in any format for all items in the current folder.

  TG: No action is required.

• Expected Outcome
  Pass verdict

  The appropriate Cover Art is displayed on the CT for each item in the folder.
4.3.6.2 Retrieval of Cover Art Image for the currently playing track

- **Test Case ID(s)**
  
  AVRCP/CT/CA/BV-02-I  
  AVRCP/TG/CA/BV-02-I

- **Test Purpose**
  
  **CT:** Verify that the CT can retrieve the cover art image for the currently playing track.
  
  **TG:** Verify that the TG is able to provide the cover art image for the currently playing track.

- **Reference**
  
  Section 6.10.4.2 of [8]
  
  Sections 4.4.3, 4.4.6.2, 4.4.6.3, 4.5.1, 4.5.7, 4.5.8, and 4.5.9 of [9]

- **Initial Condition**
  
  - One ACL connection exists between the CT and the TG.
  
  - The AVCTP control and browsing channels between the CT and the TG are established.
  
  - There is an active Cover Art OBEX connection where the TG is the OBEX server and the CT is the OBEX client.
  
  - A track with an associated Cover Art is currently playing on the TG.

- **Test Procedure**
  
  **CT:** Initiate the action on the CT to display cover art, if necessary.
  
  **TG:** No action is required.

- **Expected Outcome**
  
  Pass verdict
  
  The appropriate Cover Art is displayed on the CT for the track currently playing on the TG.

4.3.6.3 Retrieval of Cover Art Image for the currently playing track without browsing

- **Test Case ID(s)**
  
  AVRCP/CT/CA/BV-03-I  
  AVRCP/TG/CA/BV-03-I

- **Test Purpose**
  
  This test case is specific for devices that don't support the Browsing feature.

  **CT:** Verify that the CT can retrieve the cover art image for the currently playing track.
  
  **TG:** Verify that the TG is able to provide the cover art image for the currently playing track.
• Reference

Section 6.10.4.2 of [8]

Sections 4.4.3, 4.4.6.2, 4.4.6.3, 4.5.1, 4.5.7, 4.5.8, and 4.5.9 of [9]

• Initial Condition
- One ACL connection exists between the CT and the TG.
- The AVCTP control channel between the CT and the TG is established.
- There is an active Cover Art OBEX connection where the TG is the OBEX server and the CT is the OBEX client.
- A track with an associated Cover Art is currently playing on the TG.

• Test Procedure
  CT: Initiate the action on the CT to display cover art, if necessary.
  TG: No action is required.

• Expected Outcome
  Pass verdict

  The appropriate Cover Art is displayed on the CT for the track currently playing on the TG.

4.4 Connection Establishment for Control

Objectives:

To verify the connection establishment for control.

4.4.1 Connection establishment for control initiated from the CT

Objectives:

To verify the connection establishment initiated from the CT.

4.4.1.1 Connection establishment - CT

• Test Case ID(s)

  AVRCP/CT/CEC/BV-01-I
  AVRCP/TG/CEC/BV-01-I

• Test Purpose

  CT: To verify that the CT can establish a connection for control towards the TG.
  TG: To verify that the TG accepts a connection establishment initiated from the CT.
• Reference
  Section 4.1.1 in [2]
  Section 4.1.1 in [7]
  Section 4.1.1 in [5][8]

• Initial Condition
  - CT: Standby mode.
  - TG: Standby mode.

• Test Procedure
  CT: Initiate the user action (e.g. press button) on the CT to establish a connection to the TG.
  TG: No user action is required.

• Expected Outcome
  Pass verdict
  CT: It is possible to control the TG by the subsequent user action performed on the CT. It may be indicated that connection for control is established.
  TG: It may be indicated that connection for control is established.

4.4.2 Connection establishment for control initiated from the TG

Objectives:

To verify the connection establishment initiated from the TG.

4.4.2.1 Connection establishment - TG

• Test Case ID(s)

  AVRCP/CT/CEC/BV-02-I
  AVRCP/TG/CEC/BV-02-I

• Test Purpose
  CT: To verify that the CT accepts a connection establishment initiated from the TG.
  TG: To verify that the TG can establish a connection for control towards the CT.

• Reference
  Section 4.1.1 in [2]
  Section 4.1.1 in [7]
  Section 4.1.1 in [5][8]
• Initial Condition
  - CT: Standby mode
  - TG: Standby mode

• Test Procedure
  CT: No user action is required.
  TG: Initiate the user action (e.g. press button) on the TG to establish a connection to the CT.

• Expected Outcome
  Pass verdict
  CT: It is possible to control the TG by the subsequent user action performed on the CT. It may be indicated that connection for control is established.
  TG: It may be indicated that connection for control is established.

4.4.3 Connection release for control initiated from the CT

Objectives:
To verify the connection release initiated from the CT.

4.4.3.1 Connection release–CT

• Test Case ID(s)
  AVRCP/CT/CRC/BV-01-I
  AVRCP/TG/CRC/BV-01-I

• Test Purpose
  CT: To verify that the CT releases the connection for control with the TG.
  TG: To verify that the TG accepts connection release initiated from the CT.

• Reference
  Section 4.1.2 in [2]
  Section 4.1.2 in [7]
  Section 4.1.2 in [5] [8]

• Initial Condition
  - CT: A connection for control is established.
  - TG: A connection for control is established.
4.4.4 Connection release for control initiated from the TG

Objectives:
To verify the connection release initiated from the TG.

4.4.4.1 Connection release–TG

- **Test Case ID(s)**
  - AVRCP/CT/CRC/BV-02-I
  - AVRCP/TG/CRC/BV-02-I

- **Test Purpose**
  
  **CT:** To verify that the CT accepts connection release initiated from the TG.

  **TG:** To verify that the TG releases the connection for control with the CT.

- **Reference**
  
  Section 4.1.2 in [2]

  Section 4.1.2 in [7]

  Section 4.1.2 in [5] [8]

- **Initial Condition**
  
  - **CT:** A connection for control is established.
  - **TG:** A connection for control is established.

- **Test Procedure**
  
  **CT:** No user action is required.

  **TG:** Initiate the user action (e.g., press button) on the TG to release the connection to the CT.
• Expected Outcome
  Pass verdict

  The user action on the TG releases the connection for control.

  CT: The CT returns to standby mode. It may be indicated that connection for control is released.
  
  TG: The TG returns to standby mode. It may be indicated that connection for control is released.

4.5  Information collection for control

Objectives:

To verify the CT can collect the information of TG.

4.5.1  Information collection by UNIT INFO command

Objectives:

To verify Information collection by the UNIT INFO command.

4.5.1.1  Information collection by UNIT INFO command

• Test Case ID(s)
  
  AVRCP/CT/ICC/BV-01-I
  AVRCP/TG/ICC/BV-01-I

• Test Purpose
  
  CT: To verify that the CT can collect information of TG by UNIT INFO command.
  
  TG: To verify that the TG responds UNIT INFO command initiated by CT.

• Reference
  
  Section 4.1.3 and 4.4.1 in [2]
  Section 4.1.3 and 4.4.1 in [7]
  Section 4.1.3 and 4.2.1 in [5] [8]

• Initial Condition
  
  - CT: A connection for control is established.
  
  - TG: A connection for control is established.

• Test Procedure
  
  CT: Initiate the user action (e.g. press button) on the CT to collect information of TG by UNIT INFO command.
  
  TG: No user action is required.
• Expected Outcome
  
  Pass verdict

CT: It is indicated that UNIT INFO response is received from the TG. The method for indication depends on the device implementation.

TG: The UNIT INFO command is received from the CT and the UNIT INFO response is sent from the TG.

4.5.2 Information collection by SUBUNIT INFO command

Objectives:

To verify Information collection by the SUBUNIT INFO command transfer.

4.5.2.1 Information collection by SUBUNIT INFO command

• Test Case ID(s)

  AVRCP/CT/ICC/BV-02-I
  AVRCP/TG/ICC/BV-02-I

• Test Purpose

  CT: To verify that the CT can collect information of TG by SUBUNIT INFO command.

  TG: To verify that the TG responds SUBUNIT INFO command initiated by CT.

• Reference

  Section 4.1.3 and 4.4.2 in [2]
  Section 4.1.3 and 4.4.2 in [7]
  Section 4.1.3 and 4.2.2 in [5] [8]

• Initial Condition

  - CT: A connection for control is established.
  - TG: A connection for control is established.

• Test Procedure

  CT: Initiate the user action (e.g., press button) on the CT to collect information of TG by SUBUNIT INFO command.

  TG: No user action is required.

• Expected Outcome

  Pass verdict

CT: It is indicated that SUBUNIT INFO response is received from the TG. The method for indication depends on the device implementation.
TG: The SUBUNIT INFO command is received from the CT and the SUBUNIT INFO response is sent by the TG.

4.6 PASS THROUGH commands

Objectives:

To verify that the PASS THROUGH command is transferred.

4.6.1 Category 1 of PASS THROUGH command

Objectives:

To verify that the category 1 of PASS THROUGH command is transferred.

4.6.1.1 PASS THROUGH command transfer-category 1

- Test Case ID(s)
  
  AVRCP/CT/PTT/BV-01-I
  
  AVRCP/TG/PTT/BV-01-I

- Test Purpose

CT: To verify that the CT can send PASS THROUGH command in category 1 to the TG.

TG: To verify that the TG reacts to the PASS THROUGH command in category 1 from the CT according to the operation_id list in 7 Appendix A – Operation_id List Tables.

- Reference

  Section 4.1.3, 4.6.1, and 4.7 in [2]

  Section 4.1.3, 4.6.1, and 4.8 in [7]

  Section 4.1.3, 4.4.1, and 4.5 in [5] [8]

- Initial Condition

  - CT: A connection for control is established.

  - TG: A connection for control is established. The TG should be ready to react to the command from the CT.

- Test Procedure

  CT: Initiate the required user actions (e.g. press button) to perform all operations that are listed in the category 1 “operation_id list” table in 7 Appendix A – Operation_id List Tables and indicated as supported in Table 3: Operation_id of Category 1 for CT in [3].

  TG: No user action is required.
• Expected Outcome

Pass verdict

CT: The CT sends PASS THROUGH commands in category 1 to the TG that are listed in the category 1 “operation_id list” table in 7 Appendix A – Operation_id List Tables and indicated as supported in Table 3: Operation_id of Category 1 for CT in [3].

TG: The TG reacts to all performed PASS THROUGH commands in category 1 sent from the CT according to the “Expected operation to be performed by the TG” that are listed in the operation_id list table in 7 Appendix A – Operation_id List Tables.

4.6.2 Category 2 of PASS THROUGH command

Objectives:

To verify that the category 2 of PASS THROUGH command is transferred.

4.6.2.1 PASS THROUGH command transfer-category 2

• Test Case ID(s)
  
  AVRCP/CT/PTT/BV-02-I
  
  AVRCP/TG/PTT/BV-02-I

• Test Purpose

CT: To verify that the CT can send PASS THROUGH command in category 2 to the TG.

TG: To verify that the TG reacts to the PASS THROUGH command in category 2 from the CT according to the operation_id list table in 7 Appendix A – Operation_id List Tables.

• Reference

  Section 4.1.3, 4.6.1, and 4.7 in [2]
  
  Section 4.1.3, 4.6.1, and 4.8 in [7]
  
  Section 4.1.3, 4.4.1, and 4.5 in [5] [8]

• Initial Condition

  - CT: A connection for control is established.
  
  - TG: A connection for control is established. The TG should be ready to react to the command from the CT.

• Test Procedure

  CT: Initiate the required user actions (e.g. press button) to perform all operations that are listed in the operation_id list table in 7 Appendix A – Operation_id List Tables and indicated as supported in Table 4: Operation_id of Category 2 for CT in [3].

  TG: No user action is required.
• Expected Outcome
  Pass verdict

CT: The CT sends PASS THROUGH commands in category 2 to the TG that are listed in the category 2 "operation_id list" table in 7 Appendix A – Operation_id List Tables and indicated as supported in Table 4: Operation_id of Category 2 for CT in [3].

TG: The TG reacts to all performed PASS THROUGH commands in category 2 sent from the CT according to the "Expected operation to be performed by the TG" that are listed in the operation_id list table in 7 Appendix A – Operation_id List Tables.

### 4.6.3 Category 3 of PASS THROUGH command

Objectives:

To verify that the category 3 of PASS THROUGH command is transferred.

#### 4.6.3.1 PASS THROUGH command transfer-category 3

• Test Case ID(s)
  
  AVRCP/CT/PTT/BV-03-I
  
  AVRCP/TG/PTT/BV-03-I

• Test Purpose
  
  CT: To verify that the CT can send PASS THROUGH command in category 3 to the TG.

  TG: To verify that the TG reacts to the PASS THROUGH command in category 3 from the CT according to the operation_id list table in 7 Appendix A – Operation_id List Tables.

• Reference
  
  Section 4.1.3, 4.6.1, and 4.7 in [2]
  
  Section 4.1.3, 4.6.1, and 4.8 in [7]
  
  Section 4.1.3, 4.4.1, and 4.5 in [5] [8]

• Initial Condition
  
  - CT: A connection for control is established.
  
  - TG: A connection for control is established. The TG should be ready to react to the command from the CT.

• Test Procedure
  
  CT: Initiate the required user actions (e.g. press button) to perform all operations that are listed in the operation_id list table in 7 Appendix A – Operation_id List Tables and indicated as supported in Table 5: Operation_id of Category 3 for CT in [3].

  TG: No user action is required.
• Expected Outcome

Pass verdict

CT: The CT sends PASS THROUGH commands in category 3 to the TG that are listed in the category 3 "operation_id list" table in 7 Appendix A – Operation_id List Tables and indicated as supported in Table 5: Operation_id of Category 3 for CT in [3].

TG: The TG reacts to all performed PASS THROUGH commands in category 3 sent from the CT according to the "Expected operation to be performed by the TG" that are listed in the operation_id list table in 7 Appendix A – Operation_id List Tables.

4.6.4 Category 4 of PASS THROUGH command

Objectives:

To verify that the category 4 of PASS THROUGH command is transferred.

4.6.4.1 PASS THROUGH command transfer-category 4

• Test Case ID(s)

AVRCP/CT/PTT/BV-04-I
AVRCP/TG/PTT/BV-04-I

• Test Purpose

CT: To verify that the CT can send PASS THROUGH command in category 4 to the TG.

TG: To verify that the TG reacts to the PASS THROUGH command in category 4 from the CT according to the operation_id list table in 7 Appendix A – Operation_id List Tables.

• Reference

Section 4.1.3, 4.6.1, and 4.7 in [2]
Section 4.1.3, 4.6.1, and 4.8 in [7]
Section 4.1.3, 4.4.1, and 4.5 in [5] [8]

• Initial Condition

- CT: A connection for control is established.
- TG: A connection for control is established. The TG should be ready to react to the command from the CT.

• Test Procedure

CT: Initiate the required user actions (e.g. press button) to perform all operations that are listed in the operation_id list table in 7 Appendix A – Operation_id List Tables and indicated as supported in Table 6: Operation_id of Category 4 for CT in [3].

TG: No user action is required.
• Expected Outcome

Pass verdict

CT: The CT sends PASS THROUGH commands in category 4 to the TG that are listed in the category 4 “operation_id list” table in 7 Appendix A – Operation_id List Tables and indicated as supported in Table 6: Operation_id of Category 4 for CT in [3].

TG: The TG reacts to all performed PASS THROUGH commands in category 4 sent from the CT according to the “Expected operation to be performed by the TG” that are listed in the operation_id list table in 7 Appendix A – Operation_id List Tables.

4.6.5 Press and hold of PASS THROUGH command

Objectives:

To verify that the category 1 of PASS THROUGH command is transferred.

4.6.5.1 PASS THROUGH command transfer-press and hold

• Test Case ID(s)

AVRCP/CT/PTT/BV-05-I
AVRCP/TG/PTT/BV-05-I

• Test Purpose

CT: To verify that the CT can send PASS THROUGH commands where a button is pressed and held to the TG.

TG: To verify that the TG reacts to the PASS THROUGH commands from the CT.

• Reference

Section 4.1.3, 4.6.1, and 4.7 in [2]
Section 4.1.3, 4.6.1, and 4.8 in [7]
Section 4.1.3, 4.4.1, and 4.5 in [5] [8]

• Initial Condition

- CT: A connection for control is established.

- TG: A connection for control is established. The TG should be ready to react to the command from the CT.

• Test Procedure

CT: Initiate the required user actions (e.g. press button) to indicate that a button is being held down for a selected PASS THROUGH operation. The button should be held for longer than 2 seconds. Actions should then be performed to indicate that the button has been released.

TG: No user action is required.
• Expected Outcome

Pass verdict

CT: As long as the button is held down the CT sends PASS THROUGH commands with the state flag set to button press, and with an interval of no more than 2 seconds. When the button is released the CT sends a PASS THROUGH command with the state flag set to button release."

TG: The TG indicates that the button is being held down on the CT.
5 Metadata Transfer

This section lists the test cases that ensure that the IUT conforms to the requirements of the Metadata Transfer.

5.1.1 Configuration Commands

Test group with the objective to verify the various configuration commands that are defined in the AVRCP specification.

5.1.1.1 AVRCP/CT/CFG/BV-01-C [Get capabilities – CT]

- **Test Purpose**
  To verify the get capabilities command issued from the CT.

- **Reference**
  Section 5.1.1 of [7]
  Section 6.4.1 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP connection between the IUT and the Lower Tester is completed.

- **Test Procedure**
  The Upper Tester triggers the IUT to send a GetCapabilities command with the METADATA TRANSFER_GetCapabilities PDU containing any valid CapabilityID value.
• Expected Outcome
  Pass verdict

  The Lower Tester receives the GetCapabilities.

5.1.1.2  AVRCP/TG/CFG/BV-02-C [Get capabilities response – TG]

• Test Purpose
  To verify the get capabilities response issued from the TG.

• Reference
  Section 5.1.1 of [7]
  Section 6.4.1 of [5] [8]

• Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP connection between the IUT and the Lower Tester is completed.

• Test Procedure
  The Lower Tester sends a GetCapabilities message to the IUT with the METADATA TRANSFER_GetCapabilities PDU parameter value set to COMPANY_ID.

• Expected Outcome
  Pass verdict

  The Lower Tester receives from the IUT the supported COMPANY_IDs. The first COMPANY_ID shall be the Bluetooth SIG COMPANY_ID.
5.1.1.3  AVCP/TG/CFG/BI-01-C [Get capabilities invalid behavior response – TG]

- **Test Purpose**
  To verify the get capabilities response issued from the TG when an invalid capability is requested.

- **Reference**
  Section 5.1.1 of [7]
  Section 6.4.1 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP connection between the IUT and the Lower Tester is completed.

- **Test Procedure**
  The Lower Tester sends a GetCapabilities message to the IUT with the METADATA TRANSFER_GetCapabilities PDU parameter value set to an invalid capability ID – for example 0x7F.

- **Expected Outcome**
  **Pass verdict**
  The IUT responds to the Lower Tester with the Error status Invalid Parameter indicating that the capability ID issued was invalid.
5.1.2 Player Application Settings Commands

Test group with the objective to verify the player application settings commands that are defined in the METADATA TRANSFER specification.

5.1.2.1 AVRCP/CT/PAS/BV-01-C [List player application setting attributes – CT]

- **Test Purpose**
  
  To verify the List Player Application Setting Attributes command issued from the CT.

- **Reference**
  
  Section 5.2.1 of [7]
  
  Section 6.5.1 of [5] [8]

- **Initial Condition**
  
  - One ACL connection exists between the IUT and the Lower Tester.
  
  - The AVCTP connection between the IUT and the Lower Tester is completed.

- **Test Procedure**
  
  The Upper Tester triggers the IUT to send a ListPlayerApplicationSettingAttributes command. No parameter needs to be passed for this PDU.

  - **Expected Outcome**
    
    **Pass verdict**
    
    The Lower Tester receives the List Player Application Settings Attributes command.
5.1.2.2 AVRCP/TG/PAS/BV-02-C [List player application setting attributes – TG]

- Test Purpose
  To verify the List Player Application Setting Attributes response issued from the TG.

- Reference
  Section 5.2.1 of [7]

  Section 6.5.1 of [5] [8]

- Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP connection between the IUT and the Lower Tester is completed.

- Test Procedure
  The Lower Tester sends a ListPlayerApplicationSettingAttributes command to the IUT. No parameter needs to be passed for this PDU.

- Expected Outcome
  **Pass verdict**
  The IUT shall return a response with zero or more attributes.
Test Purpose
To verify the get player application settings attribute text command issued from the CT.

Reference
Section 5.2.5 of [7]
Section 6.5.5 of [5] [8]

Initial Condition
- One ACL connection exists between the IUT and the Lower Tester.
- The AVCTP connection between the IUT and the Lower Tester is completed.

Test Procedure
The Upper Tester triggers the IUT to send a GetPlayerApplicationSettingAttributeText command containing one or more attribute IDs.

Expected Outcome
Pass verdict
The Get Player Application Setting Attribute Text command is received by the Lower Tester.
5.1.2.4  AVRCP/TG/PAS/BV-04-C [Get player application setting attribute text - TG]

• Test Purpose
  To verify the Get Player Application Setting Attribute Text response issued from the TG.

• Reference
  Section 5.2.5 of [7]
  Section 6.5.5 of [5] [8]

• Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP connection between the IUT and the Lower Tester is completed.
  - The Lower Tester is aware of the available attributes for the IUT. This can be retrieved from the result of AVRCP/TG/PAS/BV-02-C [List player application setting attributes – TG].

• Test Procedure
  The Lower Tester sends a GetPlayerApplicationSettingAttributeText command to the IUT with an attribute ID listed in the available attributes for the IUT.

• Expected Outcome
  Pass verdict
  The IUT shall returns the values in UTF-8 format as specified by the Lower Tester. The values are Manufacturer dependent.
5.1.2.5 AVRCP/CT/PAS/BV-05-C [List player application setting values - CT]

- **Test Purpose**
  
  To verify the List Player Application Setting Values command issued from the CT.

- **Reference**
  
  Section 5.2.2 of [7]

  Section 6.5.2 of [5] [8]

- **Initial Condition**

  - One ACL connection exists between the IUT and the Lower Tester.

  - The AVCTP connection between the IUT and the Lower Tester is completed.

  - The IUT is aware of the available attributes for the Lower Tester. This can be retrieved from the result of AVRCP/CT/PAS/BV-01-C [List player application setting attributes – CT].

- **Test Procedure**

  The Upper Tester triggers the IUT to send a ListPlayerApplicationSettingValues command with an attribute ID listed in the available attributes for the Lower Tester.

- **Expected Outcome**

  **Pass verdict**

  The List Player Application Setting Values is received by the Lower Tester.
5.1.2.6  **AVRCP/TG/PAS/BV-06-C [List player application setting values - TG]**

- **Test Purpose**
  To verify the list player application setting values response issued from the TG.

- **Reference**
  Section 5.2.2 of [7]
  Section 6.5.2 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP connection between the IUT and the Lower Tester is completed.
  - The Lower Tester is aware of the available attributes for the IUT. This can be retrieved from the result of **AVRCP/TG/PAS/BV-02-C [List player application setting attributes – TG]**.

- **Test Procedure**
  The Lower Tester sends a `ListPlayerApplicationSettingValues` command to the IUT with an attribute ID listed in the available attributes for the IUT.

- **Expected Outcome**
  Pass verdict
  The IUT shall return the list of setting values for that Attribute ID as defined by the manufacturer.
5.1.2.7  AVRCP/CT/PAS/BV-07-C [Get player application setting value text - CT]

- **Test Purpose**
  To verify the player application setting value text command issued from the CT.

- **Reference**
  Section 5.2.6 of [7]
  Section 6.5.6 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP connection between the IUT and the Lower Tester is completed.
  - The IUT is aware of the available attributes and corresponding values for the Lower Tester. This can be retrieved from the result of AVRCP/CT/PAS/BV-01-C [List player application setting attributes – CT] and AVRCP/CT/PAS/BV-05-C [List player application setting values - CT].

- **Test Procedure**
  Initiated by the Upper Tester, the IUT sends a Get Player Application Setting Value Text command to the Lower Tester, with attribute and value IDs listed in the available attributes and corresponding values for the Lower Tester.

- **Expected Outcome**
  **Pass verdict**
  The Get Player Application Setting Value Text is received by the Lower Tester.
5.1.2.8  AV/Video Remote Control Profile (AVRCP) [Get player application setting value text - TG]

- **Test Purpose**
  To verify the get player application setting values response issued from the TG.

- **Reference**
  Section 5.2.6 of [7]

  Section 6.5.6 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP connection between the IUT and the Lower Tester is completed.
  - The Lower Tester is aware of the available attributes and corresponding values for the IUT. This can be retrieved from the result of AVRCP/TG/PAS/BV-02-C [List player application setting attributes – TG] and AVRCP/TG/PAS/BV-06-C [List player application setting values - TG].

- **Test Procedure**
  The Lower Tester sends a Get Player Application Setting Value Text command to the IUT, with attribute and value IDs listed in the available attributes and corresponding values for the IUT.

- **Expected Outcome**
  **Pass verdict**

  The IUT shall return the values in UTF-8 format as requested by the Lower Tester. The values are manufacturer dependent.
5.1.2.9 AVRCP/CT/PAS/BV-09-C [Get current player application setting value - CT]

• Test Purpose
   To verify the get current player application setting value command issued from the CT.

• Reference
   Section 5.2.3 of [7]
   Section 6.5.3 of [5] [8]

• Initial Condition
   - One ACL connection exists between the IUT and the Lower Tester.
   - The AVCTP connection between the IUT and the Lower Tester is completed.
   - The IUT is aware of the available attributes on the Lower Tester. This can be retrieved from the result of AVRCP/CT/PAS/BV-01-C [List player application setting attributes – CT].

• Test Procedure
   Initiated by the Upper Tester, the IUT sends a Get Current Player Application Setting Value command to the Lower Tester containing an attribute ID listed in the available attributes for the Lower Tester.

   The Lower Tester receives the Get Current Player Application Setting Value command.

   Pass verdict

   The Lower Tester receives the Get Current Player Application Setting Value command.
5.1.2.10 AVRCP/TG/PAS/BV-10-C [Get current player application setting value - TG]

- **Test Purpose**
  
  To verify the get current player application setting value response issued from the TG.

- **Reference**
  
  Section 5.2.3 of [7]
  
  Section 6.5.3 of [5] [8]

- **Initial Condition**
  
  - One ACL connection exists between the IUT and the Lower Tester.
  
  - The AVCTP connection between the IUT and the Lower Tester is completed.
  
  - The Lower Tester is aware of the available attributes on the IUT. This can be retrieved from the result of AVRCP/TG/PAS/BV-02-C [List player application setting attributes – TG].

- **Test Procedure**

  The Lower Tester sends a Get Current Player Application Setting Value command to the IUT with an attribute ID listed in the available attributes for the IUT.

  - **Expected Outcome**

    **Pass verdict**

    The IUT shall return the list of Values for the requested Attribute IDs as defined by the manufacturer.
5.1.2.11 AVRCP/CT/PAS/BV-11-C [Set player application setting value - CT]

- **Test Purpose**
  To verify the set player application setting value command issued from the CT.

- **Reference**
  Section 5.2.4 of [7]
  Section 6.5.4 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP connection between the IUT and the Lower Tester is completed.
  - The IUT is aware of the available attributes and corresponding values for the Lower Tester. This can be retrieved from the result of AVRCP/CT/PAS/BV-01-C [List player application setting attributes – CT] and AVRCP/CT/PAS/BV-05-C [List player application setting values - CT].

- **Test Procedure**
  Initiated by the Upper Tester, the IUT sends a Set Player Application Setting Value command to the Lower Tester, with attribute and value IDs listed in the available attributes and corresponding values for the Lower Tester.

- **Expected Outcome**
  Pass verdict
  The Lower Tester receives the SetPlayerApplicationSettingValue command the correct Attribute and Value ID.
5.1.2.12  AVRCP/TG/PAS/BI-01-C [Get player application setting attribute text invalid behavior - TG]

- Test Purpose
  To verify the behavior of the target when a Get Player application settings attribute text command is issued with an invalid parameter.

- Reference
  Section 5.2.5 of [7]
  Section 6.5.5 of [5] [8]

- Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP connection between the IUT and the Lower Tester is completed.

- Test Procedure
  The Lower Tester sends a Get Player Application Setting Attribute Text command to the IUT with parameters Num Player Application Setting Attributes = 1 and Player Application Setting Attribute ID 1 = 0x7F.

- Expected Outcome
  Pass verdict
  The IUT shall return an Error Response with error code 0x01 indicating that an invalid parameter was passed.
5.1.2.13 AVRCP/TG/PAS/BI-02-C [List player application setting values invalid behavior – TG]

- **Test Purpose**
  To verify the ability of the TG to respond to a list player application setting values command with invalid parameters.

- **Reference**
  Section 5.2.2 of [7]
  Section 6.5.2 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP connection between the IUT and the Lower Tester is completed.

- **Test Procedure**
  The Lower Tester sends a List Player Application Setting Value command to the IUT with parameter Player Application Attribute ID = 0x7F.

- **Expected Outcome**
  **Pass verdict**
  The IUT shall return an Error Response with error code 0x01 indicating that an invalid parameter was passed.
5.1.2.14 AVRCP/TG/PAS/BI-03-C [Get player application setting value text invalid behavior - TG]

- **Test Purpose**
  To verify the ability of the TG to respond to a get player application setting value text command with invalid parameters.

- **Reference**
  Section 5.2.6 of [7]
  Section 6.5.6 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP connection between the IUT and the Lower Tester is completed.
  - The Lower Tester is aware of the available attributes for the IUT. This can be retrieved from the result of AVRCP/TG/PAS/BV-02-C [List player application setting attributes – TG].

- **Test Procedure**
  The Lower Tester sends a Get Player Application Setting Value Text command to the IUT. The attribute ID passed is listed in the available attributes for the IUT. The other parameter settings are Num Player Application Settings = 1 and Player Application Setting Value = 0x7F.

- **Expected Outcome**
  **Pass verdict**
  The IUT shall return an Error Response with error code 0x01 indicating that an invalid parameter was passed.
5.1.2.15 AVRCP/TG/PAS/BI-04-C [Get current player application setting value invalid behavior – TG]

- **Test Purpose**
  To verify the ability of the TG to respond to a get current player application setting value command with invalid parameters.

- **Reference**
  Section 5.2.3 of [7]
  Section 6.5.3 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP connection between the IUT and the Lower Tester is completed.

- **Test Procedure**
  The Lower Tester sends a Get Current Player Application Setting Value command to the IUT with parameters Num Player Application Settings = 1 and Player Application Setting Value = 0x7F.

- **Expected Outcome**
  **Pass verdict**
  The IUT shall return an Error Response with error code 0x01 indicating that an invalid parameter was passed.
5.1.2.16 AVRCP/TG/PAS/BI-05-C [Set player application setting value invalid behavior – TG]

- Test Purpose
  To verify the ability of the TG to respond to a set player application setting value command with invalid parameters.

- Reference
  Section 5.2.4 of [7]
  Section 6.5.4 of [5] [8]

- Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - The AVCTP connection between the IUT and the Lower Tester is completed.

- Test Procedure
  The Lower Tester sends a Set Player Application Setting Value command to the IUT with parameters
  Num Player Application Setting = 1, Player Application Setting Attribute ID = 0x02 and Player Application Setting Value = 0x7F.

- Expected Outcome
  Pass verdict
  The IUT shall return an Error Response with error code 0x01 indicating that an invalid parameter was passed.
5.1.3 Media Information Commands

Objective:
Verify the media information commands related to play status as well as information about media.

5.1.3.1 AVRCP/CT/MDI/BV-01-C [Get play status – CT]

- Test Purpose
  Verify the get play status command issued from the CT.

- Reference
  Section 5.4.1 of [7]
  Section 6.7.1 of [5] [8]

- Initial Condition
  - One ACL connection exists between the IUT and the test system.
  - AVCTP connection exists between the IUT and the test system.

- Test Procedure
  Initiated by the Upper Tester, the IUT sends a Get Play Status command to the Lower Tester. No parameters need to be passed for this command.

  • Expected Outcome
    Pass verdict
    The Lower Tester receives the GetPlayStatus command.
5.1.3.2 AVRCP/TG/MDI/BV-02-C [Get play status – TG]

• Test Purpose
  Verify the get play status response issued from the TG. Test to be conducted for all three modes of
  play status on the TG – Playing, Paused and Stop status.

• Reference
  Section 5.4.1 of [7]
  Section 6.7.1 of [5] [8]

• Initial Condition
  - One ACL connection exists between the IUT and the test system.
  - AVCTP connection exists between the IUT and the test system.

• Test Procedure
  The Lower Tester sends a Get Play Status command to the IUT. No parameters need to be passed
  for this command.

  The IUT returns the correct current play status of the MP.
5.1.3.3 AVRCP/CT/MDI/BV-03-C [Get element attributes – CT]

- Test Purpose
  Verify the get element attributes command issued from the CT.

- Reference
  Section 5.3.1 of [7]
  Section 6.6.1 of [5] [8]

- Initial Condition
  - One ACL connection exists between the IUT and the test system.
  - AVCTP connection exists between the IUT and the test system.

- Test Procedure
  Initiated by the Upper Tester, the IUT sends a Get Element Attributes command to the Lower Tester.

- Expected Outcome
  Pass verdict
  The Lower Tester receives the Get Element Attributes command.
5.1.3.4  AVRCP/TG/MDI/BV-04-C [Get element attributes – TG]

- **Test Purpose**
  Verify the get element attributes response for getting all attributes issued from the TG.

- **Reference**
  Section 5.3.1 of [7]
  Section 6.6.1 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the test system.
  - AVCTP connection exists between the IUT and the test system.

- **Test Procedure**
  The Lower Tester sends a Get Element Attributes command to the IUT with the parameters Identifier = Playing and NumAttributes = 0.

- **Expected Outcome**
  **Pass verdict**
  The IUT returns all attribute information.

- **Notes**
  The test case is used to retrieve all the elements (NumAttributes = 0x00) of a selected entry on the target.
5.1.3.5 AVRCP/TG/MDI/BV-05-C [Get element attributes – TG]

- Test Purpose
  Verify the get element attributes response for getting selected attributes issued from the TG.

- Reference
  Section 5.3.1 of [7]
  Section 6.6.1 of [5] [8]

- Initial Condition
  - One ACL connection exists between the IUT and the test system.
  - AVCTP connection exists between the IUT and the test system.

- Test Procedure
  The Lower Tester sends a Get Element Attributes command to the IUT with the parameters Identifier = Playing, NumAttributes = n and AttributeId = n Attribute Ids.

- Expected Outcome
  Pass verdict
  The IUT returns attribute information.

- Notes
  The test case is used to retrieve specific elements of a selected entry on the target.
5.1.3.6  AVRCP/CT/MDI/BV-06-I [CT can retrieve the Metadata for the currently playing track from TG with future SDP version – Get element attributes]

• Test Purpose
Verify the IUT, that does not support browsing, can retrieve the Metadata for the currently playing when the TG supports a later profile version.

• Reference
Section 5.3.1 of [7]
Section 6.6.1 of [5] [8]

• Initial Condition
- The Lower Tester supports an SDP version that is greater than the current published version, e.g. AVRCP v 1.9.
- The Lower Tester has all the bits in its Supported Features SDP attributes set, including those that are RFA.
- A connection for control is established.
- The Lower Tester acting as TG is currently playing a track.

• Test Procedure
Initiated by the Upper Tester, the IUT sends a Get Element Attributes command to the Lower Tester.

- Expected Outcome
Pass verdict
The IUT is able to successfully retrieve Metadata from the Lower Tester and provide it to the Upper Tester.
5.1.4 Notification Commands

Objective:
Verify the notification commands issued.

5.1.4.1 AVRCP/CT/NFY/BV-01-C [Register notification – CT]

• Test Purpose
  Verify the register notification command issued from the CT.

• Reference
  Section 5.4.2 of [7]
  Section 6.7.2 of [5] [8]

• Initial Condition
  - One ACL connection exists between the IUT and the test system.
  - AVCTP connection exists between the IUT and the test system.

• Test Procedure
  Initiated by the Upper Tester, the IUT sends a Register Notification command to the Lower Tester.

  RegisterNotification Command
  Upper Tester \rightarrow IUT \rightarrow Lower Tester
  One ACL connection exists between the IUT and the test system.
  AVCTP connection exists between the IUT and the test system.

  RegisterNotification initiated (Manufacturer Specific)

• Expected Outcome
  Pass verdict
  The Lower Tester receives the Register Notification command.
5.1.4.2 AVRCP/TG/NFY/BV-02-C [Register notification – TG]

- **Test Purpose**
  To verify the register notification response issued from the TG.

- **Reference**
  Section 5.4.2 of [7]
  Section 6.7.2 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the test system.
  - AVCTP connection exists between the IUT and the test system.

- **Test Procedure**
  The Lower Tester sends a Register Notification command to the IUT with parameters EventID = 0x0002. The Playback Interval parameter is not needed.

- **Expected Outcome**
  **Pass verdict**
  The IUT returns an INTERIM response with the current status.
  After the track change happens the IUT shall send a CHANGED response indicating that the event EVENT_TRACK_CHANGED has been triggered.

- **Notes**
  The event used for the test is EVENT_TRACK_CHANGED (ID 0x02) which is registered with the IUT.
5.1.4.3 AVRCP/TG/NFY/BV-03-C [Register Notification EVENT_PLAYER_APPLICATION_SETTING_CHANGED – TG]

- **Test Purpose**
  To verify that the TG respond for a register notification command for EVENT_PLAYER_APPLICATION_SETTING_CHANGED with all player application setting attributes.

- **Reference**
  Section 5.4.2 of [7]
  Section 6.7.2 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the test system.
  - AVCTP connection exists between the IUT and the test system.

- **Test Procedure**
  The Lower Tester sends a Register Notification command to the IUT with parameters EventID = 0x08. The Playback Interval parameter is not needed.

- **Expected Outcome**
  **Pass verdict**
  The IUT returns an INTERIM response with the current status.

  Following the player application setting changes, the IUT shall send a CHANGED response indicating that the event EVENT_PLAYER_APPLICATION_SETTING_CHANGED has been triggered.

  The notification response contains all player application setting attributes with their current values.
• Notes
The event used for the test is EVENT_PLAYER_APPLICATION_SETTING_CHANGED (ID 0x08), which is registered with the IUT.

5.1.4.4 AVRCP/TG/NFY/BV-04-C [Track Changed – No Selected Track - TG]
• Test Purpose
To verify the Track Changed INTERIM response when no track is selected.

• Reference
Section 5.4.2 of [7]
Section 6.7.2 of [5] [8]

• Initial Condition
- The IUT is active as AVRCP TG role.
- No Track is currently selected on the IUT.

• Test Procedure
The Lower Tester issues a valid RegisterNotification for the EVENT_TRACK_CHANGED.

The IUT shall issue a correctly formatted RegisterNotification Interim Response for the EVENT_TRACK_CHANGED with the Identifier Parameter set to 0xFFFFFFFFFFFFFFFF.
5.1.4.5  AVRCP/TG/NFY/BV-05-C [Track Changed – Playing Track - TG]

- **Test Purpose**
  To verify the Track Changed INTERIM response when a track is playing.

- **Reference**
  Section 5.4.2 of [7]
  Section 6.7.2 of [5] [8]

- **Initial Condition**
  - The IUT is active as AVRCP 1.3 or later TG role.
  - A Track is currently playing on the IUT.

- **Test Procedure**
  The Lower Tester issues a valid RegisterNotification for the EVENT_TRACK_CHANGED.

- **Expected Outcome**
  **Pass verdict**
  The IUT shall issue a correctly formatted RegisterNotification Interim Response for the EVENT_TRACK_CHANGED with the Identifier Parameter set to 0x0.

5.1.4.6  AVRCP/TG/NFY/BV-06-C [Track Changed – Playing Track in NowPlaying- TG]

- **Test Purpose**
  To verify the Track Changed INTERIM response in the context of the NowPlaying List when a track is playing.

- **Reference**
  Section 6.7.2 of [5] [8]

- **Initial Condition**
  - The IUT is active as AVRCP 1.4 or later TG role.
  - A track is currently playing on the IUT.

- **Test Procedure**
  1. The Lower Tester retrieves the NowPlaying List from the IUT with the GetFolderItems Command/Response in the scope of NowPlaying.
  2. The Lower Tester issues a valid RegisterNotification for the EVENT_TRACK_CHANGED.
### Expected Outcome

**Pass verdict**

The IUT shall issue a correctly formatted RegisterNotification Interim Response for the EVENT_TRACK_CHANGED with:

- the Identifier Parameter set to a UID that is listed in the NowPlayingList
- that UID being the UID of the track that is currently played

### Test Purpose

To verify the Track Changed INTERIM response when changing a track in NowPlaying.

### Reference

Section 6.7.2 of [5] [8]

### Initial Condition

- The IUT is active as AVRCP 1.4 or later TG role and supports the browsing feature.
- A track is currently playing on the IUT.
- EVENT_TRACK_CHANGED is registered.

### Test Procedure

1. The Lower Tester retrieves the NowPlaying List from the IUT with the GetFolderItems Command/Response in the scope of NowPlaying.
2. The Lower Tester issues a valid RegisterNotification for the EVENT_TRACK_CHANGED.
3. The track is changed.
4. After receiving notification of the track change, the Lower Tester issues a valid RegisterNotification for the EVENT_TRACK_CHANGED.

• Expected Outcome
  
  **Pass verdict**

  The IUT returns the UID of the track in the NowPlayingList that is currently played.

  The IUT returns an interim response for each RegisterNotification command received.

  The IUT returns the response for the EVENT_TRACK_CHANGED notification.

5.1.4.8 **AVRCP/TG/NFY/BV-08-C [Track Changed – Selected Track - TG]**

• Test Purpose

  To verify the Track Changed INTERIM response when the track is SELECTED.

• Reference

  Section 5.4.2 of [7]

  Section 6.7.2 of [5] [8]
• Initial Condition
  - The IUT is active as AVRCP TG role.
  - A track is currently SELECTED on the IUT.

• Test Procedure
  The Lower Tester issues a valid RegisterNotification for the EVENT_TRACK_CHANGED.

• Expected Outcome
  Pass verdict
  The IUT shall issue a correctly formatted RegisterNotification Interim Response for the EVENT_TRACK_CHANGED.
  The Identifier Parameter is set to a value other than 0xFFFFFFFF for an IUT that supports AVRCP v1.3.
  The Identifier Parameter is set to 0x0 for an IUT that supports AVRCP v1.4 or later.

5.1.4.9  AVRCP/TG/NFY/BI-01-C [Register for events invalid behavior - TG]
• Test Purpose
  To verify if the TG can handle an invalid event ID sent from the CT.

• Reference
  Section 5.4.2 of [7]
  Section 6.7.2 of [5] [8]

• Initial Condition
  - One ACL connection exists between the IUT and the test system.
  - AVCTP connection exists between the IUT and the test system.

• Test Procedure
  The Lower Tester sends a Register Notification command to the IUT with parameter EventID = 0xFF. The Playback Interval parameter is not needed.
5.1.5 Invalid Commands

Objective:
To verify the TG can handle an invalid PDU ID sent from the CT.

5.1.5.1 AVRCP/TG/INV/BI-01-C [Invalid PDU ID – TG]

• Test Purpose
To verify TG can handle an invalid PDU ID sent from the CT.

• Reference
Section 5.7 of [7]
Section 6.15 of [5] [8]

• Initial Condition
- One ACL connection exists between the IUT and the Lower Tester.
- The AVCTP connection between the IUT and the Lower Tester is completed.

• Test Procedure
The Lower Tester sends a Metadata Transfer Command to the IUT with a PDU ID = 0xFF and no command parameters.

The IUT returns the error code 0x01 indicating that an invalid parameter has been passed.
One ACL connection exists between the IUT and the test system.
AVCTP connection exists between the IUT and the test system.

Invalid PDU ID Command

Invalid PDU ID rejected

• Expected Outcome
  Pass verdict

  The IUT shall return an Error Response with error code 0x00 indicating that the PDU was not understood.

5.1.5.2 AVRCP/TG/INV/BI-02-C [General reject – TG]

• Test Purpose
  To verify the General Reject Response issued by the TG.

• Reference
  Section 6.15.2 of [5] [8]

• Initial Condition
  - One ACL connection exists between the IUT and the Lower Tester.
  - AVCTP control and browsing channels are established between the IUT and the Lower Tester.
  - The IUT is acting as AVRCP TG role in category 1 or 3.

• Test Procedure
  The Lower Tester sends an AVRCP specific Browsing command with an invalid PDU ID and the Browsing channel.
5.1.6 Basic Group Navigation Commands
Test group with the objective to verify that the Basic Group Navigation commands are transferred.

5.1.6.1 Next Group command transfer

- Test Case ID(s)
  
  **AVRCP/CT/BGN/BV-01-I**
  
  **AVRCP/TG/BGN/BV-01-I**

- Test Purpose
  
  CT: To verify that the CT can send Next Group commands to the TG.
  
  TG: To verify that the TG reacts to Next Group command from the CT.

- Reference
  
  Section 5.6.1 in [7]
  
  Section 6.14.1 in [5] [8]

- Initial Condition
  
  - CT: A connection for control is established.
  
  - TG: A connection for control is established. The TG should be ready to react to the command from the CT.

**Expected Outcome**

**Pass verdict**

The IUT issues a General Reject response with the error code indicating an invalid command.
• Test Procedure
  CT: Initiate the required user actions (e.g. press button) to perform Next Group function.
  TG: No user action is required.

• Expected Outcome
  Pass verdict
  CT: The Next Group command is sent.
  TG: The TG reacts to Next Group command sent from the CT to move to the first song in the next group.

5.1.6.2 Previous Group command transfer

• Test Case ID(s)
  AVRCP/CT/BGN/BV-02-I
  AVRCP/TG/BGN/BV-02-I

• Test Purpose
  CT: To verify that the CT can send Previous Group commands to the TG.
  TG: To verify that the TG reacts to Previous Group command from the CT.

• Reference
  Section 5.6.2 in [7]
  Section 6.14.2 in [5] [8]

• Initial Condition
  - CT: A connection for control is established.
  - TG: A connection for control is established. The TG should be ready to react to the command from the CT.

• Test Procedure
  CT: Initiate the required user actions (e.g. press button) to perform Previous Group function.
  TG: No user action is required.

• Expected Outcome
  Pass verdict
  CT: The Next Group command is sent.
  TG: The TG reacts to Previous Group command sent from the CT to move to the first song in the previous group.
5.1.7 Continuation PDUs Commands

5.1.7.1 AVRCP/CT/RCR/BV-01-C [Request continuing response – CT]

- **Test Purpose**
  To verify that the CT can handle fragmentation correctly.

- **Reference**
  Section 5.5.1 of [7]
  Section 6.8.1 of [5] [8]

- **Initial Condition**
  - One ACL connection exists between the IUT and the test system.
  - AVCTP connection exists between the IUT and the test system.

- **Test Procedure**
  1. The IUT sends a Get Element Attributes command to the Lower Tester, which meets the test condition (see below).
  2. The Lower Tester sends a 512 byte response with UTF-8 characters for the attribute string(s), along with the START indication (0x1) as packet type.
  3. The IUT sends a Request Continuing Response command to the Lower Tester.
  4. The Lower Tester sends Get Element Attributes response.
  5. Repeat steps 3 and 4, as necessary, until the IUT receives all of the remaining characters from the Lower Tester. The final Get Element Attributes response is indicated with 0x3 (END) for packet type. Any additional Get Element Attributes responses between the START (0x1) and END (0x3) should have a packet type of CONTINUE (0x2).
• Test Condition
  The Lower Tester is configured so a GetElementAttributes command response is larger than the 512-byte limit on AV/C frames but the response is smaller than the Maximum number of accepted AV/C fragments valued specified in the IXIT [6].

• Expected Outcome
  Pass verdict

  Request(s) for continuing response packets are sent by the IUT, until the entire GetElementAttributes command response has been received via the control channel.

  In the event that the lower test exceeds the Maximum number of accepted AV/C fragments value, the CT may send AbortContinuingResponse command before receiving the entire response.

5.1.7.2 AVRCP/TG/RRCR/BV-02-C [Request continuing response - TG]

• Test Purpose
  To verify the TG can handle fragmentation correctly.

• Reference
  Section 5.5.1 of [7]

  Section 6.8.1 of [5] [8]

• Initial Condition
  - One ACL connection exists between the IUT and the test system.
  - AVCTP connection exists between the IUT and the test system.

• Test Procedure
  1. The Lower Tester sends a Get Element Attributes command to the IUT, which meets the test condition (see below).
  2. The IUT sends a 512 byte response with UTF-8 characters for the attribute string(s), along with the START indication (0x1) as packet type.
  3. The Lower Tester sends a Request Continuing Response command to the IUT.
  4. The IUT sends a Get Element Attributes response with more characters.
  5. Repeat steps 3 and 4, as necessary, until the Lower Tester receives all of the remaining characters from the IUT. The final Get Element Attributes response is indicated with 0x3 (END) for packet type. Any additional Get Element Attributes responses between the START (0x1) and END (0x3) should have a packet type of CONTINUE (0x2).
• Test Condition
The IUT is configured so a GetElementAttributes command response is larger than the 512-byte limit on AV/C frames.

• Expected Outcome
Pass verdict
For each GetElementAttributes command and continuing response packets sent to the IUT, the IUT responds with a GetElementAttributes response containing the proper fragmentation indication via the control channel.

5.1.7.3 AVRCP/CT/RCR/BV-03-C [Abort continuing response - CT]
• Test Purpose
To verify the CT aborts fragmentation correctly.

• Reference
Section 5.5.2 of [7]
Section 6.8.2 of [5] [8]

• Initial Condition
- One ACL connection exists between the IUT and the test system.
- AVCTP connection exists between the IUT and the test system.

• Test Procedure
1. The IUT sends a Get Element Attributes command to the Lower Tester, which meets the test condition (see below).
2. The Lower Tester sends a 512 byte response with UTF-8 characters for the attribute string(s), along with the START indication (0x1) as packet type.

3. The IUT either sends an Abort-Continuing Response command or a RequestContinuing-Response command to the Lower Tester.

4. Continuation occurs by the Lower Tester until the IXIT entry Maximum number of accepted AV/C fragments value [6] has been reached triggering the AbortContinuingResponse command response from the IUT.

5. The Lower Tester sends an AbortContinuingResponse command response.

Test Condition

The Lower Tester is configured so a GetElementAttributes command response is larger than the 512 byte limit on AV/C frames. The Lower Tester has sufficient response to satisfy the Maximum number of accepted AV/C fragments condition so the IUT can send the AbortContinuingResponse.

Expected Outcome

Pass verdict

An AbortContinuingResponse command is sent by the IUT after the fragmented GetElementAttributes command response(s) are received.

5.1.7.4 AVRCP/TG/RCR/BV-04-C [Abort continuing response - TG]

Test Purpose

To verify the TG can accept abort fragmentation correctly.

Reference

Section 5.5.2 of [7]

Section 6.8.2 of [5] [8]
• **Initial Condition**
  - One ACL connection exists between the IUT and the test system.
  - AVCTP connection exists between the IUT and the test system.

• **Test Procedure**
  1. The Lower Tester sends a Get Element Attributes command to the IUT, which meets the test condition (see below).
  2. The IUT sends a 512 byte response with UTF-8 characters for the attribute string(s), along with the START indication (0x1) as packet type.
  3. The Lower Tester sends an Abort Continuing Response command to the IUT.
  4. The IUT sends an Abort Continuing Response to the Lower Tester.

• **Test Condition**
  The IUT is configured so a GetElementAttributes command response will be larger than the 512-byte limit on AV/C frames.

• **Expected Outcome**
  **Pass verdict**
  The IUT does not send any fragmented GetElementAttributes responses via the control channel to the Lower Tester, after an AbortContinuingResponse command is received.
## 6 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 AVRCP [3]. 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.

For purpose and structure of the ICS/IXIT proforma and instructions for completing the ICS/IXIT proforma refer to the Bluetooth ICS and IXIT proforma document.

<table>
<thead>
<tr>
<th>Item</th>
<th>Feature</th>
<th>Test Case(s)</th>
</tr>
</thead>
<tbody>
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<td>AVRCP 2/7 OR AVRCP 2/8 OR AVRCP 2/9 OR AVRCP 2/10</td>
<td>PASS THROUGH operation supporting press and release</td>
<td>AVRCP/CT/PTH/BV-01-C</td>
</tr>
<tr>
<td>AVRCP 2/53</td>
<td>PASS THROUGH operation supporting press and hold</td>
<td>AVRCP/CT/PTH/BV-02-C</td>
</tr>
<tr>
<td>AVRCP 2/11</td>
<td>Get Capabilities</td>
<td>AVRCP/CT/CFG/BV-01-C</td>
</tr>
<tr>
<td>AVRCP 2/12</td>
<td>List Player Application Setting Attributes</td>
<td>AVRCP/CT/PAS/BV-01-C</td>
</tr>
<tr>
<td>AVRCP 2/13</td>
<td>List Player Application Setting Values</td>
<td>AVRCP/CT/PAS/BV-05-C</td>
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<tr>
<td>AVRCP 2/14</td>
<td>Get Current Player Application Setting Value</td>
<td>AVRCP/CT/PAS/BV-09-C</td>
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<tr>
<td>AVRCP 2/15</td>
<td>Set Player Application Setting Value</td>
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<td>AVRCP 2/16</td>
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<td>AVRCP/CT/PAS/BV-03-C</td>
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<td>AVRCP 2/17</td>
<td>Get Player Application Setting Value Text</td>
<td>AVRCP/CT/PAS/BV-07-C</td>
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<td>Get Play Status</td>
<td>AVRCP/CT/MDI/BV-01-C</td>
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<td>AVRCP 2/22 OR AVRCP 2/30 OR AVRCP 2/31 OR AVRCP 2/38 OR AVRCP 2/47</td>
<td>Register Notification</td>
<td>AVRCP/CT/NFY/BV-01-C</td>
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<td>AVRCP 2/32</td>
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<td>AVRCP/CT/CON/BV-01-C, AVRCP/CT/CON/BV-03-C</td>
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<td>AVRCP 2/28</td>
<td>Set Addressed Player</td>
<td>AVRCP/CT/MPS/BV-01-C</td>
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<tr>
<td>AVRCP 2/33</td>
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<td>Get Folder Items – Media Player List</td>
<td>AVRCP/CT/MPS/BV-08-C</td>
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<td>AVRCP 2/45 OR AVRCP 2/37 OR AVRCP 2/42</td>
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<td>Add To NowPlaying</td>
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<tr>
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<td>AVRCP 2/44 AND AVRCP 2/36</td>
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<td>Item</td>
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<td>Use GetFolderItems to request the Cover Art attribute</td>
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<td>Use GetItemAttributes to request the CoverArt attribute</td>
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<td>AVRCP 2/54 AND AVRCP 2/20</td>
<td>Use GetElementAttributes to request the Cover Art attribute</td>
<td>AVRCP/CT/CA/BV-05-C</td>
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<tr>
<td>AVRCP 2/54 AND AVRCP 2/55 AND AVRCP 2/56 AND (AVRCP 2/20 OR AVRCP 2/35 OR AVRCP 2/36)</td>
<td>Use an imaging property object</td>
<td>AVRCP/CT/CA/BV-07-C</td>
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<tr>
<td>AVRCP 2/54 AND AVRCP 2/56 AND (AVRCP 2/20 OR AVRCP 2/35 OR AVRCP 2/36)</td>
<td>Use GetImage with descriptor thumbnail</td>
<td>AVRCP/CT/CA/BV-09-C</td>
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<td>AVRCP 2/54 AND AVRCP 2/57 AND (AVRCP 2/20 OR AVRCP 2/35 OR AVRCP 2/36)</td>
<td>Pull a thumbnail using GetLinkedThumbnail</td>
<td>AVRCP/CT/CA/BV-11-C</td>
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<td>AVRCP 2/54 AND AVRCP 2/56 AND (AVRCP 2/20 OR AVRCP 2/35 OR AVRCP 2/36)</td>
<td>Pull a native image</td>
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<td>AVRCP 2/54 AND AVRCP 2/38 AND (AVRCP 2/35 OR AVRCP 2/36)</td>
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<td>When IUT changes folder on a database unaware player, OBEX is disconnected</td>
<td>AVRCP/CT/CA/BV-18-C</td>
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<td>AVRCP 2/29</td>
<td>Listing of Available Media Players</td>
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<td>Item</td>
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<td>Browsing of the Current Folder</td>
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<td>Playing of a track from the Virtual Media Player Filesystem</td>
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<td>Awareness of change in Media Database</td>
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<td>AVRCP 2/35 OR AVRCP 2/36</td>
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<td>CT can retrieve the Metadata virtual file system from TG with future SDP version</td>
<td>AVRCP/CT/MCN/CB/BV-09-I</td>
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<td>Browsing of the Search Results</td>
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<td>AVRCP 2/41 AND AVRCP 2/36</td>
<td>Metadata from Search Results</td>
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<td>AVRCP 2/45</td>
<td>Playing of a track from the NowPlaying folder</td>
<td>AVRCP/CT/MCN/NP/BV-01-I</td>
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<td>AVRCP 2/46</td>
<td>Adding a track to NowPlaying list</td>
<td>AVRCP/CT/MCN/NP/BV-02-I</td>
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<td>AVRCP 2/46 AND AVRCP 2/40</td>
<td>Adding a Search Result track to NowPlaying list</td>
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<td>Local change of NowPlaying list on TG</td>
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<td>AVRCP 2/44 AND AVRCP 2/36</td>
<td>Metadata from NowPlayingList</td>
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<td>AVRCP 2/26</td>
<td>Previous Group</td>
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<tr>
<td>AVRCP 2/53</td>
<td>PASS THROUGH operations supporting press and hold</td>
<td>AVRCP/CT/PTT/BV-05-I</td>
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</tbody>
</table>
| AVRCP 2/54 AND AVRCP 2/32 | Retrieval of Multiple Cover Art Images  
Retrieval of Cover Art Image for the currently playing track | AVRCP/CT/CA/BV-01-I  
AVRCP/CT/CA/BV-02-I |
| AVRCP 2/54 | Retrieval of Cover Art Image for the currently playing track without browsing | AVRCP/CT/CA/BV-03-I               |
| AVRCP 2/1  | Initiating connection establishment for control/Accepting connection establishment for control initiated by CT | AVRCP/CT/CEC/BV-01-I               |
| AVRCP 2/2  | Accepting connection establishment for control initiated by TG/Initiating connection establishment for control | AVRCP/CT/CEC/BV-02-I               |
| AVRCP 2/3  | Initiating connection release for control/Accepting connection release for control initiated by CT | AVRCP/CT/CRC/BV-01-I               |
| AVRCP 2/4  | Accepting connection release for control initiated by TG/Initiating connection release for control | AVRCP/CT/CRC/BV-02-I               |
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| AVRCP 2/6  | Sending/Receiving SUBUNIT INFO command                                | AVRCP/CT/ICC/BV-02-I               |
| AVRCP 2/7  | Sending/receiving PASS THROUGH command in category 1                  | AVRCP/CT/PTT/BV-01-I               |
| AVRCP 2/8  | Sending/receiving PASS THROUGH command in category 2                  | AVRCP/CT/PTT/BV-02-I               |
| AVRCP 2/9  | Sending/receiving PASS THROUGH command in category 3                  | AVRCP/CT/PTT/BV-03-I               |
| AVRCP 2/10 | Sending/receiving PASS THROUGH command in category 4                  | AVRCP/CT/PTT/BV-04-I               |

Table 6.1: Test Case Mapping for CT
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<th>Feature</th>
<th>Test Case(s)</th>
</tr>
</thead>
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<td>AVRCP 7/11</td>
<td>Get Capabilities Response</td>
<td>AVRCP/TG/CFG/BV-02-C</td>
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<td>AVRCP/TG/CFG/BI-01-C</td>
</tr>
<tr>
<td>AVRCP 7/12</td>
<td>List Player Application Settings Attributes Response</td>
<td>AVRCP/TG/PAS/BV-02-C</td>
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<tr>
<td>AVRCP 7/13</td>
<td>List Player Application Setting Values Response</td>
<td>AVRCP/TG/PAS/BV-06-C</td>
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<td>AVRCP/TG/PAS/BI-02-C</td>
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<td>Get Current Player Application Settings Value Response</td>
<td>AVRCP/TG/PAS/BV-10-C</td>
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<td>AVRCP/TG/PAS/BI-04-C</td>
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<td>AVRCP 7/15</td>
<td>Set Player Application Setting Value Response</td>
<td>AVRCP/TG/PAS/BI-05-C</td>
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<td>AVRCP 7/16</td>
<td>Get Player Application Setting Attribute Text Response</td>
<td>AVRCP/TG/PAS/BV-04-C</td>
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<td>AVRCP/TG/PAS/BI-01-C</td>
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<td>AVRCP 7/17</td>
<td>Get Player Application Setting Value Text Response</td>
<td>AVRCP/TG/PAS/BV-08-C</td>
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<td>AVRCP/TG/PAS/BI-03-C</td>
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<td>AVRCP 7/20</td>
<td>Get Element Attributes Response</td>
<td>AVRCP/TG/MDI/BV-04-C</td>
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<td>AVRCP/TG/INV/BI-01-C</td>
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<td>AVRCP 7/21</td>
<td>Get Play Status Response</td>
<td>AVRCP/TG/MDI/BV-02-C</td>
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<td>AVRCP 2/20 AND NOT AVRCP 2/32</td>
<td>Retrieve Metadata when TG supports a future version</td>
<td>AVRCP/CT/MDI/BV-06-I</td>
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<tr>
<td>AVRCP 7/22</td>
<td>Register Notification Response</td>
<td>AVRCP/TG/NFY/BI-01-C</td>
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<tr>
<td>AVRCP 7/22 AND AVRCP 7/20</td>
<td>Register Notification Response – Media Attributes for Current Media Item</td>
<td>AVRCP/TG/NFY/BV-02-C</td>
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<td>AVRCP 7/30</td>
<td>Register Notification event</td>
<td>AVRCP/TG/NFY/BV-03-C</td>
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<td>AVRCP 7/24</td>
<td>Track Changed – No Playing Track</td>
<td>AVRCP/TG/NFY/BV-04-C</td>
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<tr>
<td>AVRCP 7/24 AND NOT AVRCP 7/54</td>
<td>Track Changed – Playing or Selected Track</td>
<td>AVRCP/TG/NFY/BV-05-C</td>
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<td></td>
<td>AVRCP/TG/NFY/BV-08-C</td>
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<tr>
<td>AVRCP 7/24 AND AVRCP 7/54</td>
<td>Playing and Changing Track in NowPlaying</td>
<td>AVRCP/TG/NFY/BV-06-C</td>
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<td>AVRCP/TG/NFY/BV-07-C</td>
</tr>
<tr>
<td>AVRCP 7/31</td>
<td>Request Continuing Response</td>
<td>AVRCP/TG/RCR/BV-02-C</td>
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<tr>
<td>AVRCP 7/32</td>
<td>Abort Continuing Response</td>
<td>AVRCP/TG/RCR/BV-04-C</td>
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<td>Test Case(s)</td>
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<td>AVRCP 7/1 AND AVRCP 7/42 AND AVRCP 7/42a</td>
<td>Connection Establishment for Browsing</td>
<td>AVRCP/TG/CON/BV-02-C</td>
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<tr>
<td>AVRCP 7/1 AND AVRCP 7/42</td>
<td>Connection Establishment for Browsing</td>
<td>AVRCP/TG/CON/BV-05-C</td>
</tr>
<tr>
<td>AVRCP 7/42</td>
<td>Connection Release for Browsing</td>
<td>AVRCP/TG/CON/BV-04-C</td>
</tr>
<tr>
<td>AVRCP 7/37</td>
<td>Set Addressed Player</td>
<td>AVRCP/TG/MPS/BV-02-C</td>
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<td>AVRCP/TG/MPS/BI-01-C</td>
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<tr>
<td>AVRCP 7/43</td>
<td>Set Browsed Player</td>
<td>AVRCP/TG/MPS/BV-04-C</td>
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<td></td>
<td>AVRCP/TG/MPS/BI-02-C</td>
</tr>
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<td>AVRCP 7/40 AND AVRCP 7/41</td>
<td>Addressed Player Changed Notification</td>
<td>AVRCP/TG/MPS/BV-05-C</td>
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<td>AVRCP 7/38</td>
<td>Media Player Item - Player Feature Bitmask</td>
<td>AVRCP/TG/MPS/BV-06-C</td>
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<tr>
<td>AVRCP 7/39 AND AVRCP 7/41</td>
<td>Available Players Changed Notification</td>
<td>AVRCP/TG/MPS/BV-07-C</td>
</tr>
<tr>
<td>AVRCP 7/38</td>
<td>Get Folder Items - Media Player List</td>
<td>AVRCP/TG/MPS/BV-09-C</td>
</tr>
<tr>
<td>AVRCP 7/41</td>
<td>Default Player</td>
<td>AVRCP/TG/MPS/BV-10-C</td>
</tr>
<tr>
<td>AVRCP 7/45</td>
<td>Get Folder Items – Media Content</td>
<td>AVRCP/TG/MCN/CB/BV-02-C</td>
</tr>
<tr>
<td>AVRCP 7/45 AND AVRCP 7/41</td>
<td>Get Folder Items – Media Content</td>
<td>AVRCP/TG/MCN/CB/BV-03-C</td>
</tr>
<tr>
<td>AVRCP 7/44</td>
<td>Change Path</td>
<td>AVRCP/TG/MCN/CB/BV-05-C</td>
</tr>
<tr>
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<td></td>
<td>AVRCP/TG/MCN/CB/BI-04-C</td>
</tr>
<tr>
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<td>AVRCP/TG/MCN/CB/BV-06-C</td>
</tr>
<tr>
<td>AVRCP 7/45</td>
<td>Get Folder Items- TG</td>
<td>AVRCP/TG/MCN/CB/BI-01-C</td>
</tr>
<tr>
<td>AVRCP 7/44</td>
<td>Get Folder Items -TG</td>
<td>AVRCP/TG/MCN/CB/BI-02-C</td>
</tr>
<tr>
<td>AVRCP 7/42</td>
<td>Get Folder Items -TG</td>
<td>AVRCP/TG/MCN/CB/BI-03-C</td>
</tr>
<tr>
<td>AVRCP 7/46</td>
<td>Get Item Attributes – Media Content</td>
<td>AVRCP/TG/MCN/CB/BV-08-C</td>
</tr>
<tr>
<td>AVRCP 7/42 AND AVRCP 7/48</td>
<td>Invalid UID counter</td>
<td>AVRCP/TG/MCN/CB/BI-05-C</td>
</tr>
<tr>
<td>AVRCP 7/42 AND AVRCP 7/48 AND NOT AVRCP 7/49</td>
<td>Database Unaware Players</td>
<td>AVRCP/TG/MCN/CB/BV-09-C</td>
</tr>
<tr>
<td>Item</td>
<td>Feature</td>
<td>Test Case(s)</td>
</tr>
<tr>
<td>------</td>
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<td>--------------</td>
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<tr>
<td>AVRCP 7/41 AND AVRCP 7/43 AND NOT AVRCP 7/43a</td>
<td>Reject Browsing of a non-addressed Player</td>
<td>AVRCP/TG/MCN/CB/BI-08-C</td>
</tr>
<tr>
<td>AVRCP 7/42 AND AVRCP 7/49 AND AVRCP 7/48</td>
<td>Database Aware Players</td>
<td>AVRCP/TG/MCN/CB/BV-10-C, AVRCP/TG/MCN/CB/BV-11-C</td>
</tr>
<tr>
<td>AVRCP 7/51</td>
<td>Search</td>
<td>AVRCP/TG/MCN/SRC/BV-02-C</td>
</tr>
<tr>
<td>AVRCP 7/52</td>
<td>Get Folder Items – Search Folder</td>
<td>AVRCP/TG/MCN/SRC/BV-04-C</td>
</tr>
<tr>
<td>AVRCP 7/52 AND AVRCP7/46</td>
<td>Get Item Attributes – Search Folder</td>
<td>AVRCP/TG/MCN/SRC/BV-06-C</td>
</tr>
<tr>
<td>AVRCP 7/56 OR AVRCP 7/47 OR AVRCP 7/53</td>
<td>Play Item</td>
<td>AVRCP/TG/MCN/NP/BV-02-C, AVRCP/TG/MCN/NP/BI-01-C</td>
</tr>
<tr>
<td>AVRCP 7/57</td>
<td>Add To NowPlaying</td>
<td>AVRCP/TG/MCN/NP/BV-04-C, AVRCP/TG/MCN/NP/BI-02-C</td>
</tr>
<tr>
<td>AVRCP 7/55</td>
<td>Get Folder Items – NowPlaying Folder</td>
<td>AVRCP/TG/MCN/NP/BV-06-C</td>
</tr>
<tr>
<td>AVRCP 7/58</td>
<td>NowPlaying Content Changed Notification</td>
<td>AVRCP/TG/MCN/NP/BV-07-C</td>
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<tr>
<td>AVRCP 7/55 AND AVRCP 7/46</td>
<td>Get Item Attributes – NowPlaying Folder</td>
<td>AVRCP/TG/MCN/NP/BV-09-C</td>
</tr>
<tr>
<td>AVRCP 7/61</td>
<td>Set Absolute Volume</td>
<td>AVRCP/TG/VLH/BV-02-C, AVRCP/TG/VLH/BI-01-C, AVRCP/TG/VLH/BI-02-C</td>
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<tr>
<td>AVRCP 7/62</td>
<td>Notify Volume Change</td>
<td>AVRCP/TG/VLH/BV-04-C</td>
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<tr>
<td>AVRCP 7/64</td>
<td>General Reject</td>
<td>AVRCP/TG/INV/BI-02-C</td>
</tr>
<tr>
<td>AVRCP 7/38b</td>
<td>GetTotalNumberOfItems (MediaPlayerList)</td>
<td>AVRCP/TG/MPS/BV-12-C</td>
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<tr>
<td>AVRCP 7/45b</td>
<td>GetTotalNumberOfItems (MediaPlayerVirtual Filesystem)</td>
<td>AVRCP/TG/MCN/CB/BV-13-C</td>
</tr>
<tr>
<td>AVRCP 7/52b AND AVRCP 7/43</td>
<td>GetTotalNumberOfItems (Search)</td>
<td>AVRCP/TG/MCN/SRC/BV-08-C</td>
</tr>
<tr>
<td>AVRCP 7/55b</td>
<td>GetTotalNumberOfItems (NowPlaying)</td>
<td>AVRCP/TG/MCN/NP/BV-11-C</td>
</tr>
<tr>
<td>AVRCP 7/67 AND AVRCP 7/45</td>
<td>Use GetFolderItems to request the Cover Art attribute</td>
<td>AVRCP/TG/CA/BV-02-C, AVRCP/TG/CA/BI-08-C</td>
</tr>
<tr>
<td>Item</td>
<td>Feature</td>
<td>Test Case(s)</td>
</tr>
<tr>
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| AVRCP 7/67 AND AVRCP 7/46 | Use GetItemAttributes to request the Cover Art attribute | AVRCP/TG/CA/BV-04-C  
| | | AVRCP/TG/CA/BI-09-C |
| AVRCP 7/67 AND AVRCP 7/20 | Use GetElementAttributes to request the Cover Art attribute | AVRCP/TG/CA/BV-06-C  
| | | AVRCP/TG/CA/BI-10-C |
| AVRCP 7/67 | Cover Art SDP Record | AVRCP/TG/CA/BV-16-C |
| AVRCP 7/67 AND AVRCP 7/45 | Retrieval of Cover Art Attribute with no OBEX connection | AVRCP/TG/CA/BI-01-C |
| AVRCP 7/67 AND AVRCP 7/46 | Retrieval of Cover Art Attribute with no OBEX connection using GetItemAttributes | AVRCP/TG/CA/BI-04-C |
| AVRCP 7/67 AND AVRCP 7/20 | Retrieval of Cover Art Attribute with no OBEX connection using GetElementAttributes | AVRCP/TG/CA/BI-05-C |
| AVRCP 7/67 AND AVRCP 7/46 | Request of Unsupported Image Type | AVRCP/TG/CA/BI-06-C |
| AVRCP 7/20 AND AVRCP 7/67 | Request of Unsupported Image Type without browsing | AVRCP/TG/CA/BI-07-C |
| (AVRCP 7/20 OR AVRCP 7/42) AND AVRCP 7/67 | Use an imaging property object | AVRCP/TG/CA/BV-08-C |
| (AVRCP 7/20 OR AVRCP 7/42) AND AVRCP 7/67 | Use GetImage with descriptor thumbnail | AVRCP/TG/CA/BV-10-C |
| (AVRCP 7/20 OR AVRCP 7/42) AND AVRCP 7/67 | Pull a thumbnail using GetLinkedThumbnail | AVRCP/TG/CA/BV-12-C |
| (AVRCP 7/20 OR AVRCP 7/42) AND AVRCP 7/67 | Pull a native image | AVRCP/TG/CA/BV-14-C |
| AVRCP 7/38 | Listing of Available Media Players | AVRCP/TG/MPS/BV-01-I |
| AVRCP 7/37 | Availability of Media Players | AVRCP/TG/MPS/BV-02-I  
<p>| | | AVRCP/TG/MPS/BV-03-I |
| AVRCP 7/45 | Browsing of the Current Folder | AVRCP/TG/MCN/CB/BV-01-I |
| AVRCP 7/44 | Browsing Up | AVRCP/TG/MCN/CB/BV-02-I |
| AVRCP 7/44 | Browsing Down | AVRCP/TG/MCN/CB/BV-03-I |</p>
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<tr>
<th>Item</th>
<th>Feature</th>
<th>Test Case(s)</th>
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<tr>
<td>AVRCP 7/47</td>
<td>Playing of a track from the Virtual Media Player Filesystem</td>
<td>AVRCP/TG/MCN/CB/BV-04-I</td>
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<td>AVRCP 7/49</td>
<td>Awareness of change in Media Database</td>
<td>AVRCP/TG/MCN/CB/BV-05-I</td>
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<td>AVRCP 7/45 OR AVRCP 7/46</td>
<td>Metadata from Virtual Filesystem</td>
<td>AVRCP/TG/MCN/CB/BV-06-I</td>
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<td>AVRCP 7/45 AND AVRCP 7/41 AND AVRCP 7/43a</td>
<td>Browsing of a Folder if the Player is not the Addressed Player</td>
<td>AVRCP/TG/MCN/CB/BV-07-I</td>
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<tr>
<td>AVRCP 7/51</td>
<td>Search Request</td>
<td>AVRCP/TG/MCN/SRC/BV-01-I</td>
</tr>
<tr>
<td>AVRCP 7/52</td>
<td>Browsing of the Search Results</td>
<td>AVRCP/TG/MCN/SRC/BV-02-I</td>
</tr>
<tr>
<td>AVRCP 7/53</td>
<td>Play from Search Results</td>
<td>AVRCP/TG/MCN/SRC/BV-03-I</td>
</tr>
<tr>
<td>AVRCP 7/52 AND AVRCP 7/46</td>
<td>Metadata from Search Results</td>
<td>AVRCP/TG/MCN/SRC/BV-04-I</td>
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<tr>
<td>AVRCP 7/56</td>
<td>Playing of a track from the NowPlaying folder</td>
<td>AVRCP/TG/MCN/NP/BV-01-I</td>
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<td>AVRCP 7/57</td>
<td>Adding a track to NowPlaying list</td>
<td>AVRCP/TG/MCN/NP/BV-02-I</td>
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<td>AVRCP 7/57 AND AVRCP 7/51</td>
<td>Adding a Search Result track to NowPlaying list</td>
<td>AVRCP/TG/MCN/NP/BV-03-I</td>
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<tr>
<td>AVRCP 7/58</td>
<td>Local change of NowPlaying list on TG</td>
<td>AVRCP/TG/MCN/NP/BV-04-I</td>
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<tr>
<td>AVRCP 7/55 AND AVRCP 7/46</td>
<td>Metadata from NowPlayingList</td>
<td>AVRCP/TG/MCN/NP/BV-05-I</td>
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<tr>
<td>AVRCP 7/55</td>
<td>Browsing the NowPlayingFolder</td>
<td>AVRCP/TG/MCN/NP/BV-06-I</td>
</tr>
<tr>
<td>AVRCP 7/62</td>
<td>Monitoring the CT Volume on the TG</td>
<td>AVRCP/TG/VLH/BV-01-I</td>
</tr>
<tr>
<td>AVRCP 7/61</td>
<td>Changing the Volume</td>
<td>AVRCP/TG/VLH/BV-02-I</td>
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<td>AVRCP 7/59</td>
<td>Playable Folder</td>
<td>AVRCP/TG/MCN/NP/BV-07-I</td>
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<td>AVRCP 7/34</td>
<td>Next Group</td>
<td>AVRCP/TG/BGN/BV-01-I</td>
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<tr>
<td>AVRCP 7/35</td>
<td>Previous Group</td>
<td>AVRCP/TG/BGN/BV-02-I</td>
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<td>AVRCP 7/66</td>
<td>PASS THROUGH operations supporting press and hold</td>
<td>AVRCP/TG/PTT/BV-05-I</td>
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<tr>
<td>AVRCP 7/67 AND AVRCP 7/42</td>
<td>Retrieval of Multiple Cover Art Images</td>
<td>AVRCP/TG/CA/BV-01-I</td>
</tr>
<tr>
<td></td>
<td>Retrieval of Cover Art Image for the currently playing track</td>
<td>AVRCP/TG/CA/BV-02-I</td>
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<tr>
<td>Item</td>
<td>Feature</td>
<td>Test Case(s)</td>
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<tr>
<td>AVRCP 7/67</td>
<td>Retrieval of Cover Art Image for the currently playing track without browsing</td>
<td>AVRCP/TG/CA/BV-03-I</td>
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<tr>
<td>AVRCP 7/2</td>
<td>Initiating connection establishment for control/ Accepting connection establishment for control initiated by CT</td>
<td>AVRCP/TG/CEC/BV-01-I</td>
</tr>
<tr>
<td>AVRCP 7/1</td>
<td>Accepting connection establishment for control initiated by TG/Initiating connection establishment for control</td>
<td>AVRCP/TG/CEC/BV-02-I</td>
</tr>
<tr>
<td>AVRCP 7/4</td>
<td>Initiating connection release for control/Accepting connection release for control initiated by CT</td>
<td>AVRCP/TG/CRC/BV-01-I</td>
</tr>
<tr>
<td>AVRCP 7/3</td>
<td>Accepting connection release for control initiated by TG/Initiating connection release for control</td>
<td>AVRCP/TG/CRC/BV-02-I</td>
</tr>
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<td>AVRCP 7/5</td>
<td>Sending/Receiving UNIT INFO command</td>
<td>AVRCP/TG/ICC/BV-01-I</td>
</tr>
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<td>AVRCP 7/6</td>
<td>Sending/Receiving SUBUNIT INFO command</td>
<td>AVRCP/TG/ICC/BV-02-I</td>
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<td>AVRCP 7/7</td>
<td>Sending/receiving PASS THROUGH command in category 1</td>
<td>AVRCP/TG/PTT/BV-01-I</td>
</tr>
<tr>
<td>AVRCP 7/8</td>
<td>Sending/receiving PASS THROUGH command in category 2</td>
<td>AVRCP/TG/PTT/BV-02-I</td>
</tr>
<tr>
<td>AVRCP 7/9</td>
<td>Sending/receiving PASS THROUGH command in category 3</td>
<td>AVRCP/TG/PTT/BV-03-I</td>
</tr>
<tr>
<td>AVRCP 7/10</td>
<td>Sending/receiving PASS THROUGH command in category 4</td>
<td>AVRCP/TG/PTT/BV-04-I</td>
</tr>
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</table>

*Table 6.2: Test Case Mapping for TG*
## 7 Appendix A – Operation_id List Tables

### 7.1 Operation_id of Category 1

<table>
<thead>
<tr>
<th>operation_id</th>
<th>Expected operation to be performed by the TG</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>1</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>2</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>3</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>4</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>5</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>6</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>7</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>8</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>9</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>dot</td>
<td>Used with 0-9 to input numerical value such as a sub channel in US.</td>
</tr>
<tr>
<td>enter</td>
<td>Fix the entered numerical value.</td>
</tr>
<tr>
<td>clear</td>
<td>Cancel the entered numerical value.</td>
</tr>
<tr>
<td>sound select</td>
<td>Used to switch the sound such as multiple language selection.</td>
</tr>
<tr>
<td>input select</td>
<td>Used to switch the input signal.</td>
</tr>
<tr>
<td>display information</td>
<td>Displays the information about current contents. For example, this command may be used to display the channel number, broadcaster and broadcast time, or recorded date and time code.</td>
</tr>
<tr>
<td>help</td>
<td>Displays help instructions.</td>
</tr>
<tr>
<td>power</td>
<td>Controls the power state of the device alternatively. This command may support to turn the device off only.</td>
</tr>
<tr>
<td>play</td>
<td>Starts playing back the specified content at normal speed.</td>
</tr>
<tr>
<td>stop</td>
<td>Stops playing back the content.</td>
</tr>
<tr>
<td>pause</td>
<td>Stops playing back the content, and may resume playing it back alternatively.</td>
</tr>
<tr>
<td>record</td>
<td>Records the specified stream or content to the specified medium.</td>
</tr>
<tr>
<td>operation_id</td>
<td>Expected operation to be performed by the TG</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>rewind</td>
<td>Moves the position toward the beginning of the medium.</td>
</tr>
<tr>
<td>fast forward</td>
<td>Moves the position away from the beginning of the medium.</td>
</tr>
<tr>
<td>eject</td>
<td>Ejects the medium from the device, and may close the door for loading the medium alternatively.</td>
</tr>
<tr>
<td>forward</td>
<td>Switches the contents, such as music tune, or video chapter, which can be reproduced with “play” operation, to the forward one. The “forward” means future direction in time, plus direction in number, and down direction in a list.</td>
</tr>
<tr>
<td>backward</td>
<td>Switches the contents, such as music tune, or video chapter, which can be reproduced with “play” operation, to the backward one. The ‘backward’ means past direction in time, minus direction in number, and up direction in a list.</td>
</tr>
<tr>
<td>angle</td>
<td>Switches the scene of the contents, if it has multi angle contents.</td>
</tr>
<tr>
<td>subpicture</td>
<td>Switches or rotates the sub pictures, if it has some sub pictures data.</td>
</tr>
</tbody>
</table>

Table 7.1: Operation_id List – Category 1

7.2 Operation_id of Category 2

<table>
<thead>
<tr>
<th>operation_id</th>
<th>Expected operation to be performed by the TG</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>1</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>2</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>3</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>4</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>5</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>6</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>7</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>8</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>9</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>dot</td>
<td>Used with 0-9 to input numerical value such as a sub channel in US.</td>
</tr>
<tr>
<td>enter</td>
<td>Fix the entered numerical value.</td>
</tr>
<tr>
<td>operation_id</td>
<td>Expected operation to be performed by the TG</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>clear</td>
<td>Cancel the entered numerical value.</td>
</tr>
<tr>
<td>sound select</td>
<td>Used to switch the sound such as multiple language selection.</td>
</tr>
<tr>
<td>input select</td>
<td>Used to switch the input signal.</td>
</tr>
<tr>
<td>display information</td>
<td>Displays the information about current contents. For example, this command may be used to display the channel number, broadcaster and broadcast time, or recorded date and time code.</td>
</tr>
<tr>
<td>help</td>
<td>Displays help instructions.</td>
</tr>
<tr>
<td>power</td>
<td>Controls the power state of the device alternatively. This command may support to turn the device off only.</td>
</tr>
<tr>
<td>volume up</td>
<td>Turns the volume to high.</td>
</tr>
<tr>
<td>volume down</td>
<td>Turns the volume to low.</td>
</tr>
<tr>
<td>mute</td>
<td>Puts the sound out, and may resume it alternatively or not.</td>
</tr>
</tbody>
</table>

Table 7.2: Operation_id List – Category 2

### 7.3 Operation_id of Category 3

<table>
<thead>
<tr>
<th>operation_id</th>
<th>Expected operation to be performed by the TG</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>1</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>2</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>3</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>4</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>5</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>6</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>7</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>8</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>9</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>dot</td>
<td>Used with 0-9 to input numerical value such as a sub channel in US.</td>
</tr>
<tr>
<td>enter</td>
<td>Fix the entered numerical value.</td>
</tr>
<tr>
<td>operation_id</td>
<td>Expected operation to be performed by the TG</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>clear</td>
<td>Cancel the entered numerical value.</td>
</tr>
<tr>
<td>channel up</td>
<td>Switches the channel, such as broadcast channel, to upper one, i.e. plus direction in number.</td>
</tr>
<tr>
<td>channel down</td>
<td>Switches the channel, such as broadcast channel, to lower one, i.e. minus direction in number.</td>
</tr>
<tr>
<td>previous channel</td>
<td>Switches to the previously selected channel. For example, in case 123 ch was switched to 246 ch, this command can be used as a switcher between 123 ch and 246 ch.</td>
</tr>
<tr>
<td>sound select</td>
<td>Used to switch the sound such as multiple language selection.</td>
</tr>
<tr>
<td>input select</td>
<td>Used to switch the input signal.</td>
</tr>
<tr>
<td>display information</td>
<td>Displays the information about current contents. For example, this command may be used to display the channel number, broadcaster and broadcast time, or recorded date and time code.</td>
</tr>
<tr>
<td>help</td>
<td>Displays help instructions.</td>
</tr>
<tr>
<td>power</td>
<td>Controls the power state of the device alternatively. This command may support to turn the device off only.</td>
</tr>
<tr>
<td>angle</td>
<td>Switches the scene of the contents, if it has multi angle contents.</td>
</tr>
<tr>
<td>subpicture</td>
<td>Switches or rotates the sub pictures, if it has some sub pictures data.</td>
</tr>
</tbody>
</table>

Table 7.3: Operation_id List – Category 3

### 7.4 Operation_id of Category 4

<table>
<thead>
<tr>
<th>operation_id</th>
<th>Expected operation to be performed by the TG</th>
</tr>
</thead>
<tbody>
<tr>
<td>select</td>
<td>Selects the item focused by cursor.</td>
</tr>
<tr>
<td>up</td>
<td>Moves cursor upper direction.</td>
</tr>
<tr>
<td>down</td>
<td>Moves cursor lower direction.</td>
</tr>
<tr>
<td>left</td>
<td>Moves cursor left direction.</td>
</tr>
<tr>
<td>right</td>
<td>Moves cursor right direction.</td>
</tr>
<tr>
<td>right-up</td>
<td>Moves cursor upper-right direction.</td>
</tr>
<tr>
<td>right-down</td>
<td>Moves cursor lower-right direction.</td>
</tr>
<tr>
<td>left-up</td>
<td>Moves cursor upper-left direction.</td>
</tr>
<tr>
<td>operation_id</td>
<td>Expected operation to be performed by the TG</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>left-down</td>
<td>Moves cursor lower-left direction.</td>
</tr>
<tr>
<td>root menu</td>
<td>Displays initial menu to start GUI operation. The menu displayed with this command is target-dependent, so it may be contents menu, setup menu, favorite menu or the other menu, furthermore it may be changed dynamically according to the status of the target. This command may be used to finish GUI operation alternately.</td>
</tr>
<tr>
<td>setup menu</td>
<td>Displays set up menu such as option set up. (Can be used as a shortcut.) The menu displayed with this command should be designed to be reached from the initial menu of the target.</td>
</tr>
<tr>
<td>contents menu</td>
<td>Displays contents menu. (Can be used as a shortcut.) For example, this command may be used to display the Electric Program Guide (EPG) or the contents list in a storage medium. The menu displayed with this command should be designed to be reached from the initial menu of the target.</td>
</tr>
<tr>
<td>favorite menu</td>
<td>Displays user preset menu. (Can be used as a shortcut.) For example, this command may be used to display the list of user preset channel. The menu displayed with this command should be designed to be reached from the initial menu of the target.</td>
</tr>
<tr>
<td>exit</td>
<td>Closes current menu and go back previous menu. This command may also be used to finish GUI operation, but a target shall be implemented to be finished GUI operation without this command.</td>
</tr>
<tr>
<td>0</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>1</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>2</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>3</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>4</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>5</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>6</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>7</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>8</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>9</td>
<td>Input a numerical value.</td>
</tr>
<tr>
<td>dot</td>
<td>Used with 0-9 to input numerical value such as a sub channel in US.</td>
</tr>
<tr>
<td>enter</td>
<td>Fix the entered numerical value.</td>
</tr>
<tr>
<td>clear</td>
<td>Cancel the entered numerical value.</td>
</tr>
<tr>
<td>operation_id</td>
<td>Expected operation to be performed by the TG</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>display information</td>
<td>Displays the information about current contents. For example, this command may be used to display the channel number, broadcaster and broadcast time, or recorded date and time code.</td>
</tr>
<tr>
<td>help</td>
<td>Displays help instructions.</td>
</tr>
<tr>
<td>page up</td>
<td>Scrolls up the whole screen or part of display.</td>
</tr>
<tr>
<td>page down</td>
<td>Scrolls down the whole screen or part of display.</td>
</tr>
<tr>
<td>power</td>
<td>Controls the power state of the device alternatively. This command may support to turn the device off only.</td>
</tr>
</tbody>
</table>

*Table 7.4: Operation_id List – Category 4*
# Revision History and Contributors

## Revision History

<table>
<thead>
<tr>
<th>Revision History</th>
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<th>Comments</th>
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<tr>
<td>1.0.0</td>
<td>2003-02</td>
<td>Release for Voting Draft</td>
</tr>
<tr>
<td>1.2.0-0</td>
<td>2006-02-08</td>
<td>Editorial updates to conform to template and 1.2 or later spec Fixed Abstract text on title page.</td>
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<tr>
<td>1.2.0</td>
<td>2006-06-07</td>
<td>Prepare for publication.</td>
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<tr>
<td>1.3.0</td>
<td>2006-10-11</td>
<td>- Changed document number to be in line with AVRCP specification version number;</td>
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<tr>
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<td>- Inclusion of Metadata Transfer</td>
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<tr>
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<td>- Include edits and change tracking;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Merged two figures into one</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Added missing entries to figure 3.1 and editorial clarifications</td>
</tr>
<tr>
<td>1.3.1</td>
<td>2007-03-22</td>
<td>Prepare for publication.</td>
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<td>1.3.2</td>
<td>2008-04</td>
<td>TSE 2378: New Test cases AVRCP/TG/BGN/BV-01-I, AVRCP/CT/BGN/BV-01-I, AVRCP/TG/BGN/BV-02-I, AVRCP/CT/BGN/BV-02-I (legacy test case IDs TP/BGN/BV-01-I, TP/BGN/BV-02-I) for next/previous group</td>
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<tr>
<td>1.4.0</td>
<td>2008-06</td>
<td>Added test cases for advanced control; added IXIT text.</td>
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<tr>
<td>1.4.1r0</td>
<td>2008-07-14</td>
<td>TSE 2524: AVRCP/CT/CFG/BV-01-C (legacy test case ID TP/CFG/BV-01-C); update Test Condition</td>
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<td>TSE 2503: new test case AVRCP/CT/RCR/BV-01-C (legacy test case ID TP/RCR/BV-01-C)</td>
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<td>1.4.1r1-2</td>
<td>2008-10-31</td>
<td>Corrected previous table entry; updated new test cases per review comments;</td>
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<td>TSE 2719: New test case AVRCP/TG/NFY/BV-03-C (legacy test case ID TP/NFY/BV-03-C)</td>
</tr>
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<td>1.4.1</td>
<td>2008-12-01</td>
<td>Prepare for publication</td>
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<td>1.4.2r0</td>
<td>2009-08-06</td>
<td>TSE 2697: new test cases AVRCP/TG/NFY/BV-04-C (legacy test case ID TP/NFY/BV-04-C) (v1.3, v1.4), AVRCP/TG/NFY/BV-05-C (legacy test case ID TP/NFY/BV-05-C) (v1.3), AVRCP/TG/NFY/BV-06-C (legacy test case ID TP/NFY/BV-06-C) (v1.4); updates to TCMT</td>
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<td>TSE 2703: Rename duplicate test case TP/MCN/CB/BV-02-I to AVRCP/TG/MCN/SRC/BV-02-I and AVRCP/CT/MCN/CB/BV-02-I (legacy test case ID TP/MCN/SRC/BV-02-I)</td>
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<td>TSE 3087: TCMT correction for AVRCP/TG/RCR/BV-02-C and AVRCP/TG/RCR/BV-04-C (legacy test case IDs TP/RCR/BV-02-C, TP/RCR/BV-04-C)</td>
</tr>
<tr>
<td>Revision History</td>
<td>Date</td>
<td>Comments</td>
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<tr>
<td>------------------</td>
<td>------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------</td>
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<td>1.4.2</td>
<td>2009-08-06</td>
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<td>1.4.2a</td>
<td>2009-10-08</td>
<td>Add AVRCP/TG/BGN/BV-01-I, AVRCP/CT/BGN/BV-01-I, AVRCP/TG/BGN/BV-02-I, AVRCP/CT/BGN/BV-02-I (legacy test case IDs TP/BGN/BV-01-I and TP/BGN/BV-02-I) to TCMT</td>
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<td>TSE 2738: AVRCP/TLH/BI-01-C (test case ID TP/TLH/BI-01-C) change test condition</td>
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<td>TSE 3488: AVRCP/TG/TLH/BI-01-C (legacy test case ID TP/TLH/BI-01-C); move pass verdict text</td>
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<td>TSE 3041: AVRCP/TG/INV/BI-02-C (legacy test case ID TP/INV/BI-02-C); update TCMT</td>
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<td>TSE 3105: AVRCP/CT/TLH/BI-03-C (legacy test case ID TP/TLH/BI-03-C); new test case</td>
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<td>Comments</td>
</tr>
<tr>
<td>------------------</td>
<td>----------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
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<td>TSE 3244: TCMT: Change to AVRCP/TG/MCN/NP/BV-06-I and AVRCP/CT/MCN/NP/BV-06-I (legacy test case ID TP/MCN/NP/BV-06-I)</td>
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<td>TSE 3836: AVRCP/TG/VLH/BI-01-C (legacy test case ID TP/VLH/BI-01-C): update test condition</td>
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<td>1.4.3r1</td>
<td>2011-01-26</td>
<td>Reviewer’s comments—reorg test cases by number/-V, number –I. See ToC for changes. TSE 2854. Remove AVRCP/TG/MCN/CB/BV-03-C (legacy test case ID TP/MCN/CB/BV-03-C) changes</td>
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<td>1.4.3r2</td>
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<td>More test case reorg</td>
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<td>TSE 4194: AVRCP/CT/PAS/BV-01-C, AVRCP/TG/PAS/BV-02-C (legacy test case IDs TP/PAS/BV-01-C,TP/PAS/BV-02-C): Update Reference</td>
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<td>1.4.3r4</td>
<td>2011-03-02</td>
<td>References changed</td>
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<td>1.4.3</td>
<td>2011-07-21</td>
<td>Prepare for publication.</td>
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<td>1.4.4r0-1</td>
<td>2011-09-13</td>
<td>TSE 3533: AVRCP/TG/NFY/BV-04-C (legacy test case ID TP/NFY/BV-04-C) Test conditions</td>
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<td>TSE 4417: AVRCP/TG/MCN/CB/BV-09-C (legacy test case ID TP/MCN/CB/BV-09-C): change TCMT</td>
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<td>TSE 4499: TCMT changes per TSE 2706 for AVRCP/CT/PTH/BV-01-C, AVRCP/CT/PTT/BV-05-I, AVRCP/TG/PTT/BV-05-I (legacy test case IDs TP/PTH/BV-01-C, TP/PTT/BV-05-I)</td>
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<td>TSE 4408: Table 0 is removed. Revised TCMT accordingly</td>
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<td>1.4.4r2</td>
<td>2012-03-12</td>
<td>TSE 4715: Update TCMT for AVRCP/TG/VLH/BI-02-C (legacy test case ID TP/VLH/BI-02-C)</td>
</tr>
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<td>Date</td>
<td>Comments</td>
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<td>1.5.0r0</td>
<td>2012-06-21</td>
<td>Changed references for AVRCP version 1.5. Adjusted section numbering in Sections 2 and 3 to better match with latest TS template. TSE 4726: AVRCP/TG/INV/BI-01-C (legacy test case ID TP/INV/BI-01-C): Change TCMT</td>
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<td>2012-06-21</td>
<td>Updated TCMT entry for the General Reject feature to include the ICS item for AVRCP 1.5.</td>
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<td>1.5.0</td>
<td>2012-07-24</td>
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<td>1.5.1r1</td>
<td>2012-10-19</td>
<td>TSE 4964: Edits to TCMT to reflect ESR06: AVRCP/TG/INV/BI-01-C (legacy test case ID TP/INV/BI-01-C) AVRCP/TG/NFY/BV-02-C (legacy test case ID TP/NFY/BV-02-C) Added test case names where they were missing for TCMT consistency. TG and CT test cases appearing in the wrong table were moved to the appropriate table (6.1-6.3 in Section 6). Edited AVRCP/TG/INV/BI-02-C (legacy test case ID TP/INV/BI-02-C) Initial Condition. Edited references in Section 2.1 to include both AVRCP v1.4 and 1.5. TSE 4531: New Test – AVRCP/TG/CON/BV-05-C (legacy test case ID TP/CON/BV-05-C) TCMT Changes to the objective for AVRCP/TG/CON/BV-02-C (legacy test case ID TP/CON/BV-02-C) TCMT</td>
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<td>1.5.1r2</td>
<td>2012-10-29</td>
<td>TSE 4974: Renamed AVRCP/TG/NFY/BV-04-C (legacy test case ID TP/NFY/BV-04-C) [Track Changed – No Playing Track] to No “Selected” Track, updated wording in objective.</td>
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<td>1.5.1r3</td>
<td>2012-11-12</td>
<td>Added changed to TSE 4531, rename of AVRCP/TG/CON/BV-05-C (legacy test case ID TP/CON/BV-05-C) to [Connection establishment for browsing – TG initiates control channel and CT initiates browsing channel]</td>
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<td>1.5.1</td>
<td>2012-11-12</td>
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<td>1.5.2r1</td>
<td>2013-04-26</td>
<td>TSE 5016: New test case, AVRCP/TG/NFY/BV-08-C (legacy test case ID TP/NFY/BV-08-C) [Track Changed – Selected Track – TG], Added before AVRCP/TG/NFY/BI-01-C (legacy test case ID TP/NFY/BI-01-C). Added new test case to TCMT as Track Changed – Playing Track. TSE 5086: Revisions to the test condition and pass verdict for AVRCP/CT/RCR/BV-01-C</td>
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<td>and AVRCP/CT/RCR/BV-03-C (legacy test case IDs TP/RCR/BV-01-C and TP/RCR/BV-03-C).</td>
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<td>1.5.2r2</td>
<td>2013-05-02</td>
<td>Updated version and references for ESR06. (Later rejected in r4)</td>
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<td>1.5.2r3</td>
<td>2013-05-23</td>
<td>Removed repeated objective sentence that appeared before the start of section 4.4.3.</td>
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<td>1.5.2r4</td>
<td>2013-06-05</td>
<td>Rejected ESR06 Changes, updated change history and versioning.</td>
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<td>1.5.2r5</td>
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<td>Resolution of Comments</td>
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<td>1.6.0r2</td>
<td>2013-08-06</td>
<td>Split up some test cases for browsing and non-browsing</td>
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<td>Added new test cases for TG role</td>
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<td>Resolution of comments</td>
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<td>1.6.0r3</td>
<td>2013-08-13</td>
<td>Fixed OBEX client/server mistakes</td>
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<td>1.6.0r4</td>
<td>2013-08-21</td>
<td>Fixed typos, MSCs and TCMT issues</td>
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<td>1.6.0r5</td>
<td>2013-09-16</td>
<td>Moved to new Test Suite template, formatting and standard boilerplate text. Added missing AVRCP 1.6 references to test cases. Renumbered the BV/BI test case labels for Cover Art to be sequential for easier reference (also updated TCMT accordingly). Updated test feature labeling in Table 4.1. Added Section 5.14 of the AVRCP 1.6 specification as a reference to relevant Cover Art test cases. Updated MSCs for Cover Art test cases for consistent formatting and standard Tester and IUT placement. Updated Cover Art SDP test cases to abstract the process by which the Cover Art PSM is retrieved via SDP query. Removed double-mapping of test cases AVRCP/TG/MCN/NP/BI-01-C and AVRCP/TG/MCN/NP/BI-02-C (legacy test case IDs TP/MCN/NP/BI-01-C and TP/MCN/NP/BI-02-C).</td>
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<td>1.6.0r6</td>
<td>2014-04-07</td>
<td>Addressed BTI review comments</td>
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<td>1.6.0r7</td>
<td>2014-04-15</td>
<td>TSE 5415: Edits to the test condition and TCMT for AVRCP/TG/MCN/CB/BV-07-I (legacy test case ID TP/MCN/CB/BV-07-I) [Browsing of a folder if the player is not addressed], updated wording to objective and pass verdict. This is now a TG only test case. TSE 5432: Removal of ‘(UID 0x0)’ and replaced when needed by ‘the currently playing media item’ in AVRCP/CT/MCN/CB/BV-07-C, AVRCP/TG/MCN/CB/BV-08-C,</td>
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<td>TSE 5560: Revises the pass verdict of AVRCP/TG/NFY/BV-08-C (legacy test case ID TP/NFY/BV-08-C) [Track Changed – Selected Track - TG] so that AVRCP 1.3 devices should send a value other than 0xFFFFFFFF.</td>
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<td>TSE 5598: Corrects an error in the TCMT where AVRCP/TG/MPS/BI-01-C (legacy test case ID TP/MPS/BI-01-C) [SetAddressedPlayer – TG] was overwritten with a duplicate entry for TP/MCN/NP/BI-01-C [PlayItem_Invalid – TG] and AVRCP/TG/MPS/BI-02-C (legacy test case ID TP/MPS/BI-02-C) [SetBrowsedPlayer – TG] was overwritten with a duplicate entry for TP/MCN/NP/BI-02-C [AddToNowPlaying_Invalid – TG].</td>
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<td>1.6.0</td>
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<td>Adopted by SIG BoD</td>
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<td>1.6.1r00</td>
<td>2015-04-28</td>
<td>TSE 6255: Clarified first paragraph of Pass verdict in AVRCP/TG/VLH/BI-02-C (legacy test case ID TP/VLH/BI-02-C).</td>
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<td>TSE 6256: Deleted second paragraph of Pass verdict in AVRCP/TG/VLH/BI-02-C (legacy test case ID TP/VLH/BI-02-C).</td>
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<td>2015-07-14</td>
<td>Prepared for TCRL 2015-1 publication</td>
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<td>2015-10-02</td>
<td>TSE 6427: Corrected feature descriptions in TCMT for AVRCP/TG/MCN/CB/BI-02-C and AVRCP/TG/MCN/CB/BI-03-C (legacy test case IDs TP/MCN/CB/BI-02-C and TP/MCN/CB/BI-03-C)</td>
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<td>1.6.1.0r00</td>
<td>2015-10-28</td>
<td>Updated version numbering to align with Specification version change from 1.6 to 1.6.1 for ESR09. With the specification taking a third identifying number, the TS version identifier moves to the fourth number and starts again at 0.</td>
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<td>1.6.1.0</td>
<td>2015-12-22</td>
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<td>1.6.1.1r00</td>
<td>2016-02-29</td>
<td>TSE 6425: Added new section, test case AVRCP/TG/MCN/CB/BI-08-C (legacy test case ID TP/MCN/CB/BI-08-C) and added to TCMT.</td>
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<td>TSE 6758: Deleted Sections 4.2.9.20–21 and TCMT entries for test cases TP/CA/BI-02-C and TP/CA/BI-03-C.</td>
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<td>TSE 6924: Updated test purpose and pass verdict of test case AVRCP/CT/VLH/BV-01-I and AVRCP/TG/VLH/BV-01-I (legacy test case ID TP/VLH/BV-01-I).</td>
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<td>1.6.1.1</td>
<td>2016-07-13</td>
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### Revision History

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<td>1.6.1.2r00</td>
<td>2016-09-28</td>
<td>Converted to new Test Case ID conventions as defined in TSTO v4.1</td>
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<td>1.6.1.2r01</td>
<td>2016-10-10</td>
<td>TSE 7640: Added test cases AVRCP/CT/MDI/BV-06-I and AVRCP/CT/MCN/CB/BV-09-I to ensure that AVRCP profile version in SDP does not negatively impact User Experience due to poor SDP based decisions</td>
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<tr>
<td>1.6.1.2r02</td>
<td>2016-11-15</td>
<td>Fixed TC ID styles to show up in ToC. Regenerated ToC.</td>
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<td>1.6.1.2</td>
<td>2016-12-13</td>
<td>Approved by BTI. Prepared for TCRL 2016-2 publication.</td>
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<td>1.6.1.2 (2nd edition)</td>
<td>2016-12-19</td>
<td>TSE 8258: Corrected mapping for new test case AVRCP/CT/MCN/CB/BV-09-I. Also fixed formatting issues affecting document generation. Approved by BTI and re-issued for TCRL 2016-2 publication.</td>
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<td>1.6.1.3r00</td>
<td>2018-11-05</td>
<td>Updated template.</td>
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<tr>
<td>1.6.2.0r00</td>
<td>2018-11-09</td>
<td>Updated version number from 1.6.1.3 to 1.6.2.0 to align with adoption of the specification 1.6.2.</td>
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<td>1.6.2.0</td>
<td>2018-11-21</td>
<td>Approved by BTI. Prepared for TCRL 2018-2 publication.</td>
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<td>1.6.2.1r00–r02</td>
<td>2019-04-09–2019-06-21</td>
<td>TSE 11455 (rating 2): Updated steps 9 and 10 and MSC for test case AVRCP/CT/CA/BV-17-C.</td>
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<td>1.6.2.1</td>
<td>2019-07-28</td>
<td>Approved by BTI. Prepared for TCRL 2019-1 publication.</td>
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