



CTIA *Bluetooth*® Compatibility Test Plan

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Section 1 Introduction

1.1 Purpose

The purpose of this Test Plan is to define the CTIA Certification Program requirements for *Bluetooth* compatibility testing. This testing is conducted from an end-user perspective and evaluates the implementation, integration, and interaction between two *Bluetooth*^{®1} devices that support complementary profiles and roles.

The process and procedures for CTIA *Bluetooth* Compatibility Certification are described in the CTIA *Bluetooth* Compatibility Certification Program Management Document (BCCPMD).

1.2 Scope

Bluetooth compatibility testing for the CTIA Certification Program is limited to devices that have cellular capability or are designed to be interoperable with devices that have cellular capability.

1.3 Applicable Documents

The following documents are referenced in this Test Plan:

CTIA *Bluetooth* Compatibility Certification Program Management Document, Latest Revision, CTIA.

1.4 Test Process & Procedures

All testing shall be conducted at a CTIA Authorized Testing Laboratory (CATL). A current list of CATLs can be found on the CTIA web site at http://www.ctia.org/business_resources/certification/test_labs/. Products shall be submitted for testing in accordance with the instructions detailed in the BCCPMD. All A-Device features available to the user shall be claimed in the A-Device feature support spreadsheet and tested.

During testing, if the UI contradicts the user experience as defined in the product user manual, it shall be reported as a failure. (*Example: Devices disconnect the Bluetooth link, but the UI on a AG indicates that the Bluetooth connection is still up*).

The test report shall include the minimum information as described in the BCCPMD.

¹ *Bluetooth* is a registered trademark of the Bluetooth SIG, Inc.

1.5 Acronyms

A2DP	Advanced Audio Distribution Profile
AG	Audio Gateway
AVRCP	Audio/Video Remote Control Profile
BCCPMD	<i>Bluetooth</i> Compatibility Certification Program Management Document
CATL	CTIA Authorized Testing Laboratory
CDMA	Code Division Multiple Access
FF	Fast Forward
GSM	Global System for Mobile
HF	Hands Free
HFP	Hands Free Profile
HSP	Headset Profile
IOT	Interoperability is the ability for two devices that support <i>Bluetooth</i> compatible profiles and roles to interact and to fulfill a purpose using <i>Bluetooth</i> wireless technology as tested through the Bluetooth SIG's qualification program.
MT	Mobile Terminated
PBAP	Phonebook Access Profile
PCE	Phone Book Client Equipment
PSE	Phone Book Server Equipment
REW	Rewind
SMS	Short Message Service
SNK	Sink
SRC	Source

Section 2 Hands Free Validation

2.1 Connection Management

2.1.1. Pairing and Connection

2.1.1.1. Pairing and Connection

Requirements: HFP

Purpose: Validate pairing and connection between the AG and HF.

Test Configuration:

1. The AG and HF batteries are charged.
2. The AG is in idle mode.

Procedure:

1. Set the HF to pairing mode (discoverable).
2. Initiate a device search from AG.
3. Verify the AG discovers the HF device (AG displays HF name).
4. Select the HF device.
5. Enter the PIN code at the AG when requested (manually or automatically sent by AG).
6. Verify pairing is completed (AG display pairing successful).
7. Connect the devices from the AG, if not automatically connected.
8. Verify the AG and HF devices are connected (incoming and outgoing calls alert through HF).

Expected Result: The AG and HF shall be paired and connected.

2.1.1.2. Delete *Bluetooth* HF Device After Disconnect

Requirements: HFP

Purpose: Validate from the AG, *Bluetooth* HF device can be deleted after disconnected.

Test Configuration:

1. The AG and HF batteries are charged.
2. The AG and HF are paired and disconnected.
3. The AG and HF devices are in idle mode.

Procedure:

1. From AG, delete the HF.
2. Verify the HF device is deleted from AG.
3. Make an incoming call, the alert shall go through AG.
4. Make and outgoing call, the call stays on AG after the called party answers.

Expected Result: The HF shall be deleted from AG and shall not reconnect.

2.1.1.3. Delete *Bluetooth* HF Device While Connected

Requirements: HFP

Purpose: Validate from the AG, when the *Bluetooth* HF devices is deleted, either the HF device is disconnected autonomously or with a user prompt.

Test Configuration:

1. The AG and HF batteries are charged.
2. The AG and HF are paired and connected.
3. The AG and HF devices are in idle mode.

Procedure:

1. From the AG, take appropriate actions to delete the HF.
2. Check if the AG and HF are disconnected.
3. Check if the AG deletes the HF.
4. Make a call to the phone.
5. Attempt to connect to the AG using HF device.

Expected Result: The HF shall be removed from the AG trusted device list and shall not succeed in reconnecting without a new pairing. The phone calls to the AG use the AG audio means.

2.1.2. Disconnection

2.1.2.1. Disconnect From AG

Requirements: HFP

Purpose: Validate a *Bluetooth* device can be disconnected from AG.

Test Configuration:

1. The AG and HF batteries are charged.
2. The AG and HF are paired and connected.
3. The AG and HF devices are in an idle state.
4. The AG supports a disconnect menu option.

Procedure:

1. From AG disconnect the HF.
2. Verify the HF device is disconnected.
3. Make an incoming call, the alert shall go through AG.
4. Make an outgoing call, the call stays on AG after the called party answers.

Expected Result: The AG and HF shall remain disconnected.

2.1.2.2. Disconnect From HF

Requirements: HFP

Purpose: Validate a *Bluetooth* device can be disconnected from HF.

Test Configuration:

1. The AG and HF batteries are charged.
2. The AG and HF are paired and connected.
3. The AG and HF devices are in idle mode.

Procedure:

1. From HF disconnect the AG (power off the HF device).
2. Verify the HF device is disconnected.
3. Make an incoming call, the alert shall go through AG.
4. Make an outgoing call, the call stays on AG after the called party answers.

Expected Result: The AG and HF shall remain disconnected.

2.2 Call Processing

2.2.1. Incoming Call

2.2.1.1. Incoming Call – Answered From AG

Requirements: HFP

Purpose: Validate an incoming call can be answered from AG when the AG and HF are paired and connected.

Test Configuration:

1. Both the HF and AG batteries are charged.
2. The AG has a valid subscription number.
3. The AG and HF are paired and connected.

Procedure:

1. Receive an incoming call.
2. Verify that the HF provides an alert of the incoming call.
3. Answer the call from the AG.
4. Verify the call is present at the HF.
5. If not, perform an audio transfer to the HF.
6. Verify uplink/downlink audio is present at the HF.
7. End the call from the AG.

Expected Result: The call shall be answered from the AG.

2.2.1.2. Incoming Call – Answered From HF

Requirements: HFP

Purpose: Validate an incoming call can be answered from the HF when the AG and HF are paired and connected.

Test Configuration:

1. Both the HF and AG batteries are charged.
2. The AG has a valid subscription number.
3. The AG and HF are paired and connected.

Procedure:

1. Receive an incoming call.

2. Verify that the HF provides an alert of the incoming call.
3. Answer the call from the HF.
4. Verify the call is present at the HF.
5. Verify uplink/downlink audio is present at the HF.
6. End the call from the AG.

Expected Result: Incoming call shall be answered from the HF.

2.2.1.3. Incoming Call – Terminate From AG

Requirements: HFP

Purpose: Validate an incoming call can be terminated from the AG when the AG and HF are paired and connected.

Test Configuration:

1. Both the HF and AG batteries are charged.
2. The AG has a valid subscription number.
3. The AG and HF paired and connected.

Procedure:

1. Receive an incoming call.
2. Verify that the HF provides an alert of the incoming call.
3. Answer the call, (uplink/ downlink audio at HF). After the call, verify the audio is at the HF.
4. Terminate the call from the AG.
5. Verify call is terminated

Expected Result: The Incoming call shall be terminated from the AG.

2.2.1.4. Incoming Call – Terminate From HF

Requirements: HFP

Purpose: Validate an incoming call can be terminated from the HF when the AG and HF are paired and connected.

Test Configuration:

1. Both the HF and AG batteries are charged.
2. The AG has a valid subscription number.
3. The AG and HF paired and connected.

Procedure:

1. Receive an incoming call.
2. Verify that the HF provides an alert of the incoming call.
3. Answer the call, (uplink/downlink audio at HF).
4. Terminate the call from the HF.
5. Verify the call is terminated

Expected Result: The incoming call shall be terminated from the HF.

2.2.1.5. Incoming Call – Reject From HF

Requirements: HFP

Purpose: Validate a call can be rejected from the HF when the AG and HF are paired and connected.

Test Configuration:

1. Both the HF and AG batteries are charged.
2. The AG has a valid subscription number.
3. The AG and HF paired and connected.

Procedure:

1. Receive an incoming call.
2. Verify the call alert is sent through the HF.
3. Reject the call from the HF.

Expected Result: The call shall be rejected from the HF and the HF shall indicate that the call was rejected.

2.2.1.6. Incoming Call – Reject From AG

Requirements: HFP

Purpose: Validate a call can be rejected from the AG when the AG and HF are paired and connected.

Test Configuration:

1. Both the HF and AG batteries are charged.
2. The AG has a valid subscription number.
3. The AG and HF paired and connected.

Procedure:

1. Receive an incoming call.
2. Verify the call alert is sent through the HF.
3. Reject the call from the AG.

Expected Result: The call shall be rejected from the AG and the HF shall indicate that the call was rejected.

2.2.2. Outgoing Call

2.2.2.1. Outgoing Call – Initiated From AG

Requirements: HFP

Purpose: Validate an outgoing call can be initiated from the AG after the AG and HF are paired and connected.

Test Configuration:

1. Both the HF and AG batteries are charged.
2. The AG has a valid subscription number.
3. The AG and HF paired and connected.

Procedure:

1. Initiate an outgoing call from the AG.
2. Verify if the call is present at the HF.
3. If not, perform an audio transfer to the HF.
4. Verify uplink/ downlink audio are present at the HF.
5. End the call from the AG.

Expected Result: The call shall be initiated from the AG.

2.2.2.2. **Outgoing Call – Initiated From HF**

Requirements: HFP

Purpose: Validate an outgoing call can be initiated from the HF after the AG and HF are paired and connected.

Test Configuration:

1. Both the HF and AG batteries are charged.
2. The AG has a valid subscription number.
3. The AG and HF paired and connected.
4. The HF must be able to provide a number to the AG.

Procedure:

1. Initiate an outgoing call from the HF.
2. Verify the call is present at the HF.
3. Verify uplink/downlink audio are present at the HF.
4. End the call from the AG.

Expected Result: The call shall be initiated from HF.

2.2.2.3. **Outgoing Call – Terminate From AG**

Requirements: HFP

Purpose: Validate an outgoing call can be terminated from AG when the AG and HF are paired and connected.

Test Configuration:

1. Both the HF and AG batteries are charged.
2. The AG has a valid subscription number.
3. The AG and HF paired and connected.

Procedure:

1. Initiate an outgoing call from the AG.
2. Verify uplink/downlink audio are at the HF.
3. Terminate the call from the AG.
4. Verify the call is terminated

Expected Result: The outgoing call shall be terminated from the AG.

2.2.2.4. **Outgoing Call – Terminate From HF**

Requirements: HFP

Purpose: Validate an outgoing call can be terminated from the HF when the AG and HF are paired and connected.

Test Configuration:

1. Both the HF and AG batteries are charged.
2. The AG has a valid subscription number.
3. The AG and HF paired and connected.

Procedure:

1. Initiate an outgoing call from the AG.
2. Verify uplink/downlink audio are at the HF.
3. Terminate the call from the HF.
4. Verify the call is terminated

Expected Result: The outgoing call shall be terminated from HF.

2.2.2.5. **Last Number Redialed – From HF**

Requirements: HFP

Purpose: Validate the last number dialed can be redialed from HF.

Test Configuration:

1. Both the HF and AG batteries are charged.
2. The AG has a valid subscription number.
3. The AG and HF paired and connected.
4. The AG and HF are in idle mode.
5. The HF supports last number redialed.

Procedure:

1. Make a call from AG to number “X”.
2. Receive an incoming call from number “Y”.
3. Verify that the HF provides an alert of the incoming call.
4. Perform last number redialed function from the HF.
5. Verify number “X” is dialed.

Expected Result: The AG shall redial the last number dialed.

2.2.2.6. **Place a Call Using Voice Recognition**

Requirements: HFP

Purpose: Verify the performance of calling someone using voice recognition by using the button in HF.

Test Configuration:

1. Voice Recognition feature shall be available in the AG.
2. The AG and HF shall be paired and connected and within range of each other.
3. The device under test shall have the calling contact stored in the AG.

4. Button functionality and voice commands for voice recognition in the HF will be specified in user manual.

Procedure:

1. Press the button in the HF or initiate a command using voice activated commands from the HF.
2. Say a command <command to call a contact> in the microphone of the HF.
3. The AG will start the voice input sequence.
4. Speak through the HF and Say a contact name (ex: John).

Expected Result: The correct contact shall be dialed.

2.2.2.7. Dial a Number Using Voice Recognition

Requirements: HFP

Purpose: Validate the performance of dialing a phone number using voice recognition from the HF.

Test Configuration:

1. Voice Recognition feature shall be available in the AG.
2. The AG and HF shall be paired, connected, and within range of each other.
3. Button functionality and voice commands for voice recognition in the HF will be specified in user manual.
4. Before this test is conducted with a *Bluetooth* headset, it needs to be conducted with no headset connected and compare the accuracy of the voice recognition.

Procedure:

1. Press the button in the HF or initiate a command using voice activated commands from the HF
2. Say a command <command to dial a number> in the microphone of HF.
3. The AG will start the voice input sequence.
4. Speak through the HF and say a valid phone number.

Expected Result: AG shall dial the phone number.

2.3 Call Status Update

2.3.1. HF Call Indicators

2.3.1.1. After Calls – HF Call Indicators Reset (AG Terminate)

Requirements: HFP, HF device provides visual or audible indication for change in call status

Purpose: Validate The HF device resets call indicators after call completion.

Test Configuration:

1. Both the HF and AG batteries are charged.
2. The AG has a valid subscription number.
3. The AG and HF paired and connected.

Procedure:

1. Initiate an outgoing call from the AG.

2. Verify the uplink/downlink audio are at the HF.
3. Terminate the call at the AG.

Expected Result: The HF call status indicators shall be reset after call completion. Check that visual or audio indications reset when the call is released.

2.3.1.2. After Calls – HF Call Indicators Reset (HF Terminate)

Requirements: HFP, HF device provides visual or audible indication for change in call status

Purpose: Validate The HF device resets call indicators after call completion.

Test Configuration:

1. Both the HF and AG batteries are charged.
2. The AG has a valid subscription number.
3. The AG and HF paired and connected.

Procedure:

1. Initiate an outgoing call from the AG.
2. Verify the uplink/downlink audio are at the HF.
3. Terminate the call at the HF.

Expected Result: The HF call status indicators shall be reset after call completion. Check that visual or audio indications reset when the call is released.

2.3.1.3. After Calls – HF Call Indicators Reset (Remote Party Terminate)

Requirements: HFP, HF device provides visual or audible indication for change in call status

Purpose: Validate The HF device resets call indicators after call completion.

Test Configuration:

1. Both the HF and AG batteries are charged.
2. The AG has a valid subscription number.
3. The AG and HF paired and connected.

Procedure:

1. Initiate an outgoing call from the AG.
2. Verify the uplink/downlink audio are at the HF.
3. Terminate the call at the remote party.

Expected Result: The HF call status indicators shall be reset after call completion. Check that visual or audio indications reset when the call is released.

2.3.2. AG Call Indicators Reset

2.3.2.1. After Calls – AG Call Indicators Reset (AG Terminate)

Requirements: HFP

Purpose: Validate the AG *Bluetooth* device resets call indicators after call completion.

Test Configuration:

1. Both the HF and AG batteries are charged.
2. AG has a valid subscription number.
3. AG and HF paired and connected.

Procedure:

1. Initiate an outgoing call from the AG.
2. Verify uplink/downlink audio are at the HF.
3. Terminate the call at the AG.

Expected Result: The AG call status indicators shall be reset after call completion.

2.3.2.2. After Calls – AG Call Indicators Reset (HF Terminate)

Requirements: HFP

Purpose: Validate the AG *Bluetooth* device resets call indicators after call completion.

Test Configuration:

1. Both the HF and AG batteries are charged.
2. AG has a valid subscription number.
3. AG and HF paired and connected.

Procedure:

1. Initiate an outgoing call from the AG.
2. Verify uplink/downlink audio are at the HF.
3. Terminate the call at the HF.

Expected Result: The AG call status indicators shall be reset after call completion.

2.3.2.3. After Calls – AG Call Indicators Reset (Remote Party Terminate)

Requirements: HFP

Purpose: Validate the AG *Bluetooth* device resets call indicators after call completion.

Test Configuration:

1. Both the HF and AG batteries are charged.
2. AG has a valid subscription number.
3. AG and HF paired and connected.

Procedure:

1. Initiate an outgoing call from the AG.
2. Verify uplink/downlink audio are at the HF.
3. Terminate the call at the remote party.

Expected Result: The AG call status indicators shall be reset after call completion.

2.4 Multi-Party Calling

2.4.1. Call Waiting

2.4.1.1. Call Waiting MT Call Answered

Requirements: HFP, AT+CHLD = 2

Purpose: Verify the device handling of call waiting.

Test Configuration:

1. Mobile device has a valid subscription with a carrier.
2. Both mobile device and the HF device have adequate battery power.
3. Mobile device is connected to the HF device via HFP profile.

Procedure:

1. Engage the device in a voice conversation.
2. Verify uplink and downlink audio exist on HF
3. Make an incoming call to the mobile.
4. Answer the call via the HF device.
5. Verify uplink and downlink audio exist on HF

Expected Result: The original call shall be placed on hold. The newly arrived MT call shall be active.

2.4.1.2. Call Swapped MT Call Answered

Requirements: HFP

Purpose: Verify the device handling of call swap.

Test Configuration:

1. Mobile device has a valid subscription with a carrier.
2. Both mobile device and the HF device have adequate battery power.
3. Mobile device is connected to the HF device via HFP profile.
4. The HF supports AT+CHLD = 2.

Procedure:

1. Engage the device in a voice conversation.
2. Make an incoming call to the mobile.
3. Verify that the HF provides an alert of the incoming call.
4. Answer the call via the HF device.
5. Toggle the calls via the HF device.

Expected Result: The original call shall be placed on hold. The newly arrived MT call shall be active. The two calls shall be toggled via the HF.

2.4.1.3. Call Swapped Active Party Drop

Requirements: HFP

Purpose: Verify the device handling of call swap.

Test Configuration:

1. Mobile device has a valid subscription with a carrier.
2. Both mobile device and HF device have adequate battery power.
3. Mobile device is connected to a HF device via HFP profile.
4. The HF supports call waiting.

Procedure:

1. Engage the device in a voice conversation.
2. Make an incoming call.
3. Answer the call via HF device.
4. Verify uplink and downlink audio exist on HF.
5. Toggle the calls via HF device.
6. Verify uplink and downlink audio exist on HF during the call.
7. Have the present active call party drop.
8. Verify the active call is switched to the call on hold (Initiated with user interaction or automatic) via HF or AG.
9. Verify uplink and downlink audio exist on HF.

Expected Result: The original call shall be put on hold. The newly arrived MT call shall be active. The two calls shall be toggled via the HF. One call dropped, line activates the call hold and retrieves the inactive call.

2.4.1.4. **Waiting Call Rejected**

Requirements: HFP

Purpose: Verify the device handling of call waiting.

Test Configuration:

1. Mobile device has a valid subscription with a carrier.
2. Both mobile device and the HF device have adequate battery power.
3. Mobile device is connected to the HF device via HFP profile.
4. The HF supports call waiting.

Procedure:

1. Establish a phone call.
2. Make a MT call to the mobile.
3. Verify that the HF provides an alert of the incoming call.
4. Reject/Ignore the call via the HF device using AT+CHLD=0, not AT+CHUP.
5. Verify the original call is kept active.

Expected Result: The newly arrived MT call shall be rejected (no call waiting indication, neither audible tone nor visual display to user). The original call shall be kept active.

2.4.2. **3-way Calling**

2.4.2.1. **GSM 3-way Calling**

Requirements: HFP

Purpose: Verify the device handling of 3-way calling.

Test Configuration:

1. Mobile device has a valid subscription with a GSM carrier.

2. Both mobile device and the HF device have adequate battery power.
3. Mobile device is connected to the HF device via HFP profile.
4. The HF supports 3-way calling.

Procedure:

1. Engage the device in a voice conversation.
2. Make a MT call to the mobile.
3. Verify that the HF provides an alert of the incoming call.
4. Answer the call via the HF device.
5. Join the calls via the HF device to create a 3-way calling scenario.

Expected Result: The calls shall be joined as a 3-way call via the HF.

2.4.2.2. CDMA 3-way Calling

Requirements: HFP

Purpose: Verify the device handling of 3-way calling.

Test Configuration:

1. Mobile device has a valid subscription with a CDMA carrier.
2. Both the mobile device and HF device have adequate battery power.
3. Mobile device is connected to the HF device via HFP profile.
4. The HF supports 3-way calling.

Procedure:

1. Engage the AG in a voice conversation.
2. Originate a second call from the AG.
3. Verify that the AG originates the second call and places the first call on hold.
4. Join the calls via HF device to create a 3-way calling scenario.

Expected Result: The calls shall be joined as a 3-way call via HF device.

2.5 Audio Management

2.5.1. Audio Level Control

2.5.1.1. Local Volume Control – From HF (Vol+)

Requirements: HFP

Purpose: Validate volume can be adjusted up and down from the HF after *Bluetooth* devices paired and connected.

Test Configuration:

1. Both the HF and AG batteries are charged.
2. The AG has a valid subscription number.
3. The AG and HF are paired and connected.
4. The HF supports local volume control functions only.
5. The HF or AG device does NOT support Remote Volume Control.

Procedure:

1. Initiate an outgoing call from the AG.

2. Verify uplink/ downlink audio are at the HF.
3. From the HF, adjust the volume up using the volume key(s).

Expected Result: The HF downlink volume shall be increased.

2.5.1.2. Local Volume Control – From HF (Vol-)

Requirements: HFP

Purpose: Validate volume can be adjusted up and down from the HF after *Bluetooth* devices paired and connected.

Test Configuration:

1. Both the HF and AG batteries are charged.
2. The AG has a valid subscription number.
3. The AG and HF are paired and connected.
4. The HF supports local volume control functions only.
5. The HF or AG device does NOT support Remote Volume Control.

Procedure:

1. Initiate an outgoing call from the AG.
2. Verify uplink/downlink audio are at the HF.
3. From the HF, adjust the volume down using the volume key(s).

Expected Result: The HF downlink volume shall be decreased.

2.5.1.3. Local Volume Control – From AG (Vol+)

Requirements: HFP

Purpose: Validate volume can be adjusted up and down from the AG after *Bluetooth* devices paired and connected.

Test Configuration:

1. Both the HF and AG batteries are charged.
2. The AG has a valid subscription number.
3. The AG and HF paired and connected.
4. The HF or AG device does NOT support Remote Volume Control.

Procedure:

1. Initiate an outgoing call from the AG.
2. Verify uplink/downlink audio are at the HF.
3. From the AG, adjust volume up..
4. Verify the volume adjusted accordingly.

Expected Result: The HF downlink volume shall be increased.

2.5.1.4. Local Volume Control – From AG (Vol-)

Requirements: HFP

Purpose: Validate volume can be adjusted up and down from the AG after *Bluetooth* devices paired and connected.

Test Configuration:

1. Both the HF and AG batteries are charged.
2. The AG has a valid subscription number.
3. The AG and HF paired and connected.
4. The HF or AG device does NOT support Remote Volume Control.

Procedure:

1. Initiate an outgoing call from the AG.
2. Verify uplink/ downlink audio are at the HF.
3. From the AG, adjust volume down
4. Verify the volume adjusted accordingly.

Expected Result: The HF downlink volume shall be decreased.

2.5.1.5. Remote Volume Control – From AG (Vol+)

Requirements: HFP

Purpose: Validate volume can be adjusted up and down from the AG after Bluetooth devices paired and connected.

Test Configuration:

1. Both the HF and AG batteries are charged.
2. The AG has a valid subscription number.
3. The AG and HF paired and connected.
4. The HF and AG device support Remote Volume Control.

Procedure:

1. Initiate an outgoing call from the AG.
2. Verify uplink/downlink audio are at the HF.
3. From the AG, adjust volume up.
4. Verify AG sends +VGS command with volume setting.
5. Verify the volume adjusted accordingly.

Expected Result: The HF downlink volume shall be increased.

2.5.1.6. Remote Volume Control – From AG (Vol-)

Requirements: HFP

Purpose: Validate volume can be adjusted up and down from the AG after Bluetooth devices paired and connected.

Test Configuration:

1. Both the HF and AG batteries are charged.
2. The AG has a valid subscription number.
3. The AG and HF paired and connected.
4. The HF and AG device support Remote Volume Control.

Procedure:

1. Initiate an outgoing call from the AG.
2. Verify uplink/downlink audio are at the HF.
3. From the AG, adjust volume down.
4. Verify AG sends +VGS command with volume setting.
5. Verify the volume adjusted accordingly.

Expected Result: The HF downlink volume shall be decreased.

2.5.2. Audio Transfer

2.5.2.1. Audio Transfer From HF to AG, Initiated by HF

Requirements: HFP, HF has capability to transfer audio without powering off.

Purpose: Verify that the HF device can successfully transfer audio from the HF to the AG.

Test Configuration:

1. The HF and AG are paired and in an active call per procedure defined in Hands-Free Profile.
2. The AG is in an active call with the HF with audio routed to the HF.

Procedure:

1. Initiate the action (device specific) on the HF to remove the audio connection with the AG.

Expected Result: Audio for active call (Uplink and Downlink) shall be on the AG. No audio shall be present on the HF device.

2.5.2.2. Audio Transfer From HF to AG, Initiated by HF via power down.

Requirements: HFP, HF has capability to transfer audio by powering down the HF device.

Purpose: Verify that the HF device can successfully transfer audio from the HF to the AG by powering down the HF device.

Test Configuration:

1. The HF and AG are paired and in an active call per procedure defined in Hands-Free Profile.
2. The AG is in an active call with the HF with the audio routed to the HF.

Procedure:

1. Power down the HF (per manufacturer's specification).
2. Verify full duplex audio is available on the AG.

Expected Result: Audio for active call (Uplink and Downlink) shall be on the AG.

2.5.2.3. Audio Transfer From AG to HF, Initiated by HF

Requirements: HFP

Purpose: Verify that the HF device can successfully transfer audio from the AG to the HF.

Test Configuration:

1. The HF and AG are paired and in an active call per procedure defined in Hands-Free Profile.
2. The AG is in an active call with the HF with the audio routed to the AG.

Procedure:

1. Initiate the action (device specific) on the HF to establish and the audio connection with the AG.

Expected Result: Audio for active call (Uplink and Downlink) shall be on the HF device. No audio shall be present on the AG.

2.5.2.4. Audio Transfer From AG to HF, Initiated by AG

Requirements: HFP

Purpose: Verify that the AG device can successfully transfer audio from the AG to the HF.

Test Configuration:

1. The HF and AG are paired and in an active call per procedure defined in Hands-Free Profile.
2. The AG is in an active call with the audio routed to the AG.

Procedure:

1. Initiate the action (device specific) on the AG to establish and the audio connection with the HF.

Expected Result: Audio for active call (Uplink and Downlink) shall be on the HF device. No audio shall be present on the AG.

2.5.2.5. Audio Transfer From HF to AG, Initiated by AG

Requirements: HFP

Purpose: Verify that the AG device can successfully transfer audio from the HF to the AG.

Test Configuration:

1. The HF and AG are paired and in an active call per procedure defined in Hands-Free Profile.
2. The AG is in an active call with the HF with full duplex audio.

Procedure:

1. Initiate the action (device specific) on the AG to remove and the audio connection with the HF.

Expected Result: Audio for active call (Uplink and Downlink) shall be on the AG device. No audio shall be present on the HF.

2.5.3. eSCO

2.5.3.1. Both Devices Support eSCO Connection <INACTIVE TEST CASE>

Requirements: HFP

Purpose: Validate both devices connect using Enhanced SCO connection.

Test Configuration:

1. The AG has the capabilities to make phone calls.

2. The battery power is good on both devices.
3. Both the AG and HF support eSCO for this test case to be applicable.
4. Monitor the link with an OTA sniffer.

Procedure:

1. Start a service level connection with the HF (supporting eSCO) by pairing the AG with the HF.
2. Open a voice (eSCO) channel to the HF by placing call from the AG.
3. Verify that the voice channel uses an eSCO connection.
4. Transfer the call audio from the HF to the AG initiated by the AG.
5. Transfer the call audio from the AG to the HF initiated by the HF.
6. Verify that the voice channel uses an eSCO connection.

Expected Result: The voice channel shall be successfully maintained using an eSCO connection for two minutes.

2.6 Disconnection/Reconnection

2.6.1. Out of Range Reconnection

2.6.1.1. Out of Range Reconnection During Idle Mode, HF

Requirements: HFP

Purpose: Validate proper HFP disconnection detection and reconnection following an out of range event during idle mode.

Test Configuration:

1. The AG and HF are paired and connected.

Procedure:

1. Take the HF out of the range of the AG.
2. Verify that the AG shows disconnection from the HF within 30 seconds.
3. Bring the HF back into range of the AG.
4. Wait 30 seconds and verify that the AG shows connection to the HF, if not automatically connected, attempt to connect from the HF without power cycling the HF.
5. Make a call to the AG.
6. Answer the call from the HF to verify HFP functionality, uplink and downlink audio on the HF.

Expected Result:

1. AG shall indicate disconnection from the HF within 30 seconds.
2. HF functionality shall be restored automatically or manually.
3. HF shall be able to answer the incoming call.
4. Call audio (uplink and downlink) shall be present on the HF.

2.6.1.2. Out of Range Reconnection During a Call

Requirements: HFP

Purpose: Validate proper HFP disconnection detection and reconnection following an out of range event during a call.

Test Configuration:

1. The AG and HF are paired and connected.

Procedure:

1. Engage in a call with uplink and downlink audio on the HF.
2. Take the HF out of the range of the AG.
3. Verify that the AG shows disconnection from the HF within 30 seconds.
4. Call audio shall be routed to the AG automatically or manually.
5. Bring the HF back into range of the AG.
6. Wait 30 seconds and verify that the AG shows connection to the HF, if not automatically connected, attempt to connect from the HF without power cycling the HF.
7. If call audio is not automatically transferred to the HF, initiate audio transfer from the HF
8. Verify that the call uplink and downlink audio resume on the HF and that the call could be terminated from the HF.

Expected Result:

1. AG shall indicate disconnection from the HF within 30 seconds.
2. HF functionality shall be restored automatically or manually.
3. Call audio (uplink and downlink) shall be present on the HF.
4. HF shall be able to end the call.

2.6.2. Power Cycle Reconnection

2.6.2.1. Power Cycle Reconnection During a Call

Requirements: HFP

Purpose: Validate proper HFP disconnection detection and reconnection following an HF power cycle during a call.

Test Configuration:

1. The AG and HF are paired and connected.

Procedure:

1. Engage in a call with uplink and downlink audio on the HF.
2. Power down the HF.
3. Verify that the AG shows disconnection to the HF within 30 seconds.
4. If not done automatically by the AG route the call audio to the AG.
5. Power on the HF.
6. Wait 30 seconds and verify that the device shows connection to the accessory, if not automatically connected, attempt to connect from the HF without power cycling the HF.
7. If call audio is not automatically transferred to the HF initiate audio transfer from the HF.
8. Verify that the call uplink and downlink audio resume on the HF and that the call could be terminated from the HF.

Expected Result:

1. AG shall indicate disconnection from the HF within 30 seconds.
2. HFP connection shall be restored automatically or manually.
3. Call audio (uplink and downlink) shall be present on the HF.

Section 3 Stereo Audio Validation

3.1 Connection Management

3.1.1. Disconnection

3.1.1.1. Disconnect From SRC

Requirements: A2DP

Purpose: Validate a *Bluetooth* device can be disconnected from SRC.

Test Configuration:

1. The SRC and SNK batteries are charged.
2. The SRC and SNK are paired and connected.
3. The SRC and SNK devices are in idle mode.

Procedure:

1. From the SRC perform a disconnect *Bluetooth* SNK device.
2. Verify the SNK device is disconnected by playing music on the device and verify the audio is routed to the device.

Expected Result: The SRC and SNK shall be disconnected.

3.1.1.2. Disconnect From SNK

Requirements: A2DP, AVRCP

Purpose: Validate a *Bluetooth* device can be disconnected from SNK.

Test Configuration:

1. The SRC and SNK batteries are charged.
2. The SRC and SNK are paired and connected.
3. The SRC and SNK devices are in idle mode.

Procedure:

1. From the SNK perform a disconnect *Bluetooth* device (e.g.Power off SNK device).
2. Verify the SNK device is disconnected by playing music on the device and verify the audio is routed to the device.

Expected Result: The SRC and SNK shall be disconnected.

3.2 Control

3.2.1. From SRC

3.2.1.1. Play – SRC

Requirements: A2DP

Purpose: To verify that music playback re-starts after being stopped.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is on stopped state, playback application is active.
3. User has either selected Stop or has just created a connection between devices and has not yet started to listen to music.

Procedure:

1. Select Play from the SRC.

Expected Result: Music playback shall start.

3.2.1.2. **Pause – Resume – SRC**

Requirements: A2DP

Purpose: To verify that music playback continues, after Pause.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Select Pause from SRC.
2. Select Play (resume) after a few seconds from SRC.

Expected Result: Music playback shall pause. Once Play is selected Music playback shall continue from the point of pause.

3.2.1.3. **Stop – SRC**

Requirements: A2DP

Purpose: To verify that Music playback Stops.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Select Stop from the SRC. This may require exiting the media player.
2. Initiate action on the phone to restart audio streaming (to verify Stop didn't create disconnection).

Expected Result: Music playback shall stop. Once play is selected, playback shall continue at the point of stop or the beginning of the track.

3.2.1.4. **Local Volume + Ctrl. From SRC 1 <INACTIVE TEST CASE>**

Requirements: A2DP. SRC supports local volume control

Purpose: To verify that music playback volume changes correctly.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Press the Vol + at the SRC.

Expected Result: Volume change shall be audible.

3.2.1.5. **Local Volume – Ctrl. From SRC 1 <INACTIVE TEST CASE>**

Requirements: A2DP. SRC supports local volume control

Purpose: To verify that music playback volume changes correctly.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Press the Vol – at the SRC.

Expected Result: Volume change shall be audible.

3.2.1.6. **Local Volume + Ctrl. From SRC 2 <INACTIVE TEST CASE>**

Requirements: A2DP. SRC supports local volume control

Purpose: To verify that music playback volume changes correctly.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Press the Vol + at the SRC multiple times.

Expected Result: Volume change shall be done smoothly (i.e. without any leaps or delays).

3.2.1.7. **Local Volume – Ctrl. From SRC 2 <INACTIVE TEST CASE>**

Requirements: A2DP. SRC supports local volume control

Purpose: To verify that music playback volume changes correctly.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Press the Vol – at the SRC multiple times.

Expected Result: Volume change shall be done smoothly (i.e. without any leaps or delays).

3.2.1.8. **Local Volume + Ctrl. From SRC 3 <INACTIVE TEST CASE>**

Requirements: A2DP. SRC supports local volume control

Purpose: To verify that music playback volume changes correctly.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Press the Vol + key at the SRC until max level is reached.

Expected Result: SRC or SNK indication when max level is reached.

3.2.1.9. **Local Volume – Ctrl. From SRC 3 <INACTIVE TEST CASE>**

Requirements: A2DP. SRC supports local volume control

Purpose: To verify that music playback volume changes correctly.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Press the Vol – key at the SRC until min level is reached.

Expected Result: SRC or SNK indication when min level is reached.

3.2.1.10. **AVRCP Volume + Ctrl. From SRC 1**

Requirements: A2DP, SRC supports AVRCP-CT Cat2 Volume up/down AND SNK supports AVRCP-TG Cat2 Volume up/down

Purpose: To verify that music playback volume changes correctly.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Press the Vol + at the SRC.

Expected Result: Volume change shall be audible.

3.2.1.11. AVRCP Volume – Ctrl. From SRC 1

Requirements: A2DP, SRC supports AVRCP-CT Cat2 Volume up/down AND SNK supports AVRCP-TG Cat2 Volume up/down

Purpose: To verify that music playback volume changes correctly.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Press the Vol – at the SRC.

Expected Result: Volume change shall be audible.

3.2.1.12. AVRCP Volume + Ctrl. From SRC 2

Requirements: A2DP, SRC supports AVRCP-CT Cat2 Volume up/down AND SNK supports AVRCP-TG Cat2 Volume up/down

Purpose: To verify that music playback volume changes correctly.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Press the Vol + at the SRC multiple times.

Expected Result: Volume change shall be done smoothly (i.e. without any leaps or delays).

3.2.1.13. AVRCP Volume – Ctrl. From SRC 2

Requirements: A2DP, SRC supports AVRCP-CT Cat2 Volume up/down AND SNK supports AVRCP-TG Cat2 Volume up/down

Purpose: To verify that music playback volume changes correctly.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Press the Vol – at the SRC multiple times.

Expected Result: Volume change shall be done smoothly (i.e. without any leaps or delays).

3.2.1.14. AVRCP Volume + Ctrl. From SRC 3

Requirements: A2DP, SRC supports AVRCP-CT Cat2 Volume up/down AND SNK supports AVRCP-TG Cat2 Volume up/down

Purpose: To verify that music playback volume changes correctly.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Press the Vol + key at the SRC until max level is reached.

Expected Result: SRC or SNK indication when max level is reached.

3.2.1.15. AVRCP Volume – Ctrl. From SRC 3

Requirements: A2DP, SRC supports AVRCP-CT Cat2 Volume up/down AND SNK supports AVRCP-TG Cat2 Volume up/down

Purpose: To verify that music playback volume changes correctly.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Press the Vol – key at the SRC until min level is reached.

Expected Result: SRC or SNK indication when min level is reached.

3.2.2. From SNK

3.2.2.1. Play - SNK

Requirements: AVRCP, A2DP

Purpose: To verify that music playback re-starts after being stopped.

Test Configuration:

1. Music playback is on stopped state, playback application is active.
2. User has either selected Stop or has just created a connection between devices and has not yet started to listen to music.

Procedure:

1. Select Play from SNK.

Expected Result: Music playback shall start.

3.2.2.2. Pause – Resume - SNK

Requirements: AVRCP, A2DP

Purpose: To verify that music playback continues after Pause.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Select Pause from SNK.
2. Select Play (resume) after a few seconds from SNK.

Expected Result: Music playback shall pause. Once Play is selected Music playback shall continue from the point of pause.

3.2.2.3. Stop – SNK

Requirements: AVRCP, A2DP

Purpose: To verify that music playback stops.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Select Stop from the SNK.
2. Verify music stops.
3. Select Play from the SNK
4. Verify music starts.

Expected Result: Playback shall continue at the point of stop or the beginning of the track.

3.2.2.4. Local Volume + Ctrl. From SNK 1 <INACTIVE TEST CASE>

Requirements: A2DP. SNK supports local volume control

Purpose: To verify that music playback volume changes correctly.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Press the Vol + key at the SNK.

Expected Result: Volume change shall be audible.

3.2.2.5. Local Volume - Ctrl. From SNK 1 <INACTIVE TEST CASE>

Requirements: A2DP. SNK supports local volume control

Purpose: To verify that music playback volume changes correctly.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure: Press the Vol - key at the SNK.

Expected Result: Volume change shall be audible.

3.2.2.6. **Local Volume + Ctrl. From SNK 2 <INACTIVE TEST CASE>**

Requirements: A2DP. SNK supports local volume control

Purpose: To verify that music playback volume changes correctly.

Test Configuration: The SRC is paired and connected to a SNK. Music playback is ongoing over the A2DP channel.

Procedure:
1. Press the Vol + at the SNK multiple times.

Expected Result: Volume change shall be done smoothly (i.e. without any leaps or delays).

3.2.2.7. **Local Volume - Ctrl. From SNK 2 <INACTIVE TEST CASE>**

Requirements: A2DP. SNK supports local volume control

Purpose: To verify that music playback volume changes correctly.

Test Configuration:
1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:
1. Press the Vol - at the SNK multiple times.

Expected Result: Volume change shall be done smoothly (i.e. without any leaps or delays).

3.2.2.8. **Local Volume + Ctrl. From SNK 3 <INACTIVE TEST CASE>**

Requirements: A2DP. SNK supports local volume control

Purpose: To verify that Music playback Volume changes correctly.

Test Configuration:
1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:
1. Press the Vol + key at the SNK until max level is reached.

Expected Result: The SNK volume shall change to the maximum level.

3.2.2.9. **Local Volume - Ctrl. From SNK 3 <INACTIVE TEST CASE>**

Requirements: A2DP. SNK supports local volume control

Purpose: To verify that Music playback Volume changes correctly.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Press the Vol - key at the SNK until min level is reached.

Expected Result: The SNK volume shall change to the minimum level.

3.2.2.10. AVRCP Volume + Ctrl. From SNK 1

Requirements: A2DP, SRC supports AVRCP-TG Cat2 Volume up/down AND SNK supports AVRCP-CT Cat2 Volume up/down

Purpose: To verify that music playback volume changes correctly.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Press the Vol + key at the SNK.

Expected Result: Volume change shall be audible.

3.2.2.11. AVRCP Volume - Ctrl. From SNK 1

Requirements: A2DP, SRC supports AVRCP-TG Cat2 Volume up/down AND SNK supports AVRCP-CT Cat2 Volume up/down

Purpose: To verify that music playback volume changes correctly.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Press the Vol - key at the SNK.

Expected Result: Volume change shall be audible.

3.2.2.12. AVRCP Volume + Ctrl. From SNK 2

Requirements: A2DP, SRC supports AVRCP-TG Cat2 Volume up/down AND SNK supports AVRCP-CT Cat2 Volume up/down

Purpose: To verify that music playback volume changes correctly.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Press the Vol + at the SNK multiple times.

Expected Result: Volume change shall be done smoothly (i.e. without any leaps or delays).

3.2.2.13. AVRCP Volume - Ctrl. From SNK 2

Requirements: A2DP, SRC supports AVRCP-TG Cat2 Volume up/down AND SNK supports AVRCP-CT Cat2 Volume up/down

Purpose: To verify that music playback volume changes correctly.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Press the Vol - at the SNK multiple times.

Expected Result: Volume change shall be done smoothly (i.e. without any leaps or delays).

3.2.2.14. AVRCP Volume + Ctrl. From SNK 3

Requirements: A2DP, SRC supports AVRCP-TG Cat2 Volume up/down AND SNK supports AVRCP-CT Cat2 Volume up/down

Purpose: To verify that Music playback Volume changes correctly.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Press the Vol + key at the SNK until max level is reached.

Expected Result: The SNK volume shall change to the maximum level.

3.2.2.15. AVRCP Volume - Ctrl. From SNK 3

Requirements: A2DP, SRC supports AVRCP-TG Cat2 Volume up/down AND SNK supports AVRCP-CT Cat2 Volume up/down

Purpose: To verify that Music playback Volume changes correctly.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Press the Vol - key at the SNK until min level is reached.

Expected Result: The SNK volume shall change to the minimum level.

3.3 Navigation

3.3.1. From SRC

3.3.1.1. Next Track – SRC (One Track Music Playing)

Requirements: A2DP

Purpose: To verify that music playback continues, from selected next track.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Must not be playing last track in playlist.
3. Music playback is ongoing over the A2DP channel.

Procedure:

1. Select next track from the SRC.

Expected Result: Playback for the next track shall be started on the SNK.

3.3.1.2. Next Track – SRC (One Track Music Paused)

Requirements: A2DP

Purpose: To verify that the next track is selected when the music is paused.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Select pause from SRC. Select Next track from the SRC.

Expected Result: When next track is selected the track shall change to next one. Playback may or may not start automatically.

3.3.1.3. Next Track – SRC (Multiple Tracks Music Playing)

Requirements: A2DP

Purpose: To verify that music playback continues, from selected next track.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Select next track from SRC several times, i.e. jump over a few tracks.

Expected Result: Playback shall continue on the SNK from the track that the user selected.

3.3.1.4. **Next Track – SRC (Multiple Tracks Music Paused)**

Requirements: A2DP

Purpose: To verify that music playback continues, from selected next track.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Select pause from the SRC.
2. Select next track from SRC several times, i.e. jump over a few tracks.

Expected Result: The SRC shall advance to the track the user selected. Playback may or may not start automatically.

3.3.1.5. **FF – SRC**

Requirements: A2DP

Purpose: To verify that music playback continues, and from the new position(s) after Fast Forwarding.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Select FF from the SRC (Per manufacturers specification)

Expected Result: The music shall fast forward like the device would without *Bluetooth* wireless technology connected.

3.3.1.6. **Previous Track – SRC (Music Playing)**

Requirements: A2DP

Purpose: To verify that music playback continues, and from selected previous track.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Select previous track from the SRC.

Expected Result: Playback for the previous track shall start or playback shall start at the beginning of the current track.

3.3.1.7. **Previous Track – SRC (Music Paused)**

Requirements: A2DP

Purpose: To verify that music playback continues, and from selected previous track.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Select pause at the SRC.
2. Select previous track from the SRC.

Expected Result: The track shall be changed to previous one or the start of the current track.

3.3.1.8. Previous Track – SRC (Multiple Tracks Music Playing)

Requirements: A2DP

Purpose: To verify that music playback continues, and from selected previous track.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Select previous track from the phone several times, i.e. jump over a few tracks.

Expected Result: Playback shall continue from the track user selected.

3.3.1.9. Previous Track – SRC (Multiple Tracks Music Paused)

Requirements: A2DP

Purpose: To verify that music playback continues, and from selected previous track.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Select Pause from the SRC.
2. Select Previous track from the phone several times, i.e. jump over a few tracks.

Expected Result: Playback shall continue from the track the user selected. Playback may or may not start automatically.

3.3.1.10. REW – SRC

Requirements: A2DP

Purpose: To verify that music playback continues, and from the new position(s) after Rewind

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Select REW from the SRC (Per manufacturer's specifications).

Expected Result: The music shall rewind like the device would without *Bluetooth* wireless technology connected.

3.3.1.11. REW – SRC (Beginning of Track)

Requirements: A2DP

Purpose: To verify that music playback continues from the new position(s) after Rewind

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Select REW from the SRC rewinding to the beginning of the track.

Expected Result: The music track shall rewind like using the device without *Bluetooth* wireless technology connected.

3.3.2. From SNK

3.3.2.1. Next Track – SNK (Music Playing)

Requirements: AVRCP, A2DP

Purpose: To verify that music playback continues, from selected next track.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Select Next track from SNK.

Expected Result: Playback for the next track shall start.

3.3.2.2. Next Track – SNK (Music Paused)

Requirements: AVRCP, A2DP

Purpose: To verify that music playback continues, from selected next track.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Select Pause from the SNK.
2. Select Next track from SNK.

Expected Result: When next track is selected the track shall change to next track. Playback may or may not start automatically.

3.3.2.3. Next Track - SNK (Multiple Tracks Music Playing)

Requirements: AVRCP, A2DP

Purpose: To verify that music playback continues, from selected next track.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Select Next track from SNK several times, i.e. jump over a few tracks.

Expected Result: Playback shall continue from the track user selected. Playback may or may not start automatically.

3.3.2.4. Next Track - SNK (Multiple Tracks Music Paused)

Requirements: AVRCP, A2DP

Purpose: To verify that music playback continues, from selected next track.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Pause the music at the SNK.
2. Select Next track from SNK several times, i.e. jump over a few tracks.

Expected Result: Playback shall continue from the track user selected.

3.3.2.5. FF - SNK

Requirements: AVRCP, A2DP

Purpose: To verify that music playback continues, and from the new position(s) after Fast Forwarding.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Select FF from the SNK (Per manufacturers specification)

Expected Result: The music shall fast forward like the device would without *Bluetooth* wireless technology connected.

3.3.2.6. Previous Track – SNK (Music Playing)

- Requirements: AVRCP, A2DP
- Purpose: To verify that music playback continues, and from selected previous track.
- Test Configuration:
1. The SRC is paired and connected to a SNK.
 2. Music playback ongoing over the A2DP channel.
- Procedure:
1. Select previous track from the SNK.
- Expected Result: Playback for the previous track shall start or playback shall start at the beginning of the current track.

3.3.2.7. Previous Track – SNK (Music Paused)

- Requirements: AVRCP, A2DP
- Purpose: To Verify that Music playback continues, and from selected previous track.
- Test Configuration:
1. The SRC is paired and connected to a SNK.
 2. Music playback is ongoing over the A2DP channel.
- Procedure:
1. Select Pause from the SNK.
 2. Select previous track from the SNK.
- Expected Result: Playback for the previous track shall start or playback shall start at the beginning of the current track. Playback may or may not start automatically.

3.3.2.8. Previous Track - SNK (Multiple Tracks Music Playing)

- Requirements: AVRCP, A2DP
- Purpose: To verify that music playback continues, and from selected previous track.
- Test Configuration:
1. The SRC is paired and connected to a SNK.
 2. Music playback is ongoing over the A2DP channel.
- Procedure:
1. Select previous track from SNK several times, i.e. jump over a few tracks.
- Expected Result: Playback shall continue from the track user selected.

3.3.2.9. Previous Track - SNK (Multiple Tracks Music Paused)

- Requirements: AVRCP, A2DP
- Purpose: To verify that music playback continues, and from selected previous track.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Select Pause from the SNK.
2. Select previous track from SNK several times, i.e. jump over a few tracks.

Expected Result: Playback shall continue from the track user selected. Playback may or may not start automatically.

3.3.2.10. REW – SNK

Requirements: AVRCP, A2DP

Purpose: To verify that music playback continues, and from the new position(s) after Rewind.

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Select REW from the SNK (Per manufacturer's specifications).

Expected Result: The music shall rewind like the device would without *Bluetooth* wireless technology connected.

3.3.2.11. REW – SNK (Beginning of Track)

Requirements: AVRCP, A2DP

Purpose: To verify that music playback continues from the new position(s) after Rewind

Test Configuration:

1. The SRC is paired and connected to a SNK.
2. Music playback is ongoing over the A2DP channel.

Procedure:

1. Select REW from the SNK rewinding to the beginning of the track.

Expected Result: The music track shall rewind like using the device without *Bluetooth* wireless technology connected.

Section 4 Phonebook Transfer Validation

4.1 Phone Book Access Profile

Initial conditions for the PBAP test cases listed in this section:

Configure PSE ME memory with 10 contacts of the following format :

- Contact First Name: FirstNameCTIA_**
- Contact Last Name: LastNameCTIA_**
- Work Telephone: (555) 555-00**
- Home telephone: (555) 555-11**

! where ** is a numeric index starting at 01 in order to specify 10 unique contacts.

4.1.1. Download

4.1.1.1. Contact List Transfer Using PBAP

Requirements: PBAP

Purpose: Verify that contact lists can be transferred from the device to the PCE.

Test Configuration:

1. PSE and PCE have been paired and have established a PBAP session.
2. The PSE has more than 10 entries in the phonebook.
3. The PCE has no entries in it.
4. Both devices support PBAP.

Procedure:

1. From the PCE initiate a request to download the phonebook from the PSE.

Expected Result: The phonebook shall be transferred from the PSE to the PCE, and shall match the entries in the phone if the field is supported.

4.1.2. Browse

4.1.2.1. Contact List Browse Using PBAP

Requirements: PBAP

Purpose: To verify that contact lists can be browsed from the PCE to the PSE.

Test Configuration:

1. PSE and PCE have been paired and have established a PBAP session.
2. The PSE has more than 10 entries in the phonebook.

3. The PCE has no entries in it. Both devices support PBAP.

Procedure:

1. From the PCE initiate a request to browse the phonebook for a contact.

Expected Result: The desired entry shall be transferred from the PSE to the PCE, and shall be complete.

4.1.3. Selection

4.1.3.1. Phonebook Selection Using PBAP

Requirements: PBAP

Purpose: To verify that the PBAP client (PCE) can select either phonebook if the device has multiple phonebooks.

Test Configuration:

1. PSE and PCE have been paired and have established a PBAP session.
2. The PSE has more than 10 entries in the each phonebook (eg. The second phonebook is contained on a SIM card).
3. The PCE has no entries in it.
4. Both devices support PBAP

Procedure:

1. From the PCE, select the primary phonebook and download an entry.
2. After verifying the proper download, switch to the alternative phonebooks and retry downloading.

Expected Result: The information transferred shall be from the correct phonebook.

4.1.4. Call History

4.1.4.1. Call History Transfer Using PBAP

Requirements: PBAP

Purpose: To verify that call history objects are transferred from the phone (PSE) to the carkit (PCE).

Test Configuration:

1. The time is set correctly on the phone (local time, but not GMT +0).
2. The outgoing call history (och) on the phone consists of a minimum of 10 calls to different numbers (with correct and valid timestamps).
3. The incoming call history (ich) on the phone consists of a minimum of 10 calls from different numbers. Some of the calls are missed calls (mch). One of the missed calls shall be with suppressed numbers (all with correct and valid timestamps).
4. The carkit has no call history stored in its memory.
5. Both devices support PBAP.
6. Phone and carkit have been paired.

Procedure:

1. From the carkit initiate a PBAP session and request to download the phonebook (including the call history) from the phone (might be carkit dependent – some carkits download call history automatically after pairing and connect).
2. Repeat the procedure while a call is active during the call history download.

Expected Result: All outgoing (och), incoming (ich), and missed called (mch) shall be transferred from the phone to the carket and shall match the entries in the phone. All entries shall show up with the correct date and time (time shall be the same as on the phone). Some carkits or phone implementation might filter out double entries from identical numbers and only show the latest one. Same behaviour applies sometimes with entries of suppressed number². It should be made sure that no strange entries, for example "-1", appear in the list.

4.2 Object Push Profile

4.2.1. Single Contact

4.2.1.1. Phonebook Entry Transfer by OPP

Requirements: AG supports OPP-Client role, HF supports OPP-Server role

Purpose: Verify that the OPP-client (AG) can pass a single phonebook entry to the OPP-server (HF).

Test Configuration:

1. Client and Server have been paired and have established an OPP session.
2. The Client has more than 10 entries in the phonebook.
3. The Server has no entries in it.

Procedure:

1. From the client select a single phonebook entry and send the entry to the server.

Expected Result: The server shall have the correct phonebook entry.

4.2.2. Multiple Contacts

4.2.2.1. Multiple Phonebook Entry Transfers by OPP

Requirements: AG supports OPP-Client role, HF supports OPP-Server role

Purpose: Verify that the OPP-client (AG) can pass multiple phonebook entries to the OPP-server (HF).

Test Configuration:

1. Client and server have been paired and have established an OPP session.
2. The client should have more than 10 entries in the phonebook.
3. The server should have no entries in it.

Procedure:

1. From the client select multiple phonebook entries and send the entries to the server.

Expected Result: The server shall have the correct phonebook entries. It is acceptable to use a single or multiple connections to transfer the contacts.

4.2.2.2. **Phonebook Entry Transfer by OPP (Entire Phone Book)**

Requirements: AG supports OPP-Client role, HF supports OPP-Server role

Purpose: Verify that the OPP-client (AG) can pass an entire phonebook to the OPP-server (HF).

Test Configuration:

1. Client and server have been paired and have established an OPP session.
2. The client should have more than 10 entries in the phonebook.
3. The server should have no entries in it.

Procedure:

1. From the client select the phonebook and send the entire phonebook to the server.

Expected Result: The server shall have the correct phonebook, and display the contacts correctly. It is acceptable to use a single or multiple connections to transfer the contacts.

Section 5 Multi Profile Validation

5.1 Messaging

5.1.1. SMS while Playing Music

5.1.1.1. Receive SMS (Playing Music)

Requirements: HFP, A2DP

Purpose: Validate that a SMS is received while playing music.

Test Configuration:

1. The device must be paired to a stereo *Bluetooth* stereo accessory.

Procedure:

1. Play music from the device.
2. While the device is playing music send a text message to the device.
3. Verify the text message is received.

Expected Result: Audio over the A2DP channel shall be present after the text message is received regardless if there is an alert tone or not.

5.2 Call Processing

5.2.1. Incoming Call with Media

5.2.1.1. Call + Music Interaction (Call Rejected From Stereo Accessory)

Requirements: HFP, A2DP, AVRCP

Purpose: Verify that music resumes over A2DP after incoming call is rejected from *Bluetooth* stereo accessory.

Test Configuration:

1. The device must be paired to a stereo *Bluetooth* stereo accessory.

Procedure:

1. Connect the phone to the stereo accessory over HFP and A2DP profiles.
2. Start streaming music over A2DP to the stereo accessory.
3. Make incoming call to the phone.
4. Verify that the HF provides an alert of the incoming call.
5. When call indication occurs on stereo accessory, reject the call from the stereo accessory.

Expected Result: After call has been rejected, the music shall resume playing over A2DP *Bluetooth* link, note time.

5.2.1.2. Call + Music Interaction (Call Rejected From Phone)

Requirements: HFP, A2DP, AVRCP

Purpose: Verify that music resumes over A2DP after incoming call is rejected from the phone.

Test Configuration:

1. The device must be paired to a stereo *Bluetooth* stereo accessory.

Procedure:

1. Connect the phone to the stereo accessory over HFP and A2DP profiles.
2. Start streaming music over A2DP to the stereo accessory.
3. Make incoming call to the phone.
4. Verify that the HF provides an alert of the incoming call.
5. When call indication occurs on stereo accessory, reject the call from the phone.

Expected Result: After call has been rejected, the music shall resume playing over A2DP *Bluetooth* link, note time.

5.2.1.3. Call + Music Interaction (Call Ignored)

Requirements: HFP, A2DP, AVRCP

Purpose: Verify that music resumes over A2DP after incoming call is ignored.

Test Configuration:

1. The device must be paired to a stereo *Bluetooth* stereo accessory.

Procedure:

1. Connect the phone to the stereo accessory over HFP and A2DP profiles.
2. Start streaming music over A2DP to the stereo accessory.
3. Make incoming call to the phone.
4. Verify that the HF provides an alert of the incoming call.
5. When call indication occurs on stereo accessory, make no user action from the phone.

Expected Result: After call indication is complete, the music shall resume playing over A2DP *Bluetooth* link, note time.

5.2.1.4. Call + Music Interaction (Call Answered From Stereo Accessory)

Requirements: HFP, A2DP, AVRCP

Purpose: Verify that music resumes over A2DP after call ends.

Test Configuration:

1. The device must be paired to a stereo *Bluetooth* stereo accessory.

Procedure:

1. Connect the phone to the stereo accessory over HFP and A2DP profiles.
2. Start streaming music over A2DP to the stereo accessory.
3. Make incoming call to the phone.
4. Verify that the HF provides an alert of the incoming call.

5. When call indication occurs on stereo accessory, answer the call on the stereo accessory.
6. End the call from the stereo accessory.

Expected Result: After call ends, the music shall resume playing over A2DP *Bluetooth* link, note time.

5.2.1.5. Call + Music Interaction (Call Answered From Phone)

Requirements: HFP, A2DP, AVRCP

Purpose: Verify that music resumes over A2DP after call ends.

Test Configuration:

1. The device must be paired to a stereo *Bluetooth* stereo accessory.

Procedure:

1. Connect the phone to the stereo accessory over HFP and A2DP profiles.
2. Start streaming music over A2DP to the stereo accessory.
3. Make incoming call to the phone.
4. Verify that the HF provides an alert of the incoming call.
5. When call indication occurs on stereo accessory, answer the call on the phone.
6. End the call from the phone.

Expected Result: After call ends, the music shall resume playing over A2DP *Bluetooth* link, note time.

5.2.1.6. Call + Music Interaction (Call Answered From Phone, Ended by Remote Device)

Requirements: HFP, A2DP, AVRCP

Purpose: Verify that music resumes over A2DP after call ends.

Test Configuration:

1. The device must be paired to a stereo *Bluetooth* stereo accessory.

Procedure:

1. Connect the phone to the stereo accessory over HFP and A2DP profiles.
2. Start streaming music over A2DP to the stereo accessory.
3. Make incoming call to the phone.
4. Verify that the HF provides an alert of the incoming call.
5. When call indication occurs on stereo accessory, answer the call on the phone.
6. End the call from the remote phone.

Expected Result: After call ends, the music shall resume playing over A2DP *Bluetooth* link, note time.

5.2.2. Outgoing Call with Media

5.2.2.1. Call + Music Interaction (Outgoing Call Initiated From Phone- Music Stopped)

Requirements: HFP, A2DP

Purpose: Verify that streaming can be stopped in order to place an outgoing call from the phone.
Verify that streaming can be started after the call is ended.

Test Configuration:

1. The device must be paired to a *Bluetooth* stereo accessory.

Procedure:

1. Connect the phone to the stereo accessory over HFP and A2DP profiles.
2. Start streaming music over A2DP to the stereo accessory.
3. Stop or exit audio streaming from the phone. This may require exiting the media player.
4. Place an outgoing call from the phone and verify uplink and downlink audio is present at the HF.
5. End the call from the HF.
6. Initiate action on the phone to restart audio streaming, if this did not occur automatically.

Expected Result: An outgoing call with uplink and downlink audio can be originated from the phone after streaming was stopped or exited from the phone. A2DP audio streaming can be restarted following the call termination. Music playback may start at the point of stop or the beginning of the track.

5.2.2.2. Call + Music Interaction (Outgoing Call Initiated From Phone- Music Paused)

Requirements: HFP, A2DP

Purpose: Verify that streaming can be paused in order to place an outgoing call from the phone. Verify that streaming can be resumed after the call is ended.

Test Configuration:

1. The device must be paired to a *Bluetooth* stereo accessory.

Procedure:

1. Connect the phone to the stereo accessory over HFP and A2DP profiles.
2. Start streaming music over A2DP to the stereo accessory.
3. Pause audio streaming from the phone.
4. Place an outgoing call from the phone and verify uplink and downlink audio is present at the HF.
5. End the call from the HF.
6. Initiate action on the phone to resume audio streaming, if this did not occur automatically

Expected Result: An outgoing call with uplink and downlink audio can be originated from the phone after streaming was paused from the phone. A2DP audio streaming can be resumed following the call termination. Music playback shall continue from the point of pause.

5.3 Disconnection/Reconnection

5.3.1. Out of Range Reconnection

5.3.1.1. Out of Range Reconnection During Idle Mode, Multi Profile Accessory

Requirements: HFP, A2DP, AVRCP

Purpose: Validate proper multiple profiles disconnection detection and reconnection following an out of range event during idle mode.

Test Configuration:

1. The device and accessory are paired and connected.

Procedure:

1. Take the accessory out of the range of the device.
2. Verify that the device shows disconnection to the accessory within 30 seconds.
3. Bring the accessory back in the range of the device.
4. Wait 30 seconds and verify that the device shows connection to the accessory, if not automatically connected, attempt to connect from the accessory without power cycling the accessory.
5. Make a call to the device.
6. Answer the call from the accessory to verify HFP functionality, uplink and downlink audio on the accessory.
7. End the call.
8. Start streaming audio from the device to the accessory.
9. Verify that audio streaming is present on the accessory
10. If the accessory supports AVRCP, verify that audio streaming can be paused from the accessory.

Expected Result:

1. Device shall indicate disconnection from the accessory within 30 seconds.
2. Multi profile functionality shall be restored automatically or manually.
3. Accessory shall be able to answer the incoming call.
4. Call audio (uplink and downlink) shall be present on the accessory.
5. Streaming audio shall be present on the accessory.
6. If the accessory supports AVRCP, the accessory shall be able to pause the streaming audio.

5.3.1.2. **Out of Range Reconnection During a Call, Multi Profile Accessory**

Requirements: HFP, A2DP, AVRCP

Purpose: Validate proper multiple profiles disconnection detection and reconnection following an out of range event during a call.

Test Configuration:

1. The device and accessory are paired and connected.

Procedure:

1. Engage in a call with uplink and downlink audio on the accessory.
2. Take the accessory out of the range of the device.
3. Verify that the device shows disconnection to the accessory within 30 seconds.
4. Call audio is routed to the device automatically or manually.
5. Bring the accessory back in the range of the device.
6. Wait 30 seconds and verify that the device shows connection to the accessory, if not automatically connected, attempt to connect from the accessory without power cycling the accessory.
7. If call audio is not automatically transferred to the accessory, initiate audio transfer from the accessory.

8. Verify that the call uplink and downlink audio resume on the accessory and that the call could be terminated from the accessory.
9. Start streaming audio from the device to the accessory.
10. Verify that the audio streaming is present on the accessory.
11. If the accessory supports AVRCP, verify that the audio streaming can be paused from the accessory.

- Expected Result:
1. Device shall indicate disconnection from the accessory within 30 seconds.
 2. Multi profile functionality shall be restored automatically or manually
 3. Call audio shall be present on the accessory.
 4. Accessory shall be able to end the call.
 5. Streaming audio shall be present on the accessory.
 6. If the accessory supports AVRCP, the accessory shall be able to pause the streaming audio.

5.3.1.3. Out of Range Reconnection During Audio Streaming, Multi Profile Accessory

Requirements: HFP, A2DP, AVRCP

Purpose: Validate proper multiple profiles disconnection detection and reconnection following an out of range event during audio streaming.

Test Configuration:

1. The device and accessory are paired and connected.

Procedure:

1. Start streaming audio to the accessory.
2. Take the accessory out of the range of the device.
3. Verify that the device shows disconnection to the accessory within 30 seconds.
4. Audio streaming resumes on the device automatically or manually.
5. Bring the accessory back into the range of the device.
6. Wait 30 seconds and verify that the device shows connection to the accessory, if not automatically connected, attempt to connect from the accessory without power cycling the accessory.
7. Audio streaming is routed to the accessory automatically or manually from the accessory.
8. Verify that the audio streaming is present on the accessory.
9. If the accessory supports AVRCP, verify that audio streaming can be paused from the accessory.
10. Make a call to the device.
11. Answer the call from the accessory to verify HFP functionality, uplink and downlink audio on the accessory.

Expected Result:

1. Device shall indicate disconnection from the accessory within 30 seconds.
2. Multi profile functionality shall be restored automatically or manually.
3. Streaming audio shall be present on the accessory.
4. If the accessory supports AVRCP, the accessory shall be able to pause the streaming audio.
5. Accessory shall be able to answer the incoming call.
6. Call audio (uplink and downlink) shall be present on the accessory.

5.3.2. Power Cycle Reconnection

5.3.2.1. Power Cycle Reconnection During Idle Mode, Multi Profile Accessory

Requirements: HFP, A2DP, AVRCP

Purpose: Validate proper multiple profiles disconnection detection and reconnection following an accessory power cycle during idle mode.

Test Configuration:

1. The device and accessory are paired and connected.

Procedure:

1. Power down the accessory.
2. Verify that the accessory shows disconnection to the device within 30 seconds.
3. Power up the accessory.
4. Wait 30 seconds and verify that the device shows connection to the accessory, if not automatically connected, attempt to connect from the accessory without power cycling the accessory.
5. Make a call to the device.
6. Answer the call from the accessory to verify HFP functionality, uplink and downlink audio on the accessory.
7. End the call.
8. Start streaming audio from the device to the accessory.
9. Verify that audio streaming is present on the accessory
10. If the accessory supports AVRCP, verify that audio streaming can be paused from the accessory.

Expected Result:

1. Device shall indicate disconnection from the accessory within 30 seconds.
2. Multi profile functionality shall be restored automatically or manually.
3. Accessory shall be able to answer the incoming call.
4. Call audio shall be present on the accessory.
5. Streaming audio shall be present on the accessory.
6. If the accessory supports AVRCP, the accessory shall be able to pause the streaming audio.

5.3.2.2. Power Cycle Reconnection During a Call, Multi Profile Accessory

Requirements: HFP, A2DP, AVRCP

Purpose: Validate proper multiple profiles disconnection detection and reconnection following an accessory power cycle during audio a call.

Test Configuration:

1. The device and accessory are paired and connected.

Procedure:

1. Engage in a call with uplink and downlink audio on the accessory.
2. Power down the accessory.
3. Verify that the device shows disconnection to the accessory within 30 seconds.
4. Call audio is routed to the device automatically or manually.

5. Power up the accessory.
6. Wait 30 seconds and verify that the device shows connection to the accessory, if not automatically connected, attempt to connect from the accessory without power cycling the accessory.
7. If call audio is not automatically transferred to the accessory, initiate audio transfer from the accessory.
8. Verify that the call uplink and downlink audio resume on the accessory and that the call could be terminated from the accessory.
9. Start streaming audio from the device to the accessory.
10. Verify that audio streaming is present on the accessory
11. If the accessory supports AVRCP, verify that audio streaming can be paused from the accessory.

- Expected Result:
1. Device shall indicate disconnection from the accessory within 30 seconds.
 2. Multi profile functionality shall be restored automatically or manually.
 3. Call audio shall be present on the accessory.
 4. Accessory shall be able to end the call.
 5. Streaming audio shall be present on the accessory.
 6. If the accessory supports AVRCP, the accessory shall be able to pause the streaming audio.

5.3.2.3. Power Cycle Reconnection During Audio Streaming, Multi Profile Accessory

Requirements: HFP, A2DP, AVRCP

Purpose: Validate proper multiple profiles disconnection detection and reconnection following an accessory power cycle during audio streaming.

Test Configuration:

1. The device and accessory are paired and connected.

Procedure:

1. Start streaming audio over A2DP to the accessory.
2. Power down the accessory.
3. Verify that the device shows disconnection to the accessory within 30 seconds.
4. Audio streaming is routed to the device automatically or manually.
5. Power up the accessory.
6. Wait 30 seconds and verify that the device shows connection to the accessory, if not automatically connected, attempt to connect from the accessory without power cycling the accessory.
7. Audio streaming is routed to the accessory automatically or manually from the accessory.
8. Verify that audio streaming is present on the accessory
9. If the accessory supports AVRCP, verify that audio streaming can be paused from the accessory.”
10. Make a call to the device.
11. Answer the call from the accessory to verify HFP functionality, uplink and downlink audio on the accessory.

- Expected Result:
1. Device shall indicate disconnection from the accessory within 30 seconds.
 2. Multi profile functionality shall be restored automatically or manually
 3. Streaming audio shall be present on the accessory.

4. If the accessory supports AVRCP, the accessory shall be able to pause the streaming audio.
5. Accessory shall be able to answer the incoming call.
6. Call audio (uplink and downlink) shall be present on the accessory.

Section 6 Multiple Point Connections

Comments: All AGs on the B device list should be tested as AG1. AG2 can be any B device that the CATL specify. This section is applicable to only A devices that act as a HF device.

6.1 Connections

6.1.1. Connections/Reconnections

6.1.1.1. Pairing and Connection (MPC 1HF/2AGs)

Requirements: HF device support Multi Point Connections

Purpose: Validate pairing and connection (MPC 1HF/2AGs).

Test Configuration:

1. Both AGs and HF batteries are charged.
2. The AG1 and AG2 have a valid subscription number.
3. Both AGs are in the idle mode.

Procedure:

1. Set the HF to pairing mode (discoverable).
2. Initiate a device search from AG1.
3. Verify AG1 discovers HF device (AG displays HF name).
4. Select the HF device.
5. Enter the PIN code at the AG when requested (manually or automatically sent by AG1).
6. Verify pairing is completed (AG1 display pairing successful).
7. Connect HF device manually from the AG1. (If not automatically connected.)
8. Verify AG1 and HF devices are connected (incoming and outgoing calls alert through HF).
9. Repeat steps 1 – 8 to pair and connect AG2 to HF device (Follow HF device's User guide to pair and connect AG2)
10. Power cycle HF device and ensure both AGs are connected to HF (Automatically, or manually from one of the AGs or the HF)

Expected Result: (MPC 1HF/2AG). Both AGs are paired and connected to HF

6.1.1.2. Call Origination (MPC 1HF/2AGs)

Requirements: HF device support Multi Point Connections

Purpose: Validate that an outgoing call can be initiated from any of the AGs (MPC 1HF/2AGs)

Test Configuration:

1. AG1, AG2, and HF batteries are charged.
2. The AG1 and AG2 have a valid subscription number.
3. The AG1, AG2, and HF paired and connected.

Procedure:

1. Initiate an outgoing call from AG1.
2. Verify if the call is present at the HF.
3. If not, perform an audio transfer to the HF from AG1.
4. Verify uplink/ downlink audio are present at the HF from AG1.
5. End the call at AG1. Both AGs are idle and connected to HF device
6. Initiate an outgoing call from the AG2.
7. Verify if the call is present at the HF.
8. If not, perform an audio transfer to the HF from AG2.
9. Verify uplink/ downlink audio are present at the HF from AG2.
10. End the call at AG2.

Expected Result: MPC (1HF/2AGs). A call shall be initiated from any of the AGs and audio present at HF

6.1.1.3. One of the AG in a Call, Originate a Call from the 2nd AG (MPC 1HF/2AGs)

Requirements: HF device support Multi Point Connections

Purpose: Validate that an outgoing call can be initiated from paired AGs while one of the AGs has an active call (MPC 1HF/2AGs)

Test Configuration:

1. AG1, AG2, and HF batteries are charged.
2. AG1 and AG2 have valid subscription numbers.
3. AG1, AG2, and HF paired and connected.

Procedure:

1. AG1 is in a call with audio at HF
2. AG2 is in idle mode.
3. Initiate an outgoing call from AG2. If Outgoing call alerts through HF, verify that audio of AG2 is available at HF (AG1 audio either at AG1 or on hold). Otherwise, verify that audio is available at AG2.
4. End the call from the AG2.
5. Verify AG1 audio is active at HF (uplink and downlink)
6. End the call at AG1
7. Reverse AG1 to AG2 and AG2 to AG1, then repeat steps 1 to 6.

Expected Result: MPC (1HF/2AGs), Outgoing call can be initiated from either AG while one of the AGs is in a call.

6.1.1.4. Incoming Calls (MPC 1HF/2AGs)

Requirements: HF device support Multi Point Connections

Purpose: Validate that an incoming call can be answered from any of the AGs (MPC 1HF/2AGs)

Test Configuration:

1. HF, AG1, and AG2 batteries are charged.
2. AG1 and AG2 have a valid subscription number.
3. AG1, AG2, and HF paired and connected

Procedure:

1. Receive an incoming call to AG1. Verify that the HF provides an alert of the incoming call.
2. Answer the call from HF.
3. Verify uplink/downlink audio is present at the HF.
4. End the call at HF. AG1 in idle mode.
5. Receive an incoming call to AG2.
6. Verify that the HF provides an alert of the incoming call.
7. Answer the call from HF.
8. Verify uplink/downlink audio is present at the HF
9. End the call from HF.

Expected Result: (MPC 1HF/2AGs). Incoming call from any AG shall be answered at HF

6.1.1.5. One of the AGs in a Call, Receive an Incoming Call at the 2nd AG (MPC 1HF/2AGs)

Requirements: HF device support Multi Point Connections

Purpose: Validate that an incoming call can be received from paired AGs while one of the AGs has an active call (MPC 1HF/2AGs)

Test Configuration:

1. HF, AG1, and AG2 batteries are charged.
2. AG1 and AG2 have a valid subscription number.
3. AG1, AG2, and HF paired and connected.

Procedure:

1. AG1 is in a call, audio at HF device.
2. Receive an incoming call to AG2.
3. If the HF provides an alert of AG2 incoming call, verify the call can be answered from HF, and the uplink/downlink audio is present at the HF (AG1 audio either at AG1 or on hold). Otherwise, verify the call can be answered and heard from AG2.
4. End the call from AG2
5. Verify AG1 audio is active at HF (uplink and downlink).
6. End the call from AG1.
7. Reverse AG1 to AG2 and AG2 to AG1, then repeat steps 1 to 6.

Expected Result: (MPC 1HF/2AGs) Incoming call can be answered by 2nd AG while one of the AGs is in a call.

6.1.1.6. **One of the AGs in a Call, Receive an Incoming Call at 2nd AG, DO NOT Answer the Call (MPC 1HF/2AGs)**

Requirements: HF device support Multi Point Connections

Purpose: Validate that the MPC system properly manages a not answered incoming call at either AG, when one of the AG is in a call.

Test Configuration:

1. HF, AG1, and AG2 batteries are charged.
2. AG1 and AG2 have a valid subscription number.
3. AG1, and AG2, and HF paired and connected.

Procedure:

1. AG1 is in a call , audio at HF device
2. Receive an incoming call at AG2.
3. Verify that HF provides an alert of the incoming call. Otherwise, verify that AG2 provides an alert of the incoming call.
4. Do not answer the call.
5. Verify that call on AG1 is still active after incoming call alert has disappeared
6. End the call at AG1, AG1 in idle mode
7. Reverse AG1 to AG2 and AG2 to AG1, then repeat steps 1 to 6.

Expected Result: (MPC 1HF/2AGs) MPC system shall manage audio link properly of the active call when incoming call from 2nd AG was not answered

6.1.1.7. **Reject an Incoming Call (MPC 1HF/ AG2)**

Requirements: HF device support Multi Point Connections

Purpose: Verify that MPC system maintains HFP call reject algorithm within the AGs

Test Configuration:

1. AG1, AG2, and HF batteries are charged.
2. AG1, AG2 have a valid subscription number.
3. AG1, AG2, and HF paired and connected.

Procedure:

1. Receive an incoming call to AG1. Verify that the HF provides an alert of the incoming call.
2. Reject the call from HF.
3. Verify that the HF stops alerting.
4. Verify on the remote side, that the call was rejected or sent to voice mail.
5. Receive an incoming call to AG2. Verify that the HF provides an alert of the incoming call.
6. Reject the call from HF.
7. Verify that the HF stops alerting.

8. Verify on the remote side, that the call was rejected or sent to voice mail.

Expected Result: (MPC 1HF/2AGs) Incoming call shall be rejected by HF

6.2 Out of Range

6.2.1. Out of Range Idle Mode

6.2.1.1. Out of Range and Reconnections in Idle Mode (MPC 1HF/2AGs)

Requirements: HF device support Multi Point Connections

Purpose: Validate MPC system shall handle the reconnection of out of range AGs in idle mode.

Test Configuration:

1. AG1, AG2, and HF batteries are charged.
2. AG1, AG2 have a valid subscription number.
3. AG1, AG2, and HF paired and connected.
4. AG1, AG2 and HF are in idle mode.

Procedure:

1. Take AG1 out of range of the HF, while AG2 stays within range of the HF.
2. Verify that AG1 shows disconnection from the HF within 30 seconds.
3. Bring AG1 back into range of the HF.
4. Wait 30 seconds and verify that AG1 shows connection to the HF, if not automatically connected, attempt to connect manually from the HF or AG1 without power cycling the HF.
5. Make a call to AG1.
6. Answer the call from the HF to verify HFP functionality, uplink and downlink audio on the HF.
7. End the call from the HF.
8. Take AG2 out of range of the HF, while AG1 stays within range of the HF.
9. Verify that AG2 shows disconnection from the HF within 30 seconds.
10. Bring AG2 back into range of the HF.
11. Wait 30 seconds and verify that AG2 shows connection to the HF, if not automatically connected, attempt to connect manually from the HF or AG2 without power cycling the HF.
12. Make a call to AG2.
13. Answer the call from the HF to verify HFP functionality, uplink and downlink audio on the HF.
14. End the call from the HF.
15. Take the HF out of range of BOTH AG's.
16. Verify that AG1 and AG2 show disconnection from the HF within 30 seconds.
17. Bring AG1 and AG2 back into range of the HF.
18. Wait 30 seconds and verify that AG1 and AG2 show connection to the HF, if not automatically connected, attempt to connect manually from the HF or AG1 or AG2 without power cycling the HF.
19. Make a call to AG1.
20. Answer the call from the HF to verify HFP functionality, uplink and downlink audio on the HF.

21. End the call from the HF.
22. Make a call to AG2.
23. Answer the call from the HF to verify HFP functionality, uplink and downlink audio on the HF.
24. End the call from the HF.

Expected Result: (MPC 1HF/2AGs) HF and AGs shall be reconnecting after out of range disconnection. Subsequent calls alert in the HF and can be accepted from the HF.

6.3 Power Cycle

6.3.1. Power Cycle Reconnections

6.3.1.1. Power Cycle on HF Device, Verify Reconnection to AGs (MPC 1HF/2AG2)

Requirements: HF device support Multi Point Connections

Purpose: Validate MPC system, reconnect HF device to AGs after power cycle HF device.

Test Configuration:

1. AG1, AG2, and HF batteries are charged.
2. AG1, AG2 have a valid subscription number.
3. AG1, AG2, and HF paired and connected.

Procedure:

1. Power off HF device and power it back on
2. Verify HF device reconnects to both AGs (Manual or automatic reconnection can be initiated from HF or AGs)
3. Power off HF device and AG2.
4. Power on HF device.
5. Verify HF device reconnects to AG1 (Manual or automatic reconnection can be initiated from HF or AG1.)
6. Verify audio uplink and downlink on the HF.
7. Power off HF device and AG1.
8. Power on AG2
9. Power on HF device.
10. Verify HF device reconnects to AG2 (Manual or automatic reconnection can be initiated from HF or AG2.)
11. Verify audio uplink and downlink on the HF.

Expected Result: (MPC 1HF/2AGs) HF device shall reconnect to both AG (s) in range after power cycled HF device.

Section 7 MAP Validation

7.1 SMS Messaging Validation

7.1.1. SMS Inbox Message Listing Transfer

7.1.1.1. SMS Inbox Message Listing Transfer (Normal Characters)

Requirements: MAP

Purpose: Verify that the message listing of the SMS inbox can be transferred from the device to the MCE.

Test Configuration:

1. MSE and MCE have been paired.
2. The MSE should have more than 10 entries in the SMS inbox. MSE shall have at least 5 SMS with status "READ" and at least 5 with status "UNREAD"
3. The MCE should have no entries stored.
4. Both devices support MAP.

Procedure:

1. Establish a MAP session between the MCE and MSE (MAS SMS Instance)
2. From the MCE initiate a request a "MAP-msg-listing" from the MSE. (Comment: MAP-msg-listing might be done automatically by car kit after connecting MCE to MSE). If the MCE supports filtering operations,
 - a. MCE can request listing in relative blocks using "ListStartOffset" and "MaxListCount". B-Devices shall contain a MSE that uses block transfer to ensure IOP.
 - b. MCE can set filter. Applied filter shall match with the answer by the MSE (e.g. MCE requests only UNREAD messages)
 - c. MCE shall check the message status delivered by MSE (read status).

Expected Result: MCE shall be connected to the SMS instance of the MSE MAS. The requested SMS inbox message listing shall be transferred from the MSE to the MCE, and shall be complete. Date, time and originator shall be correct. Due to display limitations, the MCE may only present a select number of messages (min. 1).

7.1.1.2. SMS Inbox Message Listing Transfer (Special Characters)

Requirements: MAP

Purpose: Verify that the message listing of the SMS inbox can be transferred from the device to the MCE.

Test Configuration:

1. MSE and MCE have been paired. .
2. The MSE should have at least 3 entries in the SMS inbox. The messages shall contain special characters in the message body (e.g. as the first characters of the SMS) "<", ">", "&" and """.

3. MSE shall have at least 1 SMS with status “UNREAD”
4. The MCE should have no entries stored.
5. Both devices support MAP.

Procedure:

1. Establish a MAP session between the MCE and MSE (MAS SMS Instance)
3. From the MCE initiate a request a “MAP-msg-listing” from the MSE. (Comment: MAP-msg-listing might be done automatically by car kit after connecting MCE to MSE). If the MCE supports filtering operations,
 2.
 - a. MCE can request listing in relative blocks using block offset parameter. B-Devices shall contain a MSE that uses block transfer to ensure IOP. (see changes to TC1)
 - b. MCE can set filter. Applied filter shall match with the answer by the MSE (e.g. MCE requests only UNREAD messages)
 - c. MCE shall check the message status delivered by MSE (read status).

Expected Result:

MCE shall be connected to the SMS instance of the MSE MAS. The requested SMS inbox message listing shall be transferred from the MSE to the MCE, and shall be complete and in the correct order. Date, time and originator shall be correct. Due to display limitations, the MCE may only present a select number of messages (min. 1).

7.1.2. SMS Message Download and Notification

7.1.2.1. SMS Message Download

Requirements: MAP

Purpose: Verify that a SMS Message can be transferred from the MSE to the MCE.

Test Configuration:

1. MSE and MCE have been paired and have established a MAP session.
2. The MSE should have more than 10 entries (at least 5 with a status of “READ” and 5 with the status “UNREAD”) in the SMS inbox.
3. The MCE should have no entry in the SMS inbox
4. The MCE should have downloaded the current message listing from the MSE.

Procedure:

1. From the MCE initiate a request to download the desired SMS message(s) from the SMS inbox using the Message Handles that were provided by Message_Listing. (Note: Might be MCE dependent. Some MCE solutions may download messages upon receipt of a new message notification without user selection.)

Expected Result:

The desired SMS message(s) shall be transferred from the MSE to the MCE, and shall be complete and without additional characters. Date, time and originator shall be correct. Due to display limitations, the MCE may only present a select number of messages (min. 1).

7.1.2.2. **New Incoming SMS Notification and Download**

Requirements: MAP

Purpose: Verify that a new incoming SMS message is being indicated on the MCE.

Test Configuration:
1. MSE and MCE have been paired and have established a MAP session.

Procedure:
1. Send a SMS message to MSE
2. After a new SMS indication has been received at the MCE, download the SMS (automatically or manually).
3. Open this SMS on the MCE.

Expected Result: MSE shall send new message notification to MCE. The desired SMS message shall be transferred from the MSE to the MCE, and shall be complete and without additional characters. Date, time and originator shall be correct.

7.1.2.3. **Message Update from Unread to Read**

Requirements: MAP

Purpose: Verify that the MCE can update the read status of a message located within the MSE.

Test Configuration:
1. MSE and MCE have been paired and have established a MAP session.
2. An unread message is available on the MCE.

Procedure:
1. Access the unread message via the MCE.

Expected Result: By opening the SMS on MCE the status should be changed from UNREAD to READ on the MSE (in all possible opened SMS inbox views).

7.1.2.4. **Download Of Concatenated SMS Messages**

Requirements: MAP

Purpose: Verify that a concatenated SMS can be downloaded correctly with all parts to the MCE.

Test Configuration:
1. MSE and MCE have been paired and have established a MAP session.
2. The MSE should have more than 5 entries in the SMS inbox.
3. The MCE should have no entries in it.

- Procedure:
1. Send a concatenated SMS with more than 160 characters to device.
 2. From the MCE initiate a request to download the SMS message from the SMS inbox (might be done automatically by carkit after SMS notification)
- Expected Result: MSE shall display the complete part content of the concatenated SMS Date, time and originator shall be correct.

7.1.3. Deleting, Replying to and Sending Messages

7.1.3.1. Deleting a SMS Message

- Requirements: MAP
- Purpose: Verify that a SMS can be deleted from the MCE.
- Test Configuration:
1. MSE and MCE have been paired and have established a MAP session.
 2. The MSE should have at least 1 entry in it.
 3. The MCE should have downloaded the current message listing from the MSE.

- Procedure:
1. From the MCE delete a SMS message.
- Expected Result: MSE shall delete the desired SMS message on the local device. MSE shall be updated and consistent with MCE view.

7.1.3.2. Replying to a SMS Message

- Requirements: MAP
- Purpose: Verify that the MCE can reply to a SMS downloaded from the MSE.
- Test Configuration:
1. MSE and MCE have been paired and have established a MAP session.
- Procedure:
1. Send SMS to device
 2. After indication of SMS at MCE, download SMS to MCE (*Note: Some car kits may download the message automatically upon receipt of a new message notification)
 3. Open this SMS on the MCE
 4. Reply to the SMS via the MCE
- Expected Result: The message chosen via the MCE shall be delivered to the intended device, and the contents of the message shall match the reply chosen.

7.1.3.3. Sending a SMS Message

Requirements: MAP

Purpose: Verify that the MCE can send a SMS.

Test Configuration:

1. MSE and MCE have been paired and have established a MAP session.

Procedure:

1. Choose number to send a message to via the MCE
2. Choose a message to send via the MCE.
3. Send the chosen message.

Expected Result: The message chosen via the MCE shall be delivered to the intended device, and the contents of the message shall match the message chosen.

Section 8 MAP Multiprofile

8.1 SMS Messaging Multiprofile

8.1.1. SMS Messaging During Phone Call

8.1.1.1. SMS Inbox Message Listing Transfer During Phone Call

Requirements: AG supports MAP-MSE role, HF supports MAP-MCE role

Purpose: Verify that the message listing of the SMS inbox can be transferred from the device to the MCE during an active phone call.

Test Configuration:

1. MSE and MCE have been paired.
2. The MSE should have more than 10 entries in the SMS inbox. At least 5 SMS messages shall be UNREAD.
3. Place a call on AG. Call audio is routed to the AG.

Procedure:

1. Initiate to connect HFP and MAP from the HF-MCE role.
2. 2. If call audio is not automatically transferred to HF, initiate audio transfer from the HF.
3. 3. If SMS download does not happen automatically, initiate a request to download the inbox message listing from the MSE from MCE.

Expected Result: The SMS inbox message listing shall be transferred from the MSE to the MCE, and shall be complete. The phone call shall not be interrupted.

8.1.1.2. SMS Message Download During Phone Call

Requirements: MAP, HFP

Purpose: Verify that an SMS message can be transferred from the device to the MCE during an active phone call.

Test Configuration:

1. MSE and MCE have been paired and have established MAP and HFP sessions.

Procedure:

1. Establish a call with AG. Audio is sent to HF.
2. Send a message to the MSE
3. Once notification of the new message has been received at the MCE, download the newly received message from the MSE.

Expected Result: The phone call shall not be disconnected (i.e. ended) by the receipt of a new message notification. Once selected by the user, the message included within the notification shall be available and correct including the correct date, time and originator within the MCE.

8.1.1.3. **New Incoming SMS Notification During Phone Call**

Requirements: MAP, HFP

Purpose: Verify that the active call is maintained upon receiving a new incoming SMS message.

Test Configuration:

1. MSE and MCE have been paired and have established MAP and HFP sessions.

Procedure:

1. Establish call with AG. Audio is sent to HF.
2. Send SMS to MSE.

Expected Result: MSE shall send new message notification to MCE. The phone call shall be maintained.

8.1.1.4. **Delete SMS During Phone Call**

Requirements: MAP, HFP

Purpose: Verify that an SMS message can be deleted during an active phone call.

Test Configuration:

1. MSE and MCE have been paired and have established MAP and HFP sessions.
2. The MSE should have at least 1 entry in it.
3. The MCE should have downloaded the current message listing from the MSE.

Procedure:

1. Establish a call with AG. Audio is sent to HF.
2. From the MCE delete an SMS message.

Expected Result: MSE shall delete the desired SMS message. The phone call shall be maintained.

8.1.2. **SMS Messaging While Playing Music**

8.1.2.1. **SMS Inbox Message Listing Transfer While Playing Music**

Requirements: SRC supports MAP-MSE role, SNK supports MAP-MCE role

Purpose: Verify that the message listing of the SMS inbox can be transferred from the device to the MCE during music playback.

Test Configuration:

1. MSE and MCE have been paired.
2. The MSE should have more than 10 entries in the SMS inbox. At least 5 SMS messages shall be UNREAD.

3. The MCE should have no entries in inbox.
4. Start streaming music over A2DP on SRC.

Procedure:

1. Initiate to connect A2DP and MAP from the SNK-MCE role.
2. Audio streaming is routed to the SNK automatically or manually.
3. If SMS download does not happen automatically, initiate a request to download the inbox message listing from the MSE from MCE.

Expected Result: The requested SMS inbox message listing shall be transferred from the MSE to the MCE, and shall be complete. Music playback shall be maintained.

8.1.2.2. SMS Message Download While Playing Music

Requirements: MAP, A2DP

Purpose: Verify that an SMS Message can be transferred from the device to the MCE during music playback.

Test Configuration:

1. MSE and MCE have been paired and have established MAP and A2DP sessions.

Procedure:

1. Start streaming music over A2DP to TG.
2. Send a message to the MSE
3. Once notification of the new message has been received at the MCE, download the newly received message from the MSE.

Expected Result: There shall not be any un-designed interruption to the music playback as a result of the receipt of a new message notification. Once selected by the user, the message included within the notification shall be available and correct including the correct date, time and originator within the MCE.

8.1.2.3. New Incoming SMS Notification (and Download if MCE downloads messages without user selection) While Playing Music

Requirements: MAP, A2DP

Purpose: Verify that a new incoming SMS message is being indicated (and downloaded if MCE downloads messages without user selection) on the MCE during music playback.

Test Configuration:

1. MSE and MCE have been paired and have established MAP and A2DP sessions.

Procedure:

1. Start streaming music over A2DP to TG.
2. Send SMS to MSE.

Expected Result: MSE shall send new message notification to MCE. Music playback shall be maintained (except designed notifications).

8.1.2.4. Delete SMS During While Playing Music

Requirements: MAP, A2DP

Purpose: Verify that a SMS message can be deleted during music playback.

Test Configuration:

1. MSE and MCE have been paired and have established MAP and A2DP sessions.
2. The MSE should have at least 1entry in the SMS inbox.
3. The MCE should have downloaded the current message listing from the MSE.

Procedure:

1. Start streaming music over A2DP to Head Unit.
2. From the MCE delete an SMS message.

Expected Result: MSE shall delete the desired SMS message. Music playback shall be maintained.

8.1.2.5. Send a SMS Message While Playing Music

Requirements: MAP, A2DP

Purpose: Verify that an SMS Message can be sent from the MCE during music playback.

Test Configuration:

1. MSE and MCE have been paired and have established MAP and A2DP sessions.

Procedure:

1. Start streaming music over A2DP to the TG.
2. From the MCE initiate a request to send a SMS message.

Expected Result: The desired SMS message shall be sent to the correct recipient and music playback shall be maintained.

Appendix I – Change History

Date	Revision	Description
November 2007	1.0	<ul style="list-style-type: none"> • First Revision
April 2008	1.1	<ul style="list-style-type: none"> • Updated test cases based upon feedback from the first round of validation testing at the CATLs. The Bluetooth SIG UEG also provided feedback in the HFP section.
April 2008	1.2	<ul style="list-style-type: none"> • Changed Test Plan name: Remove Implementation and replace with Compatibility • Changed name of voice recognition test cases
September 2008	1.3	<ul style="list-style-type: none"> • Updated test cases based upon feedback during the Pilot phase of testing.
January 2009	1.4	<ul style="list-style-type: none"> • Updated test cases based upon further feedback during the Pilot phase of testing. • Added additional test cases for AVRCP
February 2009	2.0	<ul style="list-style-type: none"> • Editorial updates
June 2009	2.1	<ul style="list-style-type: none"> • Added new test cases for Disconnection/Reconnection • Updated Expected Results in section in 2.3.1. • Clarified how rewind should work when at the beginning of the track, in section 3.3.2.11.
February 2010	2.2	<ul style="list-style-type: none"> • Updated Section 1.4 • Updated Test Case 2.5.1.2 • Updated 2.5.3.1 eSCO test case • Updated 3.2.1.3 test case procedure • Added new test cases 5.2.2.1 & 5.2.2.2
September 2010	2.3	<ul style="list-style-type: none"> • Add Multi Point Test Cases - Section 6 • Updated test criteria for section 4.1 • Updated 4.2 Test cases
September 2010	2.3.1	<ul style="list-style-type: none"> • Updated Section 6 Test Cases to include four-digit test case numbers

May 2011	2.4	<ul style="list-style-type: none"> • Updated Test Case 2.4.1.4 • Inactivated eSCO Test Case (2.5.3.1) and Local Volume Control Test Cases (3.2.1.4 – 3.2.1.9, 3.2.2.4 – 3.2.2.9) • Added Test Case 4.1.4.1 • Updated Test Cases 6.1.1.1, 6.1.1.3, 6.1.1.5, 6.1.1.6
March 2013	2.5	<ul style="list-style-type: none"> • Added MAP sections 7 and 8 • Updated Test Cases 2.4.2.2, 2.5.1.1 – 2.5.1.4, 2.6.2.1, 5.3.2.1 – 5.3.2.3 • Added Test Cases 2.5.1.5, 2.5.1.6
May 2013	2.5.1	<ul style="list-style-type: none"> • Corrected Test Case 2.5.1.6 • Removed typo indicating a Test Case 5.2.1.7 • Reformatted section numbering in Sections 7 and 8
November 2013	2.5.2	<ul style="list-style-type: none"> • Updated Test Cases 2.3.1.1, 2.3.1.2, 2.3.1.3, 7.1.1.1, 7.1.1.2, 8.1.1.1, 8.1.2.1