Research & Vehicle Technology
"Infotainment Systems Product Development"

Feature – BT Phone

APIM Infotainment Subsystem Part Specific Specification (SPSS)

Version 1.9

UNCONTROLLED COPY IF PRINTED

Version Date: April 24, 2015

FORD CONFIDENTIAL

Revision History

Date	Version	Notes	
May 30, 2013	**1.0**	**Initial Release**	
October 24, 2013	**1.1**	**Updated Release**	
	BTP-GREQ-295053-2-Phonebook Matching		MDAGE - changed reference to Phone Matching Tables Specification to GREQ - Phone Matching Tables Specification
	BTP-GREQ-295099-2-Ringer Options		rpaquet2 - Added Primary Audio Source text to define PAS.
	BTP-GREQ-295105-2-Signal Strength		rpaquet2 - Replace weak with No cellular.
	BTP-GREQ-295107-2-Battery Level		rpaquet2 - Added text about battery low condition.
	BTP-GREQ-295108-2-Advanced Error Correction		rpaquet2 - Updated text in requirement.
	BTP-GREQ-295109-2-AG Device Storage		rpaquet2 - Updated requirement
	Functional Definition		rpaquet2 - Added 4 new functions to incorporate P14, P15, P16 and P17 specs.
	BTP-GUC-290831-2-Pairing a phone with no other phone paired via SSP – Discoverable Mode		rpaquet2 - Updated exception E4 and added E16
	BTP-GUC-304164-1-Unexpected Device Disconnect After Authentication, but prior to completing the overall connection / pairing process		rpaquet2 - New Use Case
	BTP-GUC-290846-2-Pairing a phone with no other phone paired via SSP – Discovery Mode		rpaquet2 - Added E16
	BTP-GUC-290847-2-Pairing a phone with phone paired via SSP – Discovery Mode		rpaquet2 - Added E16
	BTP-GUC-304492-1-In-Vehicle Infotainment System did not find any devices		rpaquet2 - New Exception Use Case
	BTP-GREQ-295148-2-Secure Simple Pairing		rpaquet2 - Added line of text for confirming 6 digit PIN.
	BTP-GREQ-295151-2-Discovery Mode (Find Devices)		rpaquet2 - Updated requirement
	BTP-GREQ-295152-2-Discoverable Mode (Find In-Vehicle Infotainment System)		rpaquet2 - Updated Requirement
	BTP-GREQ-295153-2-Pairing via Dock Connector Requirements		rpaquet2 - Updated requirement
	BTP-GREQ-295154-2-Pairing Process		rpaquet2 - Updated requirement
	BTP-GREQ-295155-2-Service Discovery		rpaquet2 - Updated requirement
	BTP-GREQ-295157-2-Connection Order and Requirements		rpaquet2 - Updated requirement
	BTP-GREQ-295158-2-Profile Connection Order		rpaquet2 - Updated requirement
	BTP-GREQ-295159-2-Connecting to Device that has Lost Pairing Information		rpaquet2 - Updated requirement
	BTP-GREQ-304235-1-Pairing Exceptions		rpaquet2 - Clarification requirement
	BTP-GREQ-295039-2-# of Connections and Connection Confirmation		rpaquet2 - Updated requirement name and content.
	BTP-GREQ-295041-2-Automatic Connection		rpaquet2 - Update requirement
	BTP-GREQ-304240-1-Connection Error States		rpaquet2 - Clarification requirement
	BTP-GREQ-304241-1-Authentication Failed		rpaquet2 - Clarification requirement
	BTP-GREQ-304242-1-Device is Preset, but has rejected or failed to allow a connection to HFP/A2DP		rpaquet2 - Clarification requirement
	BTP-GUC-290908-2-Incoming Call Ringing		rpaquet2 - Added E2 case
	BTP-GUC-290909-2-Incoming Call Answer via In-Vehicle Infotainment System		rpaquet2 - Added E3 case
	BTP-GUC-290902-2-Outgoing Call via Digit Dial		rpaquet2 - Added E3 and E4 case
	BTP-GUC-290903-2-Outgoing call initiated from the connected phone		rpaquet2 - Added E3 and E4 case
	BTP-GUC-290905-2-Outgoing call initiated via Redial from the In-Vehicle Infotainment System		rpaquet2 - Added E4 and E5 case
	BTP-GREQ-295048-2-Outgoing Call Methods		rpaquet2 - Updated requirement
	BTP-GREQ-304248-1-Outgoing Call Failures		rpaquet2 - Clarification requirement
	BTP-GREQ-295114-2-Blower Motor Reduction / Activation		MDAGE - changed reference to blower motor reduction strategy spec to corresponding GREQs. Updated requirement.
	BTP-GREQ-304249-1-Active Call Audio Error Detection		rpaquet2 - Clarification requirement
	BTP-GREQ-304250-1-Incoming Call Answer Failure		rpaquet2 - Clarification requirement
	BTP-GREQ-304251-1-Incoming Call Rejection Failure		rpaquet2 - Clarification requirement
	BTP-GREQ-295092-2-Phonebook Display Requirements		rpaquet2 - Updated requirement
	BTP-GREQ-304252-1-Phonebook/Call History Download Errors and Status Definitions		rpaquet2 - Clarification requirement
	BTP-GFUN-294445-2-Messaging		rpaquet2 - removed requirement 295144

	BTP-GREQ-295115-2-Retrieving the Message Listing (Upon Connection)	rpaquet2 - Updated requirement
	BTP-GREQ-295116-2-Retrieving the Message Listing (Upon Entry Into Text Messaging Application)	rpaquet2 - Updated requirement
	BTP-GREQ-295118-2-Message Listing Display Requirements	rpaquet2 - Updated requirement
	BTP-GREQ-295120-2-Message Listing Request Failed	rpaquet2 - Updated requirement
	BTP-GREQ-295126-2-Audible Notification	rpaquet2 - Updated requirement
	BTP-GREQ-295135-2-Reply	rpaquet2 - Updated requirement
	BTP-GREQ-295138-2-Send Message	rpaquet2 - Updated requirement
	BTP-GREQ-295139-2-Insert Message Alert Options	rpaquet2 - Updated requirement
	BTP-GREQ-295141-2-Envelope Icon Only	rpaquet2 - Updated requirement
	BTP-GREQ-295146-2-Sending Text Messages	rpaquet2 - Updated requirement
	BTP-GREQ-304253-1-Message Access Error States	rpaquet2 - Clarification requirement
	BTP-GREQ-304254-1-Message Access Not Granted	rpaquet2 - Clarification requirement
	BTP-GREQ-304255-1-Message Notification Not Established	rpaquet2 - Clarification requirement
	BTP-GREQ-304256-1-Message Download Failed	rpaquet2 - Clarification requirement
	BTP-GREQ-304257-1-Sending Message Failed	rpaquet2 - Clarification requirement
	BTP-GREQ-304258-1-Message Exceptions	rpaquet2 - Clarification requirement
	BTP-GREQ-304261-1-Unexpected RFCOMM/HFP Disconnect	rpaquet2 - Clarification requirement
	BTP-GREQ-304262-1-Unexpected RFCOMM/MAP MAS Disconnect	rpaquet2 - Clarification requirement
	BTP-GREQ-295113-2-Apple Siri Eyes-Free	rpaquet2 - Updated requirement
	BTP-GREQ-304263-1-Device ID Profile	rpaquet2 - Clarification requirement
	BTP-GREQ-304264-1-Device Indentification	rpaquet2 - Clarification requirement
	BTP-GREQ-304265-1-Configuration Requirements	rpaquet2 - Clarification requirement
	BTP-GREQ-304493-1-iPhone Connected via A2DP and USB	rpaquet2 - Clarification requirement
	BTP-GFUN-303956-1-Phone Blower Motor Reduction Strategy	rpaquet2 - Imported P14 document into this function
	BTP-GREQ-297103-1-Blower Motor Reduction Activation / Deactivation	MDAGE - initial release
	BTP-GREQ-297104-1-Incoming Call (Setting Blower Motor Reduction Activation)	rpaquet2 - Imported P14 requirements and removed "CAN" from the diagrams and replaced with "VMCU"
	BTP-GREQ-297105-1-Outgoing Call initiated from HF / AG (Setting Blower Motor Reduction Activation)	rpaquet2 - Imported P14 requirements and removed "CAN" from the diagrams and replaced with "VMCU"
	BTP-GREQ-297106-1-Active Call at Time of Connection (Setting Blower Motor Reduction Activation)	rpaquet2 - Imported P14 requirements and removed "CAN" from the diagrams and replaced with "VMCU"
	BTP-GREQ-297107-1-End of a Call (Setting Blower Motor Reduction Deactivation)	rpaquet2 - Imported P14 requirements and removed "CAN" from the diagrams and replaced with "VMCU"
	BTP-GREQ-297108-1-AG Disconnect (Setting Blower Motor Reduction Deactivation)	rpaquet2 - Imported P14 requirements and removed "CAN" from the diagrams and replaced with "VMCU"
	BTP-GREQ-297109-1-Unspecified (per Handsfree Profile 1.5) Conditions Handling	rpaquet2 - Imported P14 requirements and removed "CAN" from the diagrams and replaced with "VMCU"
	BTP-GREQ-297110-1-Audio is placed into Privacy (i.e. SCO is Released)	rpaquet2 - Imported P14 requirements and removed "CAN" from the diagrams and replaced with "VMCU"
	BTP-GREQ-297111-1-Audio is placed into Handsfree from Privacy (i.e. SCO is Granted)	rpaquet2 - Imported P14 requirements and removed "CAN" from the diagrams and replaced with "VMCU"
	BTP-GREQ-297112-1-Additional Notes	MDAGE - initial release
	BTP-GFUN-303960-1-Phone Number Matching Tables	rpaquet2 - Imported P15 into this function
	BTP-GREQ-297113-1-Phone Number Matching Tables	MDAGE - initial release
	BTP-GFUN-303964-1-Bluetooth Core	rpaquet2 - Imported P16 into this function
	BTP-GREQ-297117-1-Definitions	MDAGE - initial release
	BTP-GREQ-297118-1-Bluetooth Core Requirements	MDAGE - initial release
	BTP-GREQ-297120-1-Bluetooth Profile Requirements	MDAGE - initial release
	BTP-GREQ-297121-1-Minimum Profile Specific Requirements	MDAGE - initial release
	BTP-GREQ-297122-1-HCI Logging	MDAGE - initial release
	BTP-GREQ-297123-1-Logging HCI Data upon Connection/Initialization	MDAGE - initial release
	BTP-GREQ-297124-1-Logging the HCI Data after Connection to Phone	MDAGE - initial release
	BTP-GREQ-297126-1-HCI Logging Parameters	MDAGE - initial release
	BTP-GREQ-297127-1-HCI Logging Requirements	MDAGE - initial release
	BTP-GREQ-297128-1-HCI Logging Failed	MDAGE - initial release
	BTP-GREQ-297130-2-Writing HCI Data upon Suspend	rpaquet2 - Updated requirement
	BTP-GREQ-297131-2-HCI Writing upon Trigger	rpaquet2 - Updated requirement

	Sequence	
	BTP-GREQ-297132-2-HCI Writing upon Disconnection of Phone	rpaquet2 - Updated requirement
	BTP-GREQ-297133-1-HCI Writing Parameters	MDAGE - initial release
	BTP-GREQ-297134-2-HCI Writing Requirements	rpaquet2 - Updated requirement
	BTP-GREQ-297136-2-HCI Writing Failed	rpaquet2 - Updated requirement
	BTP-GREQ-297137-2-Developing Device Testing Requirements	rpaquet2 - Updated requirement
	BTP-GREQ-297138-2-Ongoing Interoperability Testing	rpaquet2 - Updated requirement
	BTP-GREQ-297139-1-Special Release Interoperability Testing	MDAGE - initial release
	BTP-GREQ-297140-1-Ongoing Update Schedule	MDAGE - initial release
	BTP-GREQ-297141-1-Special Release Update Availability	MDAGE - initial release
	BTP-GFUN-303968-1-Hands-Free Audio Performance	rpaquet2 - Imported P17 into this function.
	BTP-GREQ-297142-1-Hands-free Purpose	MDAGE - initial release
	BTP-GREQ-297143-1-Hands-free Terminology and Abbreviations	MDAGE - initial release
	BTP-GREQ-297144-1-Hands-free Goals	MDAGE - initial release
	BTP-GREQ-297145-1-Hands-free Non-Goals	MDAGE - initial release
	BTP-GREQ-297146-1-Hands-free Performance - ITU-T P.1100 and ITU-T P.1110	MDAGE - initial release
	BTP-GREQ-304502-1-Hands-free Performance - Best-in-Class/Competitive Performance	rpaquet2 - initial release
	BTP-GREQ-304503-1-Hands-free Performance - Configuration and Tuning	MDAGE - initial release
	BTP-GREQ-304500-1-Hands-free Performance - System Performance in Presence of Vehicle Generated Cockpit Derived Sounds	rpaquet2 - initial release
	BTP-GREQ-304501-1-Hands-free Performance - General System Requirement	rpaquet2 - initial release
	BTP-GREQ-297148-1-Hands-free Testing Requirements - ITU-T P.1100 and ITU-T p.1110	MDAGE - initial release
	BTP-GREQ-304504-1-Hands-free Testing Requirements - Far End Audio Quality Testing - CPSC -L-005 Hands Free Phone System Performance Test Procedure CETP	MDAGE - initial release
	BTP-GREQ-304505-1-Hands-free Testing Requirements - Subjective Listening Testing (Average)	MDAGE - initial release
	BTP-GREQ-304506-1-Hands-free Testing Tools	MDAGE - initial release
	BTP-GFUN-304518-1-Bluetooth Diagnostics Strategies and Procedures	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures into this function.
	BTP-GREQ-304520-1-Event Logging Initialization - Event Logging	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	BTP-GREQ-304521-1-Event Logging Initialization - Logging Event Data upon Connection/Initialization	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	BTP-GREQ-304522-1-Event Logging Initialization - Logging the Event Data after Connection to Phone	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	BTP-GREQ-304523-1-Event Logging Initialization - Event Logging Parameters	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	BTP-GREQ-304524-1-Event Logging Initialization - Event Category	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	BTP-GREQ-304525-1-Event Logging Initialization - Event Logging Requirements	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	BTP-GREQ-304526-1-Event Logging Initialization - Event Category Success	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	BTP-GREQ-304527-1-Event Logging Initialization - Event Category Failure	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	BTP-GREQ-304528-1-Event Logging Initialization - Event Category Failure Screenshot	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	BTP-GREQ-304529-1-Event Logging Initialization - Event Logging File	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	BTP-GREQ-304530-1-Event Logging Initialization - Event Logging Failure	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	BTP-GREQ-304531-1-HCI Logging Initialization - Logging HCI Data upon Connection/Initialization	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	BTP-GREQ-304532-1-HCI Logging Initialization - Logging the HCI Data after Connection to Phone	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	BTP-GREQ-304533-1-HCI Logging Initialization - HCI Logging Buffer Mechanism	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	BTP-GREQ-304534-1-HCI Logging Initialization - HCI	rpaquet2 - Imported Bluetooth Diagnostics Strategies and

	Logging Requirements	Procedures requirements
	BTP-GREQ-304535-1-HCI Logging Initialization - HCI Logging File	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	BTP-GREQ-304536-1-HCI Logging Initialization - Event Category Failure Trigger for HCI Writing	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	BTP-GREQ-304537-1-HCI Logging Initialization - HCI Logging Failure	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	BTP-GREQ-304538-1-DTM (Diagnostic Troubleshooting Message) Logging Initialization - DTM Logging	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	BTP-GREQ-304539-1-DTM (Diagnostic Troubleshooting Message) Logging Initialization - DTM Logging File	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	BTP-GREQ-304540-1-DTM (Diagnostic Troubleshooting Message) Logging Initialization - DTM Logging Buffer Mechanism	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	BTP-GREQ-304541-1-Data Acquisitoin Log (DAlog) Serial Port Initialization - DAlog	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	BTP-GREQ-304542-1-Data Acquisitoin Log (DAlog) Serial Port Initialization - DAlog Writing - Writing DAlog Data	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	BTP-GREQ-304543-1-Data Acquisitoin Log (DAlog) Serial Port Initialization - DAlog Writing - DAlog Writing Requirements	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	BTP-GREQ-304544-1-Data Acquisitoin Log (DAlog) Serial Port Initialization - DAlog Writing - DAlog Writing Requirements 2	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	BTP-GREQ-304545-1-Bluetooth Stack Error Detection and Recovery	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	BTP-GREQ-304546-1-Bluetooth Stack Error Detection and Recovery - Monitoring Characteristics	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	BTP-GREQ-304547-1-Bluetooth Stack Error Detection and Recovery - Bluetooth Stack Soft Reset	rpaquet2 - Imported Bluetooth Diagnostics Strategies and Procedures requirements
	Appendix: Reference Documents	rpaquet2 - Removed P14,15,16 and 17 document reference as they have been pulled into the SPSS
December 10, 2013	**1.2** **Updated Release**	
	BTP-GREQ-295111-2-Voice / Phone Interaction	rpaquet2 - Updated requirement
	BTP-GUC-290851-2-Pairing a phone with other phone(s) paired via non SSP – Discoverable Mode	rpaquet2 -Updated requirement
	BTP-GUC-290855-2-Pairing a phone with another phone connected and Pairing / Connecting Not Successful	rpaquet2 -updated requirement
	BTP-GUC-290905-3-Outgoing call initiated via Redial from the In-Vehicle Infotainment System	rpaquet2 - Updated Pre-Conditions
	BTP-GUC-290927-2-Fault Recognized with the microphone or muting effort failed	rpaquet2 - updated requirement
	BTP-GUC-290886-2-Phonebook Download	rpaquet2 - Updated scenario description
	BTP-GUC-290979-2-Accessing Messages (via V-HMI)	rpaquet2 - Updated Pre-Condition
	BTP-GREQ-295123-2-Receipt of a New Message Event	rpaquet2 -updated requirement
	BTP-GREQ-295124-2-Text Message Notification (End User)	rpaquet2 - updated requirement
	BTP-GREQ-295125-2-UI Notification	rpaquet2 - updated requirement
	BTP-GREQ-295128-2-Downloading Messages Received from an Unsolicited Message Listing Retrieval	rpaquet2 - updated requirement
	BTP-GREQ-295134-2-View	rpaquet2 - Updated requirement
	BTP-GREQ-295135-3-Reply	rpaquet2 - Updated requirement
	BTP-GREQ-295136-2-Call	rpaquet2 - updated requirement
	BTP-GREQ-295137-2-Forward	rpaquet2 - updated requirement
	BTP-GREQ-295138-3-Send Message	rpaquet2 - Updated requirement
	BTP-GREQ-295096-2-Do Not Disturb	rpaquet2 - updated requirement
	BTP-GUC-290958-2-In-Vehicle Infotainment System Initiated Automatic Disconnect (Key Off / No Driver Door Open) - Active Call(s) present at the end of the Delayed Accessory Timer; Call Ended Prior to Expiration of Extended Phone Mode Timer	rpaquet2 - updated requirement
	BTP-GUC-290959-2-Mobile Phone Initiated Disconnect (Key Off / No Driver Door Open) - Active Call(s) present at the end of the Delayed Accessory ModeTimer; Connected Phone Disconnects Prior to Expiration of Extended Phone Mode Timer	rpaquet2 -updated requirement

March 20, 2014	**1.3**	**Updated Release**	
	BTP-FUR-REQ-047510/B-Phone Call Priorities(TcSE ROIN-295110-1)		helzein:BTP-GREQ-295110-1-Phone Call Priorities (Functional) Call priority 3 and 4 were removed from Spec
	BTP-UC-REQ-033735/B-Pairing a phone with no other phone paired via SSP – Discoverable Mode(TcSE ROIN-290831-2)		helzein: BTP-GUC-290831: Added exception E16
	BTP-FUR-REQ-033809/B-Automatic Connection(TcSE ROIN-295041-2)		helzein: Removed reference to linkloss
	BTP-FUR-REQ-033847/B-Call History Requirements(TcSE ROIN-295093-1)		helzein: BTP-GREQ-295093: Call history and phonebook download order
	BTP-UC-REQ-041703/B-Disconnect Initiated via Linkloss (No Door Open)(TcSE ROIN-290962-1)		helzein: change reference from mobile device to Bluetooth device
	BTP-FUR-REQ-041713/B-Linkloss No Door Open Signal(TcSE ROIN-295101-1)		helzein: Added a time limit to when the re-connection should be attempted
	BTP-REQ-047951/B-Hands-free Performance - Configuration and Tuning(TcSE ROIN-304503-1)		
	BTP-REQ-047953/B-Hands-free Performance - General System Requirement(TcSE ROIN-304501-1)		helzein: BTP-GREQ-304501-1-Hands-free Performance: Supplier tuning the APIM phone audio quality taking in consideration the AHU tuning
	BTP-REQ-047957/B-Hands-free Testing Tools(TcSE ROIN-304506-1)		helzein: Changed the BT requirement for phone audio quality for diagnostic
August 13, 2014	**1.4**	**Updated Release**	
	BTP-FUR-REQ-033864/B-Outgoing Call Methods (TcSE ROIN-295048-2)		helzein: Added voice redial for global market coverage
	BTP-FUR-REQ-041834/B-Enabling Privacy (TcSE ROIN-295070-1)		helzein: Provide options of what the audio source status state will be during privacy. Global market specific
	BTP-UC-REQ-033818/B-Phonebook Download (TcSE ROIN-290886-2)		helzein: update by adding an address to the phonebook
	STR-090214/B-Requirements (TcSE ROIN-294319-1)		RPAQUET2-added new requirement
	BTP-FUR-REQ-033841/B-Contact Characteristics / Data (TcSE ROIN-295087-1)		helzein: updated contact characteristics to include address
	BTP-FUR-REQ-033846/B-Phonebook Display Requirements (TcSE ROIN-295092-2)		helzein: update phonebook order display requirement for global market
	BTP-FUR-REQ-093327/A-Phonebook Sorting by Market		New Requirements
	BTP-FUR-REQ-041769/B-View (TcSE ROIN-295134-2)		helzein: Cover the HMI viewing of empty text messages
	BTP-FUR-REQ-041712/B-Linkloss Door Open Signal (TcSE ROIN-295100-1)		helzein: Linkloss strategy for global market with door open
	BTP-FUR-REQ-041713/C-Linkloss No Door Open Signal (TcSE ROIN-295101-1)		helzein: Update linkloss strategy to cover global market
October 20, 2014	**1.5**	**Updated Release**	
	BTP-FUN-REQ-047922/B-Bluetooth Core (TcSE ROIN-303964-1)		rpaquet2 - Added new requirement 097661 to function
	STR-100418/B-Requirements (TcSE ROIN-303966-1)		rpaquet2 - Added new requirement 097661 to function
	BTP-FUR-REQ-097661/A-In Vehicle Infotainment System Name		helzein: Name Infotainment System
January 8, 2015	**1.6**	**Updated Release**	
	BTP-FUR-REQ-047505/B-Signal Strength (TcSE ROIN-295105-2)		ldoellin - updated wording
	BTP-FUR-REQ-047507/B-Battery Level (TcSE ROIN-295107-2)		ldoellin - updated battery strength value to 0
	BTP-FUR-REQ-047508/B-Advanced Error Correction (TcSE ROIN-295108-2)		ldoellin - updated wording
	STR-085356/B-General Requirements (TcSE ROIN-149496-1)		ldoellin - added REQ 113745/A
	BTP-FUR-REQ-113745/A-Device specific settings		ldoellin - Added new requirement
	STR-090208/B-Use Cases (TcSE ROIN-294306-1)		ldoellin - updated UC-REQ-033759
	BTP-UC-REQ-033759/B-Pairing a phone with other phone(s) paired via non SSP – Discoverable Mode (TcSE ROIN-290851-2)		ldoellin - updated scenario description
	STR-090209/B-Requirements (TcSE ROIN-294307-1)		ldoellin - updated requirement
	BTP-FUR-REQ-033773/B-Secure Simple Pairing (TcSE ROIN-295148-2)		ldoellin - updated detection method
	BTP-FUR-REQ-033774/B-Legacy Pairing (TcSE ROIN-295149-1)		ldoellin - updated detection method
	BTP-FUR-REQ-033776/B-Discovery Mode (Find		ldoellin - updated IVIS broadcast name

Devices) (TcSE ROIN-295151-2)	
BTP-FUR-REQ-033777/B-Discoverable Mode (Find In-Vehicle Infotainment System) (TcSE ROIN-295152-2)	ldoellin - updated IVIS broadcast name
BTP-FUR-REQ-033781/B-Device Display Requirements (TcSE ROIN-295156-1)	ldoellin - deleted opportunity to show separate device lists for Phone and Media
BTP-FUR-REQ-033782/B-Connection Order and Requirements (TcSE ROIN-295157-2)	ldoellin - updated connection strategy
BTP-FUN-REQ-033790/B-Connecting a Paired Phone (TcSE ROIN-294311-1)	ldoellin -added Connection method requirement
BTP-UC-REQ-033791/B-Connecting to a previously paired phone upon resume (No Active Call) (TcSE ROIN-290867-1)	ldoellin - added A2DP connection
BTP-UC-REQ-033798/B-Connecting to a previously paired phone upon resume (Active Call) (TcSE ROIN-290874-1)	ldoellin - added A2DP connection
BTP-UC-REQ-033800/B-Connecting to a previously paired phone w/phone connected (No Active Call) (TcSE ROIN-290876-1)	ldoellin - updated post condition
BTP-UC-REQ-033802/B-Connecting to a previously paired phone w/phone connected (Active Call) (TcSE ROIN-290878-1)	ldoellin - updated post condition
BTP-UC-REQ-033803/B-Connecting to a previously paired phone via phone (No Active Call) (TcSE ROIN-290879-1)	ldoellin - updated post condition
BTP-UC-REQ-033804/B-Connecting to a previously paired phone via phone (Active Call) (TcSE ROIN-290880-1)	ldoellin - updated post condition
BTP-UC-REQ-033805/B-Incoming Connection Received from a previously paired phone , while already connected to another previously paired phone (TcSE ROIN-290881-1)	ldoellin - added A2DP connection
BTP-FUR-REQ-033808/B-Connection (TcSE ROIN-295040-1)	ldoellin - updated connection strategy
BTP-FUR-REQ-113744/A-Connection method	ldoellin - added new requirement
BTP-FUN-REQ-033813/B-Connecting a Paired Audio Device (TcSE ROIN-294314-1)	ldoellin - added UC-REQ 113756/A, FUR-REQ-113744, FUR-REQ-116805
BTP-FUR-REQ-116805/A-Bluetooth Audio Volume Set	ldoellin - added new requirement
BTP-UC-REQ-033814/B-Connecting an Audio Player Upon Resume (TcSE ROIN-290883-1)	ldoellin: updated post condition
BTP-UC-REQ-033815/B-Connecting an Audio Player (TcSE ROIN-290884-1)	ldoellin - added A2DP connection
BTP-UC-REQ-033816/B-Connecting an Audio Player w/Audio Player Already Connected (TcSE ROIN-290885-1)	ldoellin - updated wording
BTP-UC-REQ-033859/B-The mobile phone does not provide the In-Vehicle Infotainment System with the appropriate call set up information (TcSE ROIN-292571-1)	ldoellin - typo correction in title
BTP-SD-REQ-030722/B-Initiate a Phone Call from Browse (TcSE ROIN-159083-2)	ldoellin - updated wording in Normal Usage
BTP-SD-REQ-030721/B-Browse Phone (TcSE ROIN-149541-1)	ldoellin - updated SCN 085456
STR-098986/B-Use Cases (TcSE ROIN-294446-1)	ldoellin - updated UC-REQ041743 and 041744
BTP-UC-REQ-041743/B-Messaging Reply to Sender (TcSE ROIN-290976-1)	ldoellin - deleted the option to forward a message
BTP-UC-REQ-041744/B-Sending a Message Failed (TcSE ROIN-290977-1)	ldoellin - deleted replying or sending a message
BTP-UC-REQ-041744/C-Sending a Message Failed (TcSE ROIN-290977-1)	ldoellin - deleted the option to forward or to send a message
STR-098987/B-Requirements (TcSE ROIN-294447-1)	ldoellin - deleted 41781/41773/41772, updated 41769 and 41767
BTP-FUR-REQ-041767/B-Listen HMI (TcSE ROIN-295132-1)	ldoellin - deleted the option to forward a message
BTP-FUR-REQ-041779/B-Canned Text Message List (TcSE ROIN-295145-1)	ldoellin - updated requirement to consider regional aspects
BTP-FUR-REQ-041785/B-Message Download Failed (TcSE ROIN-304256-1)	ldoellin - updated wording
STR-098985/B-Requirements (TcSE ROIN-294334-1)	ldoellin - updated REQ 041728 and 041729
BTP-FUR-REQ-041728/B-Phone Voice Recognition Activation (TcSE ROIN-295112-1)	ldoellin - added consideration of SCO channel
BTP-FUR-REQ-041729/B-Apple Siri Eyes-Free (TcSE	ldoellin - updated requirement to consider SIRI capable devices

	ROIN-295113-2)		
	BTP-FUR-REQ-041729/C-Apple Siri Eyes-Free (TcSE ROIN-295113-2)		ldoellin - added consideration of SCO channel
	BTP-REQ-047926/B-Minimum Profile Specific Requirements (TcSE ROIN-297121-1)		ldoellin - added "EVENT_PLAYER_APPLICATION_SETTING_CHANGED"
	BTP-REQ-047927/B-HCI Logging (TcSE ROIN-297122-1)		ldoellin - updated requirement
	BTP-REQ-047928/B-Logging HCI Data upon Connection/Initialization (TcSE ROIN-297123-1)		ldoellin - updated requirement
	BTP-REQ-047929/B-Logging the HCI Data after Connection to Phone (TcSE ROIN-297124-1)		ldoellin - updated requirement
	BTP-REQ-047931/B-HCI Logging Requirements (TcSE ROIN-297127-1)		ldoellin - updated requirement
	BTP-REQ-047933/B-Writing HCI Data upon Suspend (TcSE ROIN-297130-2)		ldoellin - updated requirement
	BTP-REQ-047934/B-HCI Writing upon Trigger Sequence (TcSE ROIN-297131-2)		ldoellin - updated requirement
	BTP-REQ-047935/B-HCI Writing upon Disconnection of Phone (TcSE ROIN-297132-2)		ldoellin - updated requirement
	BTP-FUR-REQ-114652/A-Bluetooth Text Logging and details		ldoellin - Added new requirement
	BTP-FUR-REQ-047970/B-HCI Logging Initialization - Logging HCI Data upon Connection/Initialization (TcSE ROIN-304531-1)		ldoellin - updated requirement
	BTP-FUR-REQ-047971/B-HCI Logging Initialization - Logging the HCI Data after Connection to Phone (TcSE ROIN-304532-1)		ldoellin - updated requirement
	BTP-FUR-REQ-047972/B-HCI Logging Initialization - HCI Logging Buffer Mechanism (TcSE ROIN-304533-1)		ldoellin - added option to configure buffer size
February 25, 2015	**1.7**	**Updated Release**	
	BTP-FUR-REQ-047505/C-Signal Strength (TcSE ROIN-295105-2)		ldoellin - updated requirement with service indication
	BTP-FUR-REQ-047509/B-AG Device Storage (TcSE ROIN-295109-2)		ldoellin - deleted SyncML from requirement
	BTP-FUR-REQ-113745/B-Device specific settings		ldoellin - added Phone Volume Adjustment
	STR-100020/B-Functional Definition (TcSE ROIN-294430-2)		ldoellin - deleted REQ 041717 PAN
	BTP-UC-REQ-033762/B-Pairing a phone with other device(s) connected (TcSE ROIN-290854-1)		ldoellin - updated requirement
	BTP-UC-REQ-033763/B-Pairing a phone with other device(s) connected and Pairing / Connecting Not Successful (TcSE ROIN-290855-2)		ldoellin - updated requirement
	BTP-UC-REQ-033764/B-Pairing an Audio Device via SSP with no other Device(s) paired – Discoverable Mode (TcSE ROIN-290856-1)		ldoellin - updated title
	BTP-UC-REQ-033765/B-Pairing an Audio Device via SSP with other Device(s) connected – Discoverable Mode (TcSE ROIN-290859-1)		ldoellin - updated requirement
	BTP-UC-REQ-033766/B-Pairing an Audio Device via SSP with no other Device(s) paired – Discovery Mode (TcSE ROIN-290860-1)		ldoellin - updated title
	BTP-UC-REQ-033767/B-Pairing an Audio Device via SSP with other Device(s) connected – Discovery Mode (TcSE ROIN-290861-1)		ldoellin - updated requirement
	BTP-UC-REQ-033768/B-Pairing an Audio Device via non-SSP with no other Device(s) paired– Discoverable Mode (TcSE ROIN-290862-1)		ldoellin - updated title
	BTP-UC-REQ-033769/B-Pairing an Audio Device via non-SSP with other Device(s) connected – Discoverable Mode (TcSE ROIN-290863-1)		ldoellin - updated requirement
	BTP-UC-REQ-033770/B-Pairing an Audio Device via non-SSP with no other Device(s) paired – Discovery Mode (TcSE ROIN-290864-1)		ldoellin - updated title
	BTP-UC-REQ-033771/B-Pairing an Audio Device via non-SSP with other Device(s) connected – Discovery Mode (TcSE ROIN-290865-1)		ldoellin - updated requirement
	BTP-UC-REQ-033772/B-Pairing an Audio Device with other Device(s) paired – Discoverable / Discoverable Mode (TcSE ROIN-290866-1)		ldoellin - updated requirement

BTP-UC-REQ-130387/A-Pairing a phone via iAP with no other Device(s) paired	ldoellin - added UC
BTP-UC-REQ-130392/A-Pairing a phone via iAP with other Device(s) paired	ldoellin - added UC
BTP-UC-REQ-130395/A-Pairing a phone via iAP with other Device(s) connected via Bluetooth	ldoellin - added UC
BTP-UC-REQ-130393/A-Customer disconnect device prior to completing the pairing	ldoellin - added UC
BTP-UC-REQ-130394/A-Customer declined iAP Pairing with the same device previously	ldoellin - added UC
BTP-FUR-REQ-033779/B-Pairing Process (TcSE ROIN-295154-2)	ldoellin - Updated requirement
BTP-FUR-REQ-033780/B-Service Discovery (TcSE ROIN-295155-2)	ldoellin - deleted PAN
BTP-FUR-REQ-033782/C-Connection Order and Requirements (TcSE ROIN-295157-2)	ldoellin - updated time out for sourcing BTAudio
BTP-FUR-REQ-033783/B-Profile Connection Order (TcSE ROIN-295158-2)	ldoellin - updated order, deleted PAN
BTP-FUR-REQ-033785/B-Delete Device (TcSE ROIN-295160-1)	ldoellin - updated requirement
BTP-FUR-REQ-033786/B-Secure Simple Pairing Debug Mode (TcSE ROIN-295161-1)	ldoellin - updated requirement
BTP-FUR-REQ-033787/B-Link Key Extraction (TcSE ROIN-295162-1)	ldoellin - updated requirement
BTP-FUR-REQ-033788/B-Bluetooth Trace Extraction (TcSE ROIN-295163-1)	ldoellin - updated requirement
STR-090210/C-Use Cases (TcSE ROIN-294312-1)	ldoellin - deleted UC033797 Internet Connection via PAN failed
BTP-UC-REQ-033791/C-Connecting to a previously paired phone upon resume (No Active Call) (TcSE ROIN-290867-1)	ldoellin - deleted PAN from Post Condition
BTP-UC-REQ-033798/C-Connecting to a previously paired phone upon resume (Active Call) (TcSE ROIN-290874-1)	ldoellin - deleted PAN from Post Condition
BTP-UC-REQ-033800/C-Connecting to a previously paired phone w/phone connected (No Active Call) (TcSE ROIN-290876-1)	ldoellin - deleted PAN from Post Condition
BTP-UC-REQ-033802/C-Connecting to a previously paired phone w/phone connected (Active Call) (TcSE ROIN-290878-1)	ldoellin - deleted PAN from Post Condition
BTP-UC-REQ-033803/C-Connecting to a previously paired phone via phone (No Active Call) (TcSE ROIN-290879-1)	ldoellin - deleted PAN from Post Condition
BTP-UC-REQ-033804/C-Connecting to a previously paired phone via phone (Active Call) (TcSE ROIN-290880-1)	ldoellin - deleted PAN from Post Condition
BTP-FUR-REQ-113744/B-Connection method	ldoellin - updated requirement
STR-194971/B-Requirements	ldoellin - added REQ-13113 iAp2 via BT
BTP-FUR-REQ-131123/A-iAP2 via Bluetooth	ldoellin - added requirement
STR-090212/C-Use Cases (TcSE ROIN-294315-1)	ldoellin - added UC-REQ 131104
BTP-UC-REQ-033814/C-Connecting an Audio Player Upon Resume (TcSE ROIN-290883-1)	ldoellin - updated post condition
BTP-UC-REQ-131104/A-Another BTAudio Device is connected after resume	ldoellin - new requirement
STR-098990/B-Requirements (TcSE ROIN-294450-1)	ldoellin - deleted REQ 041825, added REQ 130713 and REQ 130714
BTP-FUR-REQ-130713/A-Hold Call	ldoellin - Added new requirement
STR-098991/B-Sequence Diagrams (TcSE ROIN-294455-1)	ldoellin - deleted SD-REQ 030707 Hold Call
BTP-FUR-REQ-033833/B-PBAP Requirements and Characteristics (TcSE ROIN-295079-1)	ldoellin - updated requirement
BTP-FUR-REQ-033834/B-Auto Phonebook Download (TcSE ROIN-295080-1)	ldoellin - deleted SyncML from requirement
BTP-FUR-REQ-033838/B-Phonebook Download Strategy (TcSE ROIN-295084-1)	ldoellin - deleted SyncML from requirement
BTP-FUR-REQ-033841/C-Contact Characteristics / Data (TcSE ROIN-295087-1)	ldoellin - updated requirement with merging strategy
BTP-FUR-REQ-033845/B-Phonebook Storage Management (TcSE ROIN-295091-1)	ldoellin - updated requirement
BTP-FUR-REQ-033847/C-Call History Requirements (TcSE ROIN-295093-1)	ldoellin - updated requirement

	BTP-FUR-REQ-033850/B-Phonebook/Call History Download Errors and Status Definitions (TcSE ROIN-304252-1)		ldoellin - updated value for timeouts
	BTP-FUR-REQ-093327/B-Phonebook Sorting by Market		ldoellin - updated requirement
	BTP-FUR-REQ-041770/B-Reply (TcSE ROIN-295135-3)		ldoellin - updated requirement
	BTP-FUR-REQ-041771/B-Call (TcSE ROIN-295136-2)		ldoellin - updated requirement
	STR-098985/C-Requirements (TcSE ROIN-294334-1)		ldoellin - added REQ-131053
	BTP-FUR-REQ-041728/C-Phone Voice Recognition Activation (TcSE ROIN-295112-1)		ldoellin - updated requirement
	BTP-FUR-REQ-041729/D-Apple Siri Eyes-Free (TcSE ROIN-295113-2)		ldoellin - updated requirement
	BTP-FUR-REQ-131053/A-Google Hands-Free Advanced		ldoellin - added new requirement
	BTP-FUR-REQ-041730/B-Device ID Profile (TcSE ROIN-304263-1)		ldoellin - updated vendor ID
	REQ-050336/B-Phone Number Matching Tables - Part 1		ldoellin - updated with China Region
	BTP-REQ-047924/B-Bluetooth Core Requirements (TcSE ROIN-297118-1)		ldoellin - updated REQ to BT Core 4.1
	BTP-REQ-047925/B-Bluetooth Profile Requirements (TcSE ROIN-297120-1)		ldoellin - deleted PAN
	BTP-REQ-047926/C-Minimum Profile Specific Requirements (TcSE ROIN-297121-1)		ldoellin - deleted SyncML and PAN, added BT Core 4.1, iAP and iAP2
	BTP-REQ-047927/C-HCI Logging (TcSE ROIN-297122-1)		ldoellin - updated requirement
	BTP-FUR-REQ-114652/B-Bluetooth Text Logging and details		ldoellin - updated requirement
March 4, 2015	**1.8**	**Updated Release**	
	BTP-FUR-REQ-113745/C-Device specific settings		ldoellin - updated Text Messaging
	BTP-FUR-REQ-130714/B-Phone Volume Adjustment		ldoellin - updated requirement
	STR-098987/C-Requirements (TcSE ROIN-294447-1)		ldoellin - added REQ-133777
	BTP-FUR-REQ-133777/A-Text Messaging Availability		ldoellin - new requirement
	BTP-FUR-REQ-033871/B-Do Not Disturb (TcSE ROIN-295096-2)		ldoellin - updated requirement
	BTP-FUR-REQ-041730/C-Device ID Profile (TcSE ROIN-304263-1)		ldoellin - updated version number
April 24, 2015	**1.9**	**Updated Release**	
	BTP-UC-REQ-130387/B-Pairing a phone via iAP with no other Device(s) paired		ldoellin - updated requirement
	BTP-UC-REQ-130392/B-Pairing a phone via iAP with other Device(s) paired		ldoellin - updated requirement
	BTP-UC-REQ-130395/B-Pairing a phone via iAP with other Device(s) connected via Bluetooth		ldoellin - updated requirement
	BTP-UC-REQ-130393/B-Customer disconnect device prior to completing the pairing		ldoellin - updated requirement
	BTP-UC-REQ-130394/B-Customer declined iAP Pairing with the same device previously		ldoellin - updated requirement
	BTP-FUR-REQ-033778/B-Pairing via Dock Connector Requirements (TcSE ROIN-295153-2)		ldoellin - updated requirement
	BTP-FUR-REQ-033782/D-Connection Order and Requirements (TcSE ROIN-295157-2)		ldoellin - updated requirement
	BTP-UC-REQ-033800/D-Connecting to a previously paired phone w/phone connected (No Active Call) (TcSE ROIN-290876-1)		ldoellin - updated requirement
	BTP-UC-REQ-033806/B-Changing the Primary Device (TcSE ROIN-290882-1)		ldoellin - updated requirement
	BTP-FUR-REQ-033808/C-Connection (TcSE ROIN-295040-1)		ldoellin - updated requirement
	BTP-FUR-REQ-113744/C-Connection method		ldoellin - updated requirement
	BTP-UC-REQ-033816/C-Connecting an Audio Player w/Audio Player Already Connected (TcSE ROIN-290885-1)		ldoellin - updated requirement
	BTP-UC-REQ-113756/B-Connecting an Audio Player w/Phone Already Connected		ldoellin - updated requirement
	BTP-UC-REQ-033852/B-Outgoing Call to Phonebook Contact (TcSE ROIN-290897-1)		ldoellin - added exception use case
	BTP-FUR-REQ-041834/C-Enabling Privacy (TcSE ROIN-295070-1)		ldoellin - updated reference to device specific settings
	BTP-FUR-REQ-130714/B-Phone Volume Adjustment		ldoellin - updated requirement

	STR-090213/B-Use Cases (TcSE ROIN-294318-1)	ldoellin - added UC 153575 Phonebook empty
	BTP-UC-REQ-033818/C-Phonebook Download (TcSE ROIN-290886-2)	ldoellin - added exception use case
	BTP-UC-REQ-153575/A-Phonebook is empty	ldoellin - new use case
	STR-090214/C-Requirements (TcSE ROIN-294319-1)	ldoellin - added 153579
	BTP-FUR-REQ-033829/B-Phonebook Download Availability (TcSE ROIN-295075-1)	ldoellin - updated requirement
	BTP-FUR-REQ-153579/A-Requirements for Handling of Phonebook and Call History Feature in VUI/GUI	ldoellin - new requirement
	BTP-UC-REQ-041743/C-Messaging Reply to Sender (TcSE ROIN-290976-1)	ldoellin - updated Pre-Condition
	BTP-FUR-REQ-041760/B-UI Notification (TcSE ROIN-295125-2)	ldoellin - updated requirement
	BTP-FUR-REQ-041761/B-Audible Notification (TcSE ROIN-295126-2)	ldoellin - updated requirement
	BTP-FUR-REQ-041770/C-Reply (TcSE ROIN-295135-3)	ldoellin - updated requirement
	BTP-FUR-REQ-041777/B-Canned Messages Requirements (TcSE ROIN-295142-1)	ldoellin - requirement updated
	BTP-FUR-REQ-041786/B-Sending Message Failed (TcSE ROIN-304257-1)	ldoellin - updated time out value
	BTP-FUR-REQ-133777/B-Text Messaging Availability	ldoellin - updated requirement
	BTP-FUR-REQ-146186/A-Requirements for Handling of Messaging Feature in VUI/GUI	ldoellin - new requirement
	BTP-FUR-REQ-033871/B-Do Not Disturb (TcSE ROIN-295096-2)	ldoellin - updated requirement
	BTP-REQ-047955/B-Hands-free Testing Requirements - Far End Audio Quality Testing - CETP-L-4065 Hands Free Phone System Performance Test Procedure (TcSE ROIN-304504-1)	ldoellin - referring to correct requirement CETP-L-4065

Table of Contents

1 Architectural Design

1.1 BTP-CLD-REQ-047496/A-BT Phone Server (TcSE ROIN-295164)

Responsibility: The BT Phone Server is responsible for requesting audio resources when there is an incoming call, as well as releasing the audio sources when the call is finished. It also controls and receives status information from the BT Phone component, and provides this status to the BT Phone Client.

The BT Phone Server shall also provide all list browse information to the BT Phone Client upon request from the Client, and act upon selections that the user makes to these List browse selections.

1.1.1 Requirements

1.1.1.1 BTP-SR-REQ-030680/A-InitiateBTCall.Rsp - Audio Resources (TcSE ROIN-150824-1)

If audio resources cannot be requested successfully during an InitiateBTCall.Rq, CES 0x1X "Final Result - Failure" shall be returned, and the dial request shall not be forwarded to the BT Phone.

1.1.1.2 BTP-SR-REQ-030681/A-InitiateBTCall.Rsp - Invalid number from Request signal (TcSE ROIN-150825-1)

If the selected number is not valid (too short, too long or invalid character) the result code "0x7 Final Result Failure, invalid number" shall be returned to the BT Phone Client.

1.1.1.3 BTP-SR-REQ-030682/A-InitiateBTCall.Rsp - Successful Connection to BT Phone (TcSE ROIN-150826-1)

The Result code of "0x1 Final Result - Success" shall be sent to the BT Phone Client if a connection has been established with the requested call.

1.1.1.4 BTP-SR-REQ-030683/A-InitiateBTCall.Rsp - No network connection (TcSE ROIN-150827-1)

If the Bluetooth phone failed to create a connection because there is no network, the result code "0x4 Final Result-Failure, No Service" shall be returned to the BT Phone Client.

1.1.1.5 BTP-SR-REQ-030684/A-InitiateBTCall.Rsp - Network Error (TcSE ROIN-150828-1)

If the Bluetooth phone failed to create a connection because there is a network error, the result code "0x6 Final Result-Failure, Network Error" shall be returned to the BT Phone Client.

1.1.1.6 BTP-SR-REQ-030685/A-InitiateBTCall.Rsp - Feature not Supported (TcSE ROIN-150829-1)

If the Bluetooth phone does not support the feature (redial or dial a number), the result code "0x5 Final Result-Failure, Feature not Supported" shall be returned to the BT Phone Client.

1.1.1.7 BTP-SR-REQ-030686/A-InitiateBTCall.Rsp - Other Failures (TcSE ROIN-150830-1)

If the BT phone fails to make connection for any other reason not previously specified, the result code "0x2 Final Result-Failure" shall be returned to the BT Phone Client.

1.1.1.8 BTP-SR-REQ-030687/A-BTCallerIdentification.St - Second Incoming Call - CLID available (TcSE ROIN-150831-2)

If there is a second incoming call and the caller id is available, the Validity parameter shall be set to "0x1 CLID Second Incoming Call".

1.1.1.9 BTP-SR-REQ-030688/A-BTCallerIdentification.St - Second Incoming Call - CLID not available (TcSE ROIN-159116-2)

If there is a second incoming call and the caller id is not available, the Validity parameter shall be set to "0x4 CLID Incoming Not available".

1.1.1.10 BTP-SR-REQ-030689/A-BTCallerIdentification.St - Not support Characters (TcSE ROIN-159117-1)

If the characters stored in the address book are not supported by the system, the character will be replaced with an asterisk (*).

1.1.1.11 BTP-SR-REQ-030690/A-BTCallerIdentification.St - Ongoing Call (TcSE ROIN-159118-1)

If the phone is connected with an already ongoing call, the CLID should be reported with the Validity parameter set to "0x0 CLID Incoming Available".

1.1.1.12 BTP-SR-REQ-030691/A-BTCallerIdentification.St- Incoming text message from Email Address (TcSE ROIN-166939-1)

If there is an incoming Text message that has been sent by an email address, the Validity parameter shall be set to "0x5: CLID Incoming SMS Not available" by the BT Phone Server.

1.1.1.13 BTP-SR-REQ-030692/A-NewSMS.St while Do Not Disturb is active (TcSE ROIN-185288-1)

If Do Not Disturb is set to ON, and a new text message is received on the phone, the BT Phone Server shall set the NewSMS.St status message to Unread SMS messages available ($3).

1.1.1.14 BTP-SR-REQ-030693/A-NewSMS.St = New SMS Available (TcSE ROIN-185289-1)

The BT Phone Server shall set the NewSMS.St status message to New SMS Available ($1) only if an incoming text message is received by the server after the phone has been connected, and while there is not an active phone call. If a text message is received in any other phone states, NewSMS.St shall be set to Unread SMS Messages Available ($3).

1.1.1.15 BTP-FUR-REQ-047497/A-Noise Suppression and Noise Recognition Activation / Deactivation (TcSE ROIN-295045-1)

In-Vehicle Infotainment System shall send NREC to the connected AG upon each connection. In the based on the connected AG's response In-Vehicle Infotainment System shall take the following action:

Initial AG NREC Response	In-Vehicle Infotainment System Noise Suppression and Echo Cancellation Algorithm
OK	Active
Error	Inactive
No Response	Inactive

1.1.1.16 BTP-FUR-REQ-047498/A-Displaying Call Metadata (TcSE ROIN-295052-1)

The phone application shall display the phone number for any initiated or incoming call (active or held), or if available, the phonebook information (including name, phone number type, photo, etc.) associated with the call.

1.1.1.17 BTP-FUR-REQ-047499/B-Phonebook Matching (TcSE ROIN-295053-2)

In-Vehicle Infotainment System shall try to match a call number to a contact within the phonebook.

This matching procedure shall not be used for calls for which the matching is immediately clear, like calls initiated from Sync using the available phonebook (via G-HMI or V-HMI).
This matching procedure shall be used for cases like calls dialed by entering digits (via keypad or voice) or incoming calls, for which the matching is not immediately clear.

To determine whether the call number matches a phonebook entry, the following rules shall be followed:

General rules:

1. The In-Vehicle Infotainment System shall compare the digits from right to left, between the call number and the available phonebook entries.

2. The In-Vehicle Infotainment System shall ignore in the comparison any character that is not "0 to 9, *, #".

3. If one of the numbers which are compared contains 6 or less digits, then the numbers match only if they are exactly the same.

Additional rules for 7 digits or more:

1. If the number contains 7 digits or more, then start also from the right.
2. If the part that matches is 6 or less digits, then the numbers do no match. Otherwise consider the following rules.
3. If the first unmatch digit is a trunk code and it is in the shorter number, ignore this and proceed with comparison. If there is another unmatch digit the number is not matching. Trunk prefix numbers are 0, 1, 6 and 8.
4. If a number is shorter than the other and the longer number contains the shorter one completely (starting from the right…) then you have a match.
5. If none of the above applies then you do not have a match

1.1.1.18 BTP-FUR-REQ-047500/A-Phonebook Matching Proposal Evaluation (TcSE ROIN-295054-1)

Supplier shall provide additional options to achieve the phonebook matching as described in the Phonebook Matching Requirement. Ford shall have the option of choosing the method described in the Phonebook Matching Requirement or the options provided by supplier.

1.1.1.19 BTP-FUR-REQ-047501/A-Call History Matching (TcSE ROIN-295055-1)

The phone application shall also match the contents downloaded within the Call History to the phonebook entries. When a match is identified, In-Vehicle Infotainment System shall display the name and phone number type of the Call History entry.

1.1.1.20 BTP-FUR-REQ-047502/A-eSCO Requirements (TcSE ROIN-295046-1)

When connected to an AG that includes support for Wideband Speech, the In-Vehicle Infotainment System shall use Wideband Speech as the default audio solution. The In-Vehicle Infotainment System shall revert to legacy eSCO or SCO in the event an error is detected with the use of Wideband Speech.

The phone application shall ignore SCO requests from a connected phone when those requests are not associated with any IN-VEHICLE INFOTAINMENT SYSTEM phone related feature. For example:
The In-Vehicle Infotainment System and a Motorola Barrage are connected. The user of the Motorola Barrage decides to send a text message from the connected phones' menu. When doing this, the phone requests SCO to pass the tone of the button presses to the connected HF, in this case The In-Vehicle Infotainment System. When events like this occur, the phone application shall not take primary audio source.

*Note: The phone application shall take into account that the connected device may request SCO prior to indicating a IN-VEHICLE INFOTAINMENT SYSTEM supported phone related feature.

1.1.1.21 BTP-FUR-REQ-047503/A-eSCO Error Requirements (TcSE ROIN-295047-1)

If the in-vehicle infotainment system can not allocate eSCO / SCO audio due to an internal or vehicle system issue, the in-vehicle infotainment system shall route the eSCO/SCO audio to the handset and display a notification to the end user.

1.1.1.22 BTP-FUR-REQ-047504/B-Ringer Options (TcSE ROIN-295099-2)

In-Vehicle Infotainment System shall support the following ring notification types:

-Pre-Recorded Ringer

-Phone's Ringtone: In-band ringing (if supported by the device). In the event that this option is supported and the connected AG indicates support for this feature, In-Vehicle Infotainment System shall have the ability to recognize when the AG has not sent audio over SCO. When this is recognized, In-Vehicle Infotainment System shall play one of the Pre-Recorded ringers. If the connected phone supports in-band ringing, this feature shall be the default until the user has opted to change it. If the phone does not support in-band ringing then the default ringtone shall be the first pre-recorded ringtone.

-Silent: This option shall not interrupt the current Primary Audio Source (PAS) unless the PAS Bluetooth audio and the SOURCE is also the AG. In this case, the ring notification shall interrupt the current PAS.

1.1.1.23 BTP-FUR-REQ-047505/C-Signal Strength (TcSE ROIN-295105-2)

This feature shall only be present when there is a connected AG, and that AG provides Signal Strength information to In-Vehicle Infotainment System. The Signal Indicator shall include a total of 5 bars. No cellular signal shall be defined as a '0' value.
To verify the correct signal strength indication the service indicator shall be considered as well. If the device is communicating “no service availability” by value 0 the signal strength indication shall show 0 bars.

If the system is unable to obtain the signal strength from the connected phone the information shall not be displayed.

1.1.1.24 BTP-FUR-REQ-047506/A-Roaming Report (TcSE ROIN-295106-1)

This feature shall only be present when there is a connected AG, and that AG provides Roaming information to In-Vehicle Infotainment System. If the connected AG is Roaming, and the user attempts to place a call, then In-Vehicle Infotainment System shall inform the user that their phone is reporting that it is roaming and ask them if they would still like to complete this call. The alert, should have an option to turn this feature on/off. This feature shall be defaulted ‘ON’.

1.1.1.25 BTP-FUR-REQ-047507/B-Battery Level (TcSE ROIN-295107-2)

This feature shall only be present when there is a connected AG, and that AG provides Battery Strength information to In-Vehicle Infotainment System. In-Vehicle Infotainment System's battery strength indicator shall include a total of 6 states, with 0 representing no battery strength (i.e. the lowest possible response from the connected AG) and 5 representing full battery strength (i.e. the highest possible response from the connected AG).

The in-vehicle infotainment system shall determine that the AG's battery is low when the connected AG reports battery strength of value 0.

1.1.1.26 BTP-FUR-REQ-047508/B-Advanced Error Correction (TcSE ROIN-295108-2)

The intent of this feature is for In-Vehicle Infotainment System to determine when a phone has reached an uncorrectable error state within a single connection. Upon detection of this feature The In-Vehicle Infotainment System shall modify its' behavior to increase functionality for the end user. The entrance criteria for this state shall be as follows:

- While in a single party or joined call, In-Vehicle Infotainment System attempts to end the call, and the connected AG does not end the call within 5 seconds with a call status equal to 0 the In-Vehicle Infotainment System shall attempt to end the call again. If the second attempt fails, the In-Vehicle Infotainment System shall provide an alert that the connected AG has not responded to the In-Vehicle Infotainment System per the requirements provided in H28a Phone HMI. The In-Vehicle Infotainment System shall return the audio source to the audio source prior to phone call.

-In the event In-Vehicle Infotainment System does not receive a response to the following commands at initial HFP set up within 10 seconds:

-AT+BRSF=X
-AT+CIND?
-AT+CHLD=?

The In-Vehicle Infotainment System shall send the message that failed to get a response again. The In-Vehicle Infotainment System shall repeat this process a total of 3 times. If each attempt results in a failed response, the In-Vehicle Infotainment System shall automatically disconnect HFP from the connected device. After a successful HFP disconnect, the In-Vehicle Infotainment System shall initiate a new HFP connection to the recently disconnected device. In the event that a HFP reconnection does not prompt the device to respond to the specific AT command, the In-Vehicle Infotainment System shall determine that an HFP connection could not be established and alert the customer of an error with their device per the requirements provided in H28a HMI, Alert ID 1002.

1.1.1.27 BTP-FUR-REQ-047509/B-AG Device Storage (TcSE ROIN-295109-2)

In-Vehicle Infotainment System shall store the following information for each AG that has been previously paired (provided the device has not been deleted or the module has not been reset by the user):

-Manufacturer
-Phone Name (make / model)
-All Bluetooth Profiles Supported (HFP 1.5, A2DP 1.x, etc.) *Based on SDP.
-BRSF Value
-CHLD Capabilities
-CIEV Responses
-Phonebook Download Support (AT Commands, PBAP, etc.)
-Text Messaging Capabilities (via GSM Spec.)
-In-Band Ringing Support
-Caller ID Support
-Available Codec (if A2DP is supported)
-Any previous error codes that the AG has experienced.

The In-Vehicle Infotainment System shall retrieve relevant information from Device ID Profile to store some of the information above.

This information shall be exported via a .txt file when a fast devlog has been taken.

1.1.1.28 BTP-FUR-REQ-047510/B-Phone Call Priorities (TcSE ROIN-295110-1)

There are a total of 2 phone call types that the phone application can initiate.
These types are:

Priority 1: Highest Priority, used for Emergency Calls (i.e. e911 during a Crash Event, etc.) as defined in A08_E911_Assist Functional Specification.

Priority 2: Medium-High Priority, used for phone calls initiated and/or received by the user (i.e. normal usage)

Priority 1 Calls shall not be interrupted under any circumstances other than those outlined within the latest version of A08_E911_Assist Functional Specification.

Priority 2 Calls shall not be interrupted by any application, but can be interrupted as defined in the latest version of A08_E911_Assist_Functional Specification. The user shall have command and control of priority 2 phone calls as defined within this specification.

Ford Motor Co. shall have the ability to add additional Priority Levels and modify their priority rankings within In-Vehicle Infotainment System.

1.1.1.29 BTP-FUR-REQ-047511/A-Voice / Phone Interaction (TcSE ROIN-295111-2)

If the user initiates a Voice Session while in a phone call, In-Vehicle Infotainment System shall not pass the audio of the voice session to the far end. In-Vehicle Infotainment System shall also mute the caller on the far end while the voice session is

active. Once the voice session is complete, In-Vehicle Infotainment System shall un-mute the caller on the far end, and return to passing audio to the user on the far end.

This section shall only be implemented, if supported by the current voice engine.

1.2 Interface Requirements

1.2.1 BTP-IIR-REQ-030672/A-BT Phone Server Request Signals (TcSE ROIN-149371-2)

Method	Notes	Parameters
AudioRequest.Rq()	Message Type: Request with Response Configuration: All This method is used by Phone Slave to request and release access to the audio system. It is also used to poll the current status of a request (Resource Update). The requester must provide the following information (parameters/signals)	int *OperationType :* Tells if the method call is a request for resource, release of resource or resource update 0x1: RequestAudioResource - request an audio source 0x2: ReleaseAudioResource - release a request (granted or stacked) 0x3: ReleaseALLAudioResources - release all requests. Stack will be emptied, default audio source will NOT be allocated. 0x4: GetResourceUpdate - polls the status of a specific stack entry (specified by Requester System, Requested Source, and Requester Priority) 0x5: GetALLResourceUpdates - used to poll the entire audio stack. All entries will be transmitted using the ResourceUpdate.St attribute. int *RequesterSystem :* tells where a request is sent from. This parameter is used for distinguishing between requests with same audio source and priority but from different nodes. Example: HEC sends request for the Am Fm Radio with Radio as priority. A while later, the rear seat user requests to listen to the radio as well (with headphones unplugged, i.e. with the main loudspeakers). The Audio Client then receives two identical requests except for the requester system, and can thus distinguish between the requests. A general rule is that front requests always have higher priority than rear requests! 0x0: Front Requester 0x1: Rear Requester int *RequestedAudioSource :* the audio source that the requester

Method	Notes	Parameters
		wants to activate. 0x0: AM/FM Radio 0x1: Front Disc 0x2: SDARS/DAB 0x3: In Dash CD Changer 0x4: Voice Recogniser 0x5: Telematic Unit 0x6: Bluetooth Phone 0x7: Rear Disc 0x8: APIM 0x9: Front AUX Input 0xA: Navigation 0xB: Rear Aux 0xC: Not Requested 0xD: BTAudio 0xE: USB 0xF: iPod int *RequesterPriority :* used to determine the priority of the request depending on the type of audio from a specific source. An entry in the audio request stack is determined by all of the above parameters. For every stack entry, there must be a corresponding requester/client All the above information is needed for an audio request. A single audio source may have many types of audio information (e.g. the radio has TA, PTY, Radio, Alarm) and therefore there is a need for different priority types. The actual response to requests is done via Resource Update signals. The response signal is used for fault handling and for denial of audio resources. 0x0: Priority Service 0x1: Telephony Service 0x2: Auto Answer 0x3: TA 0x4: PTT Mute & Voice 0x5: Nav. User Voice Cmd 0x6: Nav. System Voice Cmd 0x7: Radio 0x8: Disc 0x9: Alarm 0xA: PTY/NEWS 0xB: Aux_ExtSource 0xC: Mobile NAV/Tel Mute 0xD: Manual Audio Mute 0xE: Not Requested

1.2.2 BTP-IIR-REQ-030673/A-BT Phone Server Response Signals (TcSE ROIN-150776-6)

Method	Notes	Parameters
AudioRequest.Rsp()	Message Type: Request with Response Configuration: All the Response of the AudioResource Request. Response is made by the Audio Class to the Phone Server	int *Response :* 0x0: Inactive 0x1: RequestAccepted 0x2: RequestAccepted (no control of audio source) 0x3: RequestDenied 0x4: ResourceUpdateStatus int *OperationType :* 0x1: RequestAudioResource 0x2: ReleaseAudioResource 0x3: ReleaseALLAudioResources 0x4: GetResourceUpdate 0x5: GetALLResourceUpdates int *RequesterSystem :* 0x0: FrontRequester 0x1: RearRequester int *RequestedAudioSource :* 0x0: AM/FM Radio 0x1: Front Disc 0x2: SDARS/DAB 0x3: In Dash CD Changer 0x4: Voice Recogniser 0x5: Telematic Unit 0x6: Bluetooth Phone 0x7: Rear Disc 0x8: APIM 0x9: Front AUX Input 0xA: Navigation 0xB: Rear Aux 0xC: Not Requested 0xD: BT Audio 0xE: USB 0xF: iPod int *RequesterPriority :* used to determine the priority of the request depending on the type of audio from a specific source. An entry in the audio request stack is determined by all of the above parameters. For every stack entry, there must be a corresponding requester/client All the above information is needed for an audio request. A single audio source may have many types of audio information (e.g. the radio has TA, PTY,

Method	Notes	Parameters
		Radio, Alarm) and therefore there is a need for different priority types. The actual response to requests is done via Resource Update signals. The response signal is used for fault handling and for denial of audio resources. 0x0: Priority Service 0x1: Telephony Service 0x2: Auto Answer 0x3: TA 0x4: PTT Mute & Voice 0x5: Nav. User Voice Cmd 0x6: Nav. System Voice Cmd 0x7: Radio 0x8: Disc 0x9: Alarm 0xA: PTY/NEWS 0xB: Aux_ExtSource 0xC: Mobile NAV/TelMute 0xD: Manual Audio Mute 0xE: Not Requested
BTEndTelService.Rsp()	Message Type: Request with Response This method is used to terminate the currently active BT Phone Call. When the call is disconnected, a response signal shall be sent with "Final Result".	int *Result :* 0x0: Inactive 0x1: Intermediate Result 0x2: Final Result 0x3: Error
BTInCallOptions.Rsp()	Message Type: Request with Response This method handles all responses to in call options such as switch calls, join calls, privacy mode, handsfree mode, hold call.	int *Result :* 0x0: Inactive 0x1: Switched 0x2: Joined 0x3: In Privacy Mode 0x4: In Hands Free Mode 0x5: In Hold Mode 0x6: Hold Mode Off
BTIncomingCall.Rsp()	Message Type: Request with Response This method handles the request for accepting or declining an incoming BT Telephony call. The object responds with information whether the incoming call has been accepted or declined.	int *Result :* 0x00: Inactive 0x01: Accepted 0x02: Declined 0x03: Failed
InitiateBTCall.Rsp()	Message Type: Request with Response This method is used to create a new BT Phone call. Before the call is created audio resources must be requested. It is sent over the ISO 15765-2 protocol.	int CES Code Result 0x0y: Final Result - Sucess 0x1y: Final Result-Fail 0x2y: Final Result-Information 0x3y: Intermediate Result-Wait **Special Codes** No Service – CES 0x24 Final

Method	Notes	Parameters
		Result – Requested Command not supported Network Error- CES 0x26 Final Result – Connected device not present Number Invalid – CES 0x27 Final Result- Feature not supported Number Busy – CES 0x28 Final Result – List Full
TextMessage.Rsp()	Message Type : Response From Phone Server to Phone Client, response message to TextMessage.Rq. Informs Client that action was completed successfully.	int *ResponseCode :* 0x0 Invalid 0x1 Listening 0x2 Message ignored 0x3 Cancelled

1.2.3 BTP-IIR-REQ-030674/A-BT Phone Server Status Signals (TcSE ROIN-150777-3)

Method	Notes	Parameters
BTDefaultPhone.St()	Message Type: Status This status shows Index of the currently selected active phone. The user can change the BT active phone from the HMI. The BT active phone can also be changed due to internal events. This status is then changed and that is the only notification that the HMI gets. 0x7 - will not be used. The index 0x1 will always be used for the cradle phone if fitted. 0x8 - No Phone means that no phone is bonded with the unit and that no cradle phone is inserted. It will also be valid when if the user de-bonds the default phone	int *DefPhone :* 0x0: Invalid 0x1: BT Phone associated with index 1 .... 0x6: BT Phone associated with index 6 0x7: Cradle Phone 0x8: No Phone

BTCallerIdentification.St()	Message Type: Status The CallerIdentification attribute carries the CLI number and the caller name (stored in the phone book). If no "CallerIdentification" is available, Validity is set to Not Available and the Caller Number and Caller Name string is not sent. The attribute also holds information about the index of the currently used phone. It is sent over the ISO 15765-2 protocol.	int *Phone Type:* 0x0 No category 0x1 Home 0x2 Office 0x3 Mobile 0x4 Other 0x5 Unknown 0x6 Fax int *Validity :* 0x0: CLID Incoming Available 0x1: CLID Second incoming call available 0x2: CLID Outgoing Call 0x3: CLID Incoming SMS available 0x4: CLID Incoming Not available 0x5: CLID Incoming SMS Not available int *Index of Phone :* 3 bits, index 1-6 (1 = Cradle Phone if fitted); 0x0 = Reserved int *Caller number :* 25 bytes chars int *Caller name :* 18 bytes chars
BTNetworkStatus.St()	Message Type: Status NOTE: For Bluetooth Handsfree profile the parameter 0x3 (Roaming) is not available. This status notifies about the current network status of the default phone.	int *Status :* 0x0: Invalid 0x1: No Network 0x2: In Network 0x3: Roaming (For Bluetooth Handsfree profile this parameter is not available). 0x4: No Link to Phone 0x5: Not supported by phone
PhMicrophoneMute.St()	Message Type : Status Shows actual state of microphone if set to silent ot not while active phone call.	int *Mode :* 0x0 Invalid 0x1 MicrophoneIsMuted 0x2 MicrophoneIsUnmuted 0x3 Reserved
BluetoothStatus.St()	Message Type: Status This status shows the state of the bluetooth unit.	int *Status :* 0x0: Invalid 0x1: On 0x2: Off

BTBatteryLevel.St()	Message Type: Status This status shows the Battery Level of the default BT Phone.	int *Level :* 0x0: Invalid 0x1: Battery Level 0 0x2: Battery Level 1 0x3: Battery Level 2 0x4: Battery Level 3 0x5: Battery Level 4 0x6: Battery Level 5 0x7: No Link to BT Phone 0x8: Not supported by BT phone
BTPhoneSts.St()	Message Type: Status The Atttribute BTPhoneSts shall reflect the current state of the Phone.	int *Status :* 0x00: Invalid 0x01: Idle, Existing link to BT Phone 0x02: Dialing 0x03: Connected 0x04: Cradle Phone not ready 0x05: Number Unobtainable 0x06: Incoming Call 0x07: No link to Phone 0x08: Initialising BT connection 0x09: Phone busy 0x0A: VR Session active in phone 0x0B: Device Not supported (only Cradle phone) 0x0C: BT phone in Private 0x0D: Conference Call 0x0E: Connected, Second Incoming Call 0x0F: Connected, other call on hold 0x10: Connected, Call on hold
BTSignalStrength.St()	Message Type: Status This status shows status of the Signal Strength of the default BT phone.	int *SignalStrength :* 0x0: Invalid 0x1: Signal Strength 0 0x2: Signal Strength 1 0x3: Signal Strength 2 0x4: Signal Strength 3 0x5: Signal Strength 4 0x6: Signal Strength 5 0x7: No Link to BT Phone 0x8: Not supported by BT phone
CallDuration.St()	Message Type: Status This status informs the HMI about the call duration time of the BT phone. If there Is a multiple party call, the timer shall be updated internally but invalid shall be sent on the CAN bus.	int *Duration :* Time in seconds

NewSMS.St()	Message Type: Status This status informs the HMI if there are any new SMS.	int *SMS :* 0x0: Invalid 0x1: New SMS available 0x2: No New SMS available 0x3: Unread SMS messages available

1.2.4 BTP-IIR-REQ-030675/A-BT Phone Client Request Signals (TcSE ROIN-149370-3)

Method	Notes	Parameters
BTEndTelService.Rq()	Message Type: Request with Response This method is used to terminate the currently active BT Phone Call. When the call is disconnected, a response signal shall be sent with "Final Result". This method is from the BT Phone Client to the BT Phone Server.	int *SingleParam* : 0x0: Inactive 0x1: End Ongoing Telephony Call
BTInCallOptions.Rq()	Message Type: Request with Response Configuration: All This method handles all in call options such as switch calls, join calls, privacy mode, handsfree mode, hold call	int *SingleParam* : 0x0: Inactive 0x1: Switch Calls 0x2: Join Calls 0x3: Go to Privacy Mode 0x4: Go to Handsfree Mode 0x5: Hold Call 0x6: End Hold Call
BTIncomingCall.Rq()	Message Type: Request with Response This method handles the request for accepting or declining an incoming BT Telephony call. The object responds with information whether the incoming call has been accepted or declined. This method is from the BT Phone Client to the BT Phone Server.	int *SingleParam :* 0x0: Inactive 0x1: Accept Incoming Call 0x2: Decline Incoming Call
InitiateBTCall.Rq()	Message Type : Request This method is used to create a new BT Phone call. Before the call is created, audio resources must be requested. It is sent over the ISO 15765-2 protocol.	int *TypeOfCall :* 0x0: Invalid 0x1: Telephony Call 0x2: Last Incoming Call 0x3: Last Outgoing Call 0x4: Last Missed Call 0x5: Redial int *TelNbr :* (Only if Parameter1 = Telephony Call) Telephone Number: 25 bytes chars else = EOS

PhMicrophoneMute.Rq()	Message Type : Request Request from the Phone Client to Phone Server to set microphone to silent while active phone call.	int *Mode :* 0x1 MicrophoneMute 0x2 MicrophoneUnmute 0x3 Reserved
TextMessage.Rq()	Message Type : Request Request from the Phone client to the Phone Server to take action on a new incoming text message.	int *Opcode :* 0x0 Invalid 0x1 Listen 0x2 Ignore 0x3 Cancel

2 General Requirements

2.1 BTP-SR-REQ-030676/A-Caller Identification data during Call Waiting function (TcSE ROIN-202936-1)

If there is one call active, and the other call on hold, and one of the two calls is ended or dropped, by the BT Phone Server, the BT Phone Server shall re-send BTCallerIdentification_St to the BT Phone Client to indicate the caller id for the remaining call. The Validity parameter shall be set to CLID Incoming Available (0x0).

2.2 BTP-SR-REQ-030677/A-Caller Identification data when one call ends during Conference Call function (TcSE ROIN-202938-1)

When BTPhoneSts.St changes from ConferenceCall (0xD) to Connected (0x3) [one of the two calls in the conference ends or is dropped], the BT Phone Server shall re-send the BTCallerIdentification_St for remaining call. Validity shall be set to CLID Incoming Available (0x0).

2.3 BTP-HMI-REQ-030678/A-BTCallerIdentification.St - CallerID Name or Number is unknown (TcSE ROIN-280513-1)

If the BT Phone Client receives the BTCallerIdentification.St and the CallID Number or CallID Name parameter in this TP method is only populated with an end of string character (0x0) then the respective field shall indicate information is not available. See HMI documentation for exact text to be shown.

2.4 BTP-FUR-REQ-113745/C-Device specific settings

The In-Vehicle Infotainment System should offer following settings to the customer via HMI. The settings shall apply for each paired device individually.

1. Auto-Download Phonebook
   The customer shall have the option to enable and disable Auto-Phonebook download as described in BTP-FUR-REQ-033836-Auto Phonebook Download Options.
   The default for this setting shall be Automatic Download on (refer to BTP-FUR-REQ-033834-Auto Phonebook Download).

2. Phonebook Sorting
   The In-Vehicle Infotainment System shall offer a setting to the customer to select the sorting order of the downloaded phonebook either via First Name or via Last Name (refer to BTP-FUR-REQ-033846). The default setting for the sorting order is defined in BTP-FUR-REQ-093327.

3. Ringtone Option
   The In-Vehicle Infotainment System shall offer an HMI setting to the customer for selecting a ringtone for incoming calls. If the connected phone supports in-band ringing, this feature shall be the default until the user has opted to change it. If the phone does not support in-band ringing then the default ringtone shall be the first pre-recorded ringtone (Refer to BTP-FUR-REQ-047504-Ringer Options)

4. Text Messaging (if available)
   The In-Vehicle Infotainment System shall offer an HMI setting to the customer for enabling and disabling the text messaging feature entirely (refer to BTP-FUR REQ-133777 Text Messaging Availability).
   The Infotainment System shall provide an option to select the alert type for incoming text messages if the feature is enabled (default). The default alert shall be the first pre-recorded alert (refer to BTP-FUR-REQ-041775-Audible Alerts).
   This entire option is only applicable if IVIS and connected device are supporting the text messaging feature

5. Mute Audio in Privacy
   The customer shall have the ability to change the default value of the Primary Audio Source state upon entering privacy mode through the HMI setting. This setting should be activated by default for all countries except USA market.

6. Roaming Indicator
   The In-Vehicle Infotainment System should offer an option to activate or deactivate this alert. The default setting shall be on (refer to BTP-FUR-REQ-047506-Roaming Report).

7. Low Battery Warning
   The In-Vehicle Infotainment System should offer an option to activate or deactivate this warning alert. The default setting shall be off (refer to BTP-FUR-REQ-047507-Battery Level).

8. Phone Volume Adjustment (if available)
   The In-Vehicle Infotainment System shall offer an opportunity for the costumer to adjust the phone volume level to the media volume level. This setting shall be stored and shall apply for each paired device separately.
   The default value is specified in STMGNT-FUR-REQ-014654-AHU-DSP AMP Default Parameters (TcSE ROIN-119131-11).

   This entire option is only applicable if IVIS is supporting this feature. (see BTP-FUR-REQ-130714/A Phone Volume Adjustment)

3 Functional Definition

3.1 BTP-FUN-REQ-033734/A-Pairing (TcSE ROIN-294304-1)

3.1.1 Use Cases

3.1.1.1 BTP-UC-REQ-033735/B-Pairing a phone with no other phone paired via SSP – Discoverable Mode (TcSE ROIN-290831-2)

Linked Elements
BTP-FUR-REQ-033773/B-Secure Simple Pairing (TcSE ROIN-295148-2)
BTP-FUR-REQ-033777/B-Discoverable Mode (Find In-Vehicle Infotainment System) (TcSE ROIN-295152-2)

Actors	Customer Mobile Phone
Pre-conditions	Device supports Bluetooth 2.1 (SSP) or above. Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s).
Scenario Description	Customer opts to add a new phone In-Vehicle infotainment system is placed into discoverable mode Customer searches for system from their device. Customer selects system from their device Once pairing request is received from the device, In-Vehicle Infotainment System displays Secure Simple PIN. Customer confirms that Secure Simple PIN is the same on In-Vehicle Infotainment System and device The user will have the option to cancel the procedure from the In-Vehicle Infotainment System.
Post-conditions	The In-Vehicle Infotainment System is paired to the device. In-Vehicle Infotainment System sets the phone to the 'Favorite Phone' A HFP connection is established between the In-Vehicle Infotainment System The In-Vehicle Infotainment System attempts to download the phonebook and call history of the connected phone. (if supported) The In-Vehicle Infotainment System synchronizes the text messages from the connected phone. (if supported) Signal strength, phone battery strength and roaming status will be available for the In-Vehicle Infotainment System to display Audio Streaming Connections are established (if supported). *Note: The In-Vehicle Infotainment System should alert the customer to look at their phone to authorize the phonebook download and/or text message access (if supported by the newly paired phone).
List of Exception Use Cases	E1 - Customer chooses 'No' the PIN doesn't match on the In-Vehicle Infotainment System. E2 - Customer chooses 'No' the PIN doesn't match on the device. E3 - Customer does not initiate pairing from device. E4 - Unexpected Device Disconnect During Pairing prior to authentication. E5 - Pairing Fails. E6 - Customer initiates pairing but does not confirm PIN. E7 - Connection cannot be established / maintained for Calling Features. E8 - Messages Cannot be Synchronized and Customer Cannot be Notified of New Messages. E9 - Customer Cannot be Notified of New Messages. E10 - Phonebook cannot be downloaded. E11 - Signal strength , phone battery strength and/or roaming status not available.

	E12 - Customer exits pairing by canceling action via In-Vehicle Infotainment System G-HMI options. E13 – Pairing a Non-Audio / Phone Device. E14 - Connection Cannot be established for audio source. E15 - Connection Cannot be established for audio control. E16 – Unexpected Device Disconnect After Authentication, but prior to completing the overall connection / pairing process.
Interfaces	V-HMI G-HMI Audio Out

3.1.1.2 BTP-UC-REQ-033736/A-Customer chooses 'No' the PIN doesn't match on the In-Vehicle Infotainment System (TcSE ROIN-290832-1)

Linked Elements
BTP-UC-REQ-033752/A-Pairing a phone with other phone(s) paired via SSP – Discoverable Mode (TcSE ROIN-290845-1)
BTP-UC-REQ-033753/A-Pairing a phone with no other phone paired via SSP – Discovery Mode (TcSE ROIN-290846-2)
BTP-UC-REQ-033754/A-Pairing a phone with phone paired via SSP – Discovery Mode (TcSE ROIN-290847-2)
BTP-UC-REQ-033735/B-Pairing a phone with no other phone paired via SSP – Discoverable Mode (TcSE ROIN-290831-2)
BTP-UC-REQ-033772/B-Pairing an Audio Device with other Device(s) paired – Discoverable / Discoverable Mode (TcSE ROIN-290866-1)
BTP-UC-REQ-033762/B-Pairing a phone with other device(s) connected (TcSE ROIN-290854-1)
BTP-UC-REQ-033767/B-Pairing an Audio Device via SSP with other Device(s) connected – Discovery Mode (TcSE ROIN-290861-1)
BTP-UC-REQ-033764/B-Pairing an Audio Device via SSP with no other Device(s) paired – Discoverable Mode (TcSE ROIN-290856-1)
BTP-UC-REQ-033765/B-Pairing an Audio Device via SSP with other Device(s) connected – Discoverable Mode (TcSE ROIN-290859-1)
BTP-UC-REQ-033766/B-Pairing an Audio Device via SSP with no other Device(s) paired – Discovery Mode (TcSE ROIN-290860-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as normal use case
Scenario Description	In-Vehicle Infotainment System Customer indicates that the PIN does not match that displayed on the device.
Post-conditions	The In-Vehicle Infotainment System return to original use case for the specified length of time.
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.1.1.3 BTP-UC-REQ-033737/A-Customer chooses 'No' the PIN doesn't match on the device (TcSE ROIN-290833-1)

Linked Elements
BTP-UC-REQ-033752/A-Pairing a phone with other phone(s) paired via SSP – Discoverable Mode (TcSE ROIN-290845-1)
BTP-UC-REQ-033753/A-Pairing a phone with no other phone paired via SSP – Discovery Mode (TcSE ROIN-290846-2)
BTP-UC-REQ-033754/A-Pairing a phone with phone paired via SSP – Discovery Mode (TcSE ROIN-290847-2)
BTP-UC-REQ-033735/B-Pairing a phone with no other phone paired via SSP – Discoverable Mode (TcSE ROIN-290831-2)
BTP-UC-REQ-033772/B-Pairing an Audio Device with other Device(s) paired – Discoverable / Discoverable Mode (TcSE ROIN-290866-1)
BTP-UC-REQ-033762/B-Pairing a phone with other device(s) connected (TcSE ROIN-290854-1)
BTP-UC-REQ-033767/B-Pairing an Audio Device via SSP with other Device(s) connected – Discovery Mode (TcSE ROIN-290861-1)
BTP-UC-REQ-033764/B-Pairing an Audio Device via SSP with no other Device(s) paired – Discoverable Mode (TcSE ROIN-290856-1)
BTP-UC-REQ-033765/B-Pairing an Audio Device via SSP with other Device(s) connected – Discoverable Mode (TcSE ROIN-290859-1)
BTP-UC-REQ-033766/B-Pairing an Audio Device via SSP with no other Device(s) paired – Discovery Mode (TcSE ROIN-290860-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as normal use case
Scenario Description	In-Vehicle Infotainment System Customer indicates that the PIN does not match that displayed on the In-Vehicle Infotainment System.
Post-conditions	When notified by connected device; the In-Vehicle Infotainment System return to original use case for the specified length of time.
List of Exception Use Cases	N/A

Interfaces	G-HMI

3.1.1.4 BTP-UC-REQ-033738/A-Customer Does Not Initiate Pairing from Device (TcSE ROIN-290834-1)

Linked Elements

BTP-UC-REQ-033752/A-Pairing a phone with other phone(s) paired via SSP – Discoverable Mode (TcSE ROIN-290845-1)
BTP-UC-REQ-033753/A-Pairing a phone with no other phone paired via SSP – Discovery Mode (TcSE ROIN-290846-2)
BTP-UC-REQ-033754/A-Pairing a phone with phone paired via SSP – Discovery Mode (TcSE ROIN-290847-2)
BTP-UC-REQ-033755/A-Pairing a phone with no other phone paired via non-SSP – Discoverable Mode (TcSE ROIN-290848-1)
BTP-UC-REQ-033760/A-Pairing a phone with no other phone paired via non-SSP – Discovery Mode (TcSE ROIN-290852-1)
BTP-UC-REQ-033761/A-Pairing a phone with phone paired via non SSP – Discovery Mode (TcSE ROIN-290853-1)
BTP-UC-REQ-033735/B-Pairing a phone with no other phone paired via SSP – Discoverable Mode (TcSE ROIN-290831-2)
BTP-UC-REQ-033759/B-Pairing a phone with other phone(s) paired via non SSP – Discoverable Mode (TcSE ROIN-290851-2)
BTP-UC-REQ-033769/B-Pairing an Audio Device via non-SSP with other Device(s) connected – Discoverable Mode (TcSE ROIN-290863-1)
BTP-UC-REQ-033770/B-Pairing an Audio Device via non-SSP with no other Device(s) paired – Discovery Mode (TcSE ROIN-290864-1)
BTP-UC-REQ-033771/B-Pairing an Audio Device via non-SSP with other Device(s) connected – Discovery Mode (TcSE ROIN-290865-1)
BTP-UC-REQ-033772/B-Pairing an Audio Device with other Device(s) paired – Discoverable / Discoverable Mode (TcSE ROIN-290866-1)
BTP-UC-REQ-033762/B-Pairing a phone with other device(s) connected (TcSE ROIN-290854-1)
BTP-UC-REQ-033767/B-Pairing an Audio Device via SSP with other Device(s) connected – Discovery Mode (TcSE ROIN-290861-1)
BTP-UC-REQ-033768/B-Pairing an Audio Device via non-SSP with no other Device(s) paired– Discoverable Mode (TcSE ROIN-290862-1)
BTP-UC-REQ-033764/B-Pairing an Audio Device via SSP with no other Device(s) paired – Discoverable Mode (TcSE ROIN-290856-1)
BTP-UC-REQ-033765/B-Pairing an Audio Device via SSP with other Device(s) connected – Discoverable Mode (TcSE ROIN-290859-1)
BTP-UC-REQ-033766/B-Pairing an Audio Device via SSP with no other Device(s) paired – Discovery Mode (TcSE ROIN-290860-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as normal use case
Scenario Description	A pairing request is not received from the device.
Post-conditions	After the specified amount time, the IVS will indicate that the time allotted for pairing a device has expired. The In-Vehicle Infotainment System is no longer in a pairing mode.
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.1.1.5 BTP-UC-REQ-033739/A-Unexpected Device Disconnect During Pairing (TcSE ROIN-290835-1)

Linked Elements

BTP-UC-REQ-033752/A-Pairing a phone with other phone(s) paired via SSP – Discoverable Mode (TcSE ROIN-290845-1)
BTP-UC-REQ-033753/A-Pairing a phone with no other phone paired via SSP – Discovery Mode (TcSE ROIN-290846-2)
BTP-UC-REQ-033754/A-Pairing a phone with phone paired via SSP – Discovery Mode (TcSE ROIN-290847-2)
BTP-UC-REQ-033755/A-Pairing a phone with no other phone paired via non-SSP – Discoverable Mode (TcSE ROIN-290848-1)
BTP-UC-REQ-033760/A-Pairing a phone with no other phone paired via non-SSP – Discovery Mode (TcSE ROIN-290852-1)
BTP-UC-REQ-033761/A-Pairing a phone with phone paired via non SSP – Discovery Mode (TcSE ROIN-290853-1)
BTP-UC-REQ-033735/B-Pairing a phone with no other phone paired via SSP – Discoverable Mode (TcSE ROIN-290831-2)
BTP-UC-REQ-033759/B-Pairing a phone with other phone(s) paired via non SSP – Discoverable Mode (TcSE ROIN-290851-2)
BTP-UC-REQ-033769/B-Pairing an Audio Device via non-SSP with other Device(s) connected – Discoverable Mode (TcSE ROIN-290863-1)
BTP-UC-REQ-033770/B-Pairing an Audio Device via non-SSP with no other Device(s) paired – Discovery Mode (TcSE ROIN-290864-1)
BTP-UC-REQ-033771/B-Pairing an Audio Device via non-SSP with other Device(s) connected – Discovery Mode (TcSE ROIN-290865-1)
BTP-UC-REQ-033772/B-Pairing an Audio Device with other Device(s) paired – Discoverable / Discoverable Mode (TcSE ROIN-290866-1)
BTP-UC-REQ-033762/B-Pairing a phone with other device(s) connected (TcSE ROIN-290854-1)
BTP-UC-REQ-033767/B-Pairing an Audio Device via SSP with other Device(s) connected – Discovery Mode (TcSE ROIN-290861-1)
BTP-UC-REQ-033768/B-Pairing an Audio Device via non-SSP with no other Device(s) paired– Discoverable Mode (TcSE ROIN-290862-1)
BTP-UC-REQ-033764/B-Pairing an Audio Device via SSP with no other Device(s) paired – Discoverable Mode (TcSE ROIN-290856-1)
BTP-UC-REQ-033765/B-Pairing an Audio Device via SSP with other Device(s) connected – Discoverable Mode (TcSE ROIN-290859-1)
BTP-UC-REQ-033766/B-Pairing an Audio Device via SSP with no other Device(s) paired – Discovery Mode (TcSE ROIN-290860-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as normal use case
Scenario Description	The authentication process has begun but not completed. An unexpected device disconnect is detected.

Post-conditions	The Customer is alerted that an error has occurred. The In-Vehicle Infotainment System returns to discovery / discoverable mode (based on entry condition) for specified time.
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.1.1.6 BTP-UC-REQ-033740/A-Pairing Fails (TcSE ROIN-290836-1)

Linked Elements

BTP-UC-REQ-033752/A-Pairing a phone with other phone(s) paired via SSP – Discoverable Mode (TcSE ROIN-290845-1)
BTP-UC-REQ-033753/A-Pairing a phone with no other phone paired via SSP – Discovery Mode (TcSE ROIN-290846-2)
BTP-UC-REQ-033754/A-Pairing a phone with phone paired via SSP – Discovery Mode (TcSE ROIN-290847-2)
BTP-UC-REQ-033755/A-Pairing a phone with no other phone paired via non-SSP – Discoverable Mode (TcSE ROIN-290848-1)
BTP-UC-REQ-033760/A-Pairing a phone with no other phone paired via non-SSP – Discovery Mode (TcSE ROIN-290852-1)
BTP-UC-REQ-033761/A-Pairing a phone with phone paired via non SSP – Discovery Mode (TcSE ROIN-290853-1)
BTP-UC-REQ-033735/B-Pairing a phone with no other phone paired via SSP – Discoverable Mode (TcSE ROIN-290831-2)
BTP-UC-REQ-033759/B-Pairing a phone with other phone(s) paired via non SSP – Discoverable Mode (TcSE ROIN-290851-2)
BTP-UC-REQ-033769/B-Pairing an Audio Device via non-SSP with other Device(s) connected – Discoverable Mode (TcSE ROIN-290863-1)
BTP-UC-REQ-033770/B-Pairing an Audio Device via non-SSP with no other Device(s) paired – Discovery Mode (TcSE ROIN-290864-1)
BTP-UC-REQ-033771/B-Pairing an Audio Device via non-SSP with other Device(s) connected – Discovery Mode (TcSE ROIN-290865-1)
BTP-UC-REQ-033772/B-Pairing an Audio Device with other Device(s) paired – Discoverable / Discoverable Mode (TcSE ROIN-290866-1)
BTP-UC-REQ-033762/B-Pairing a phone with other device(s) connected (TcSE ROIN-290854-1)
BTP-UC-REQ-033767/B-Pairing an Audio Device via SSP with other Device(s) connected – Discovery Mode (TcSE ROIN-290861-1)
BTP-UC-REQ-033768/B-Pairing an Audio Device via non-SSP with no other Device(s) paired– Discoverable Mode (TcSE ROIN-290862-1)
BTP-UC-REQ-033764/B-Pairing an Audio Device via SSP with no other Device(s) paired – Discoverable Mode (TcSE ROIN-290856-1)
BTP-UC-REQ-033765/B-Pairing an Audio Device via SSP with other Device(s) connected – Discoverable Mode (TcSE ROIN-290859-1)
BTP-UC-REQ-033766/B-Pairing an Audio Device via SSP with no other Device(s) paired – Discovery Mode (TcSE ROIN-290860-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as normal use case
Scenario Description	The authentication and connection process has begun but not completed. Pairing Fails
Post-conditions	The Customer is alerted that an error has occurred. The In-Vehicle Infotainment System returns to discovery / discoverable mode (based on entry condition for specified time.
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.1.1.7 BTP-UC-REQ-033741/A-Customer Initiates pairing but does not confirm PIN (TcSE ROIN-290837-1)

Linked Elements

BTP-UC-REQ-033752/A-Pairing a phone with other phone(s) paired via SSP – Discoverable Mode (TcSE ROIN-290845-1)
BTP-UC-REQ-033753/A-Pairing a phone with no other phone paired via SSP – Discovery Mode (TcSE ROIN-290846-2)
BTP-UC-REQ-033754/A-Pairing a phone with phone paired via SSP – Discovery Mode (TcSE ROIN-290847-2)
BTP-UC-REQ-033755/A-Pairing a phone with no other phone paired via non-SSP – Discoverable Mode (TcSE ROIN-290848-1)
BTP-UC-REQ-033760/A-Pairing a phone with no other phone paired via non-SSP – Discovery Mode (TcSE ROIN-290852-1)
BTP-UC-REQ-033761/A-Pairing a phone with phone paired via non SSP – Discovery Mode (TcSE ROIN-290853-1)
BTP-UC-REQ-033735/B-Pairing a phone with no other phone paired via SSP – Discoverable Mode (TcSE ROIN-290831-2)
BTP-UC-REQ-033759/B-Pairing a phone with other phone(s) paired via non SSP – Discoverable Mode (TcSE ROIN-290851-2)
BTP-UC-REQ-033772/B-Pairing an Audio Device with other Device(s) paired – Discoverable / Discoverable Mode (TcSE ROIN-290866-1)
BTP-UC-REQ-033762/B-Pairing a phone with other device(s) connected (TcSE ROIN-290854-1)
BTP-UC-REQ-033767/B-Pairing an Audio Device via SSP with other Device(s) connected – Discovery Mode (TcSE ROIN-290861-1)
BTP-UC-REQ-033764/B-Pairing an Audio Device via SSP with no other Device(s) paired – Discoverable Mode (TcSE ROIN-290856-1)
BTP-UC-REQ-033765/B-Pairing an Audio Device via SSP with other Device(s) connected – Discoverable Mode (TcSE ROIN-290859-1)
BTP-UC-REQ-033766/B-Pairing an Audio Device via SSP with no other Device(s) paired – Discovery Mode (TcSE ROIN-290860-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as normal use case
Scenario	In-Vehicle Infotainment System.

Description	Customer does not confirm PIN (on device and/or In-Vehicle Infotainment System).
Post-conditions	After specified amount of time, the Customer is alerted that an error has occurred. The In-Vehicle Infotainment System is no longer in a pairing mode.
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.1.1.8 BTP-UC-REQ-033742/A-Connection cannot be established / maintained for Calling Features (TcSE ROIN-290838-1)

Linked Elements
BTP-UC-REQ-033752/A-Pairing a phone with other phone(s) paired via SSP – Discoverable Mode (TcSE ROIN-290845-1)
BTP-UC-REQ-033753/A-Pairing a phone with no other phone paired via SSP – Discovery Mode (TcSE ROIN-290846-2)
BTP-UC-REQ-033754/A-Pairing a phone with phone paired via SSP – Discovery Mode (TcSE ROIN-290847-2)
BTP-UC-REQ-033755/A-Pairing a phone with no other phone paired via non-SSP – Discoverable Mode (TcSE ROIN-290848-1)
BTP-UC-REQ-033760/A-Pairing a phone with no other phone paired via non-SSP – Discovery Mode (TcSE ROIN-290852-1)
BTP-UC-REQ-033761/A-Pairing a phone with phone paired via non SSP – Discovery Mode (TcSE ROIN-290853-1)
BTP-UC-REQ-033735/B-Pairing a phone with no other phone paired via SSP – Discoverable Mode (TcSE ROIN-290831-2)
BTP-UC-REQ-033759/B-Pairing a phone with other phone(s) paired via non SSP – Discoverable Mode (TcSE ROIN-290851-2)
BTP-UC-REQ-033762/B-Pairing a phone with other device(s) connected (TcSE ROIN-290854-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as normal use case
Scenario Description	In-Vehicle Infotainment System In-Vehicle Infotainment System The connection for Calling features fails (i.e. HFP)
Post-conditions	An error message shall be displayed.
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.1.1.9 BTP-UC-REQ-033743/A-Messages Cannot be Synchronized and Customer Cannot be Notified of New Messages (TcSE ROIN-290839-1)

Linked Elements
BTP-UC-REQ-033752/A-Pairing a phone with other phone(s) paired via SSP – Discoverable Mode (TcSE ROIN-290845-1)
BTP-UC-REQ-033753/A-Pairing a phone with no other phone paired via SSP – Discovery Mode (TcSE ROIN-290846-2)
BTP-UC-REQ-033754/A-Pairing a phone with phone paired via SSP – Discovery Mode (TcSE ROIN-290847-2)
BTP-UC-REQ-033755/A-Pairing a phone with no other phone paired via non-SSP – Discoverable Mode (TcSE ROIN-290848-1)
BTP-UC-REQ-033760/A-Pairing a phone with no other phone paired via non-SSP – Discovery Mode (TcSE ROIN-290852-1)
BTP-UC-REQ-033761/A-Pairing a phone with phone paired via non SSP – Discovery Mode (TcSE ROIN-290853-1)
BTP-UC-REQ-041735/A-Messaging Synchronization (TcSE ROIN-290968-1)
BTP-UC-REQ-033735/B-Pairing a phone with no other phone paired via SSP – Discoverable Mode (TcSE ROIN-290831-2)
BTP-UC-REQ-033759/B-Pairing a phone with other phone(s) paired via non SSP – Discoverable Mode (TcSE ROIN-290851-2)
BTP-UC-REQ-033762/B-Pairing a phone with other device(s) connected (TcSE ROIN-290854-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as normal use case
Scenario Description	In-Vehicle Infotainment System In-Vehicle Infotainment System Messages can't be synced or new messages can't be indicated (i.e. MAP)
Post-conditions	Text Messaging feature is not accessible to the customer
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.1.1.10 BTP-UC-REQ-033744/A-Customer Cannot be Notified of New Messages (TcSE ROIN-290840-1)

Linked Elements
BTP-UC-REQ-033752/A-Pairing a phone with other phone(s) paired via SSP – Discoverable Mode (TcSE ROIN-290845-1)

BTP-UC-REQ-033753/A-Pairing a phone with no other phone paired via SSP – Discovery Mode (TcSE ROIN-290846-2)
BTP-UC-REQ-033754/A-Pairing a phone with phone paired via SSP – Discovery Mode (TcSE ROIN-290847-2)
BTP-UC-REQ-033755/A-Pairing a phone with no other phone paired via non-SSP – Discoverable Mode (TcSE ROIN-290848-1)
BTP-UC-REQ-033760/A-Pairing a phone with no other phone paired via non-SSP – Discovery Mode (TcSE ROIN-290852-1)
BTP-UC-REQ-033761/A-Pairing a phone with phone paired via non SSP – Discovery Mode (TcSE ROIN-290853-1)
BTP-UC-REQ-041737/A-Messaging New Message Notification (TcSE ROIN-290970-1)
BTP-UC-REQ-033735/B-Pairing a phone with no other phone paired via SSP – Discoverable Mode (TcSE ROIN-290831-2)
BTP-UC-REQ-033759/B-Pairing a phone with other phone(s) paired via non SSP – Discoverable Mode (TcSE ROIN-290851-2)
BTP-UC-REQ-033762/B-Pairing a phone with other device(s) connected (TcSE ROIN-290854-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as normal use case
Scenario Description	In-Vehicle Infotainment System In-Vehicle Infotainment System New messages can't be indicated (i.e. MNS)
Post-conditions	Potentially, User is notified that an error has occurred.
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.1.1.11 BTP-UC-REQ-033745/A-Phonebook cannot be downloaded (TcSE ROIN-290841-1)

Linked Elements
BTP-UC-REQ-033752/A-Pairing a phone with other phone(s) paired via SSP – Discoverable Mode (TcSE ROIN-290845-1)
BTP-UC-REQ-033753/A-Pairing a phone with no other phone paired via SSP – Discovery Mode (TcSE ROIN-290846-2)
BTP-UC-REQ-033754/A-Pairing a phone with phone paired via SSP – Discovery Mode (TcSE ROIN-290847-2)
BTP-UC-REQ-033755/A-Pairing a phone with no other phone paired via non-SSP – Discoverable Mode (TcSE ROIN-290848-1)
BTP-UC-REQ-033760/A-Pairing a phone with no other phone paired via non-SSP – Discovery Mode (TcSE ROIN-290852-1)
BTP-UC-REQ-033761/A-Pairing a phone with phone paired via non SSP – Discovery Mode (TcSE ROIN-290853-1)
BTP-UC-REQ-033735/B-Pairing a phone with no other phone paired via SSP – Discoverable Mode (TcSE ROIN-290831-2)
BTP-UC-REQ-033759/B-Pairing a phone with other phone(s) paired via non SSP – Discoverable Mode (TcSE ROIN-290851-2)
BTP-UC-REQ-033762/B-Pairing a phone with other device(s) connected (TcSE ROIN-290854-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as normal use case
Scenario Description	In-Vehicle Infotainment System In-Vehicle Infotainment System Phonebook cannot be downloaded (i.e. PBAP)
Post-conditions	An error message is displayed to customer via G-HMI and V-HMI
List of Exception Use Cases	N/A
Interfaces	G-HMI V-HMI

3.1.1.12 BTP-UC-REQ-033746/A-Signal, Phone Battery Strength and/or Roaming Status not available (TcSE ROIN-290842-1)

Linked Elements
BTP-UC-REQ-033752/A-Pairing a phone with other phone(s) paired via SSP – Discoverable Mode (TcSE ROIN-290845-1)
BTP-UC-REQ-033753/A-Pairing a phone with no other phone paired via SSP – Discovery Mode (TcSE ROIN-290846-2)
BTP-UC-REQ-033754/A-Pairing a phone with phone paired via SSP – Discovery Mode (TcSE ROIN-290847-2)
BTP-UC-REQ-033755/A-Pairing a phone with no other phone paired via non-SSP – Discoverable Mode (TcSE ROIN-290848-1)
BTP-UC-REQ-033760/A-Pairing a phone with no other phone paired via non-SSP – Discovery Mode (TcSE ROIN-290852-1)
BTP-UC-REQ-033761/A-Pairing a phone with phone paired via non SSP – Discovery Mode (TcSE ROIN-290853-1)
BTP-UC-REQ-033804/C-Connecting to a previously paired phone via phone (Active Call) (TcSE ROIN-290880-1)
BTP-UC-REQ-033735/B-Pairing a phone with no other phone paired via SSP – Discoverable Mode (TcSE ROIN-290831-2)
BTP-UC-REQ-033759/B-Pairing a phone with other phone(s) paired via non SSP – Discoverable Mode (TcSE ROIN-290851-2)
BTP-UC-REQ-033791/C-Connecting to a previously paired phone upon resume (No Active Call) (TcSE ROIN-290867-1)
BTP-UC-REQ-033798/C-Connecting to a previously paired phone upon resume (Active Call) (TcSE ROIN-290874-1)
BTP-UC-REQ-033802/C-Connecting to a previously paired phone w/phone connected (Active Call) (TcSE ROIN-290878-1)
BTP-UC-REQ-033803/C-Connecting to a previously paired phone via phone (No Active Call) (TcSE ROIN-290879-1)
BTP-UC-REQ-033762/B-Pairing a phone with other device(s) connected (TcSE ROIN-290854-1)

BTP-UC-REQ-033800/D-Connecting to a previously paired phone w/phone connected (No Active Call) (TcSE ROIN-290876-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as normal use case
Scenario Description	In-Vehicle Infotainment System In-Vehicle Infotainment System Signal, Phone Battery Strength and/or Roaming Status not available (i.e. HFP)
Post-conditions	The unavailable information is not displayed to the customer
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.1.1.13 BTP-UC-REQ-033747/A-Customer exits pairing by canceling action via In-Vehicle Infotainment System G-HMI options (TcSE ROIN-290843-1)

Linked Elements
BTP-UC-REQ-033752/A-Pairing a phone with other phone(s) paired via SSP – Discoverable Mode (TcSE ROIN-290845-1)
BTP-UC-REQ-033753/A-Pairing a phone with no other phone paired via SSP – Discovery Mode (TcSE ROIN-290846-2)
BTP-UC-REQ-033754/A-Pairing a phone with phone paired via SSP – Discovery Mode (TcSE ROIN-290847-2)
BTP-UC-REQ-033755/A-Pairing a phone with no other phone paired via non-SSP – Discoverable Mode (TcSE ROIN-290848-1)
BTP-UC-REQ-033760/A-Pairing a phone with no other phone paired via non-SSP – Discovery Mode (TcSE ROIN-290852-1)
BTP-UC-REQ-033761/A-Pairing a phone with phone paired via non SSP – Discovery Mode (TcSE ROIN-290853-1)
BTP-UC-REQ-033735/B-Pairing a phone with no other phone paired via SSP – Discoverable Mode (TcSE ROIN-290831-2)
BTP-UC-REQ-033759/B-Pairing a phone with other phone(s) paired via non SSP – Discoverable Mode (TcSE ROIN-290851-2)
BTP-UC-REQ-033772/B-Pairing an Audio Device with other Device(s) paired – Discoverable / Discoverable Mode (TcSE ROIN-290866-1)
BTP-UC-REQ-033762/B-Pairing a phone with other device(s) connected (TcSE ROIN-290854-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as normal use case
Scenario Description	Customer opts to add a new phone. In-Vehicle infotainment system is placed into discoverable mode. Customer opts to cancel action prior to completing the pairing process.
Post-conditions	The In-Vehicle Infotainment System is no longer in discoverable / discovery mode (based on entry condition).
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.1.1.14 BTP-UC-REQ-033748/A-Pairing a Non- Audio / Phone Device (TcSE ROIN-290844-1)

Linked Elements
BTP-UC-REQ-033752/A-Pairing a phone with other phone(s) paired via SSP – Discoverable Mode (TcSE ROIN-290845-1)
BTP-UC-REQ-033753/A-Pairing a phone with no other phone paired via SSP – Discovery Mode (TcSE ROIN-290846-2)
BTP-UC-REQ-033754/A-Pairing a phone with phone paired via SSP – Discovery Mode (TcSE ROIN-290847-2)
BTP-UC-REQ-033755/A-Pairing a phone with no other phone paired via non-SSP – Discoverable Mode (TcSE ROIN-290848-1)
BTP-UC-REQ-033760/A-Pairing a phone with no other phone paired via non-SSP – Discovery Mode (TcSE ROIN-290852-1)
BTP-UC-REQ-033761/A-Pairing a phone with phone paired via non SSP – Discovery Mode (TcSE ROIN-290853-1)
BTP-UC-REQ-033735/B-Pairing a phone with no other phone paired via SSP – Discoverable Mode (TcSE ROIN-290831-2)
BTP-UC-REQ-033759/B-Pairing a phone with other phone(s) paired via non SSP – Discoverable Mode (TcSE ROIN-290851-2)
BTP-UC-REQ-033762/B-Pairing a phone with other device(s) connected (TcSE ROIN-290854-1)

Actors	Customer Non-Audio / Phone Device
Pre-conditions	Infotainment System and device support ability to pair. Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s).
Scenario Description	Customer opts to add a new device (non-audio / phone) In-Vehicle infotainment system is placed into discovery / discoverable mode

	The Customer attempts to complete the pairing process *Note: To see specific use cases for pairing in discoverable / discovery modes see examples listed in Phone Pairing section.
Post-conditions	The non-audio / phone device is not paired to the In-Vehicle Infotainment System. The In-Vehicle Infotainment System has the ability to notify the customer that pairing failed because the device does not have the required profiles.
List of Exception Use Cases	N/A
Interfaces	V-HMI G-HMI

3.1.1.15 BTP-UC-REQ-033749/A-Connection Cannot be established for audio source (TcSE ROIN-290857-1)

Linked Elements

BTP-UC-REQ-033752/A-Pairing a phone with other phone(s) paired via SSP – Discoverable Mode (TcSE ROIN-290845-1)
BTP-UC-REQ-033753/A-Pairing a phone with no other phone paired via SSP – Discovery Mode (TcSE ROIN-290846-2)
BTP-UC-REQ-033754/A-Pairing a phone with phone paired via SSP – Discovery Mode (TcSE ROIN-290847-2)
BTP-UC-REQ-033755/A-Pairing a phone with no other phone paired via non-SSP – Discoverable Mode (TcSE ROIN-290848-1)
BTP-UC-REQ-033760/A-Pairing a phone with no other phone paired via non-SSP – Discovery Mode (TcSE ROIN-290852-1)
BTP-UC-REQ-033761/A-Pairing a phone with phone paired via non SSP – Discovery Mode (TcSE ROIN-290853-1)
BTP-UC-REQ-033735/B-Pairing a phone with no other phone paired via SSP – Discoverable Mode (TcSE ROIN-290831-2)
BTP-UC-REQ-033815/B-Connecting an Audio Player (TcSE ROIN-290884-1)
BTP-UC-REQ-033759/B-Pairing a phone with other phone(s) paired via non SSP – Discoverable Mode (TcSE ROIN-290851-2)
BTP-UC-REQ-033814/C-Connecting an Audio Player Upon Resume (TcSE ROIN-290883-1)
BTP-UC-REQ-033769/B-Pairing an Audio Device via non-SSP with other Device(s) connected – Discoverable Mode (TcSE ROIN-290863-1)
BTP-UC-REQ-033770/B-Pairing an Audio Device via non-SSP with no other Device(s) paired – Discovery Mode (TcSE ROIN-290864-1)
BTP-UC-REQ-033771/B-Pairing an Audio Device via non-SSP with other Device(s) connected – Discovery Mode (TcSE ROIN-290865-1)
BTP-UC-REQ-033772/B-Pairing an Audio Device with other Device(s) paired – Discoverable / Discoverable Mode (TcSE ROIN-290866-1)
BTP-UC-REQ-033762/B-Pairing a phone with other device(s) connected (TcSE ROIN-290854-1)
BTP-UC-REQ-033767/B-Pairing an Audio Device via SSP with other Device(s) connected – Discovery Mode (TcSE ROIN-290861-1)
BTP-UC-REQ-033768/B-Pairing an Audio Device via non-SSP with no other Device(s) paired– Discoverable Mode (TcSE ROIN-290862-1)
BTP-UC-REQ-033764/B-Pairing an Audio Device via SSP with no other Device(s) paired – Discoverable Mode (TcSE ROIN-290856-1)
BTP-UC-REQ-033765/B-Pairing an Audio Device via SSP with other Device(s) connected – Discoverable Mode (TcSE ROIN-290859-1)
BTP-UC-REQ-033766/B-Pairing an Audio Device via SSP with no other Device(s) paired – Discovery Mode (TcSE ROIN-290860-1)
BTP-UC-REQ-033816/C-Connecting an Audio Player w/Audio Player Already Connected (TcSE ROIN-290885-1)
BTP-FUR-REQ-113744/C-Connection method

Actors	Customer Mobile Phone
Pre-conditions	Same as normal use case
Scenario Description	In-Vehicle Infotainment System In-Vehicle Infotainment System Connection cannot be established for audio source (i.e. A2DP)
Post-conditions	An error message is displayed.
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.1.1.16 BTP-UC-REQ-033750/A-Connection Cannot be established for audio control (TcSE ROIN-290858-1)

Linked Elements

BTP-UC-REQ-033752/A-Pairing a phone with other phone(s) paired via SSP – Discoverable Mode (TcSE ROIN-290845-1)
BTP-UC-REQ-033753/A-Pairing a phone with no other phone paired via SSP – Discovery Mode (TcSE ROIN-290846-2)
BTP-UC-REQ-033754/A-Pairing a phone with phone paired via SSP – Discovery Mode (TcSE ROIN-290847-2)
BTP-UC-REQ-033755/A-Pairing a phone with no other phone paired via non-SSP – Discoverable Mode (TcSE ROIN-290848-1)
BTP-UC-REQ-033760/A-Pairing a phone with no other phone paired via non-SSP – Discovery Mode (TcSE ROIN-290852-1)
BTP-UC-REQ-033761/A-Pairing a phone with phone paired via non SSP – Discovery Mode (TcSE ROIN-290853-1)
BTP-UC-REQ-033735/B-Pairing a phone with no other phone paired via SSP – Discoverable Mode (TcSE ROIN-290831-2)
BTP-UC-REQ-033815/B-Connecting an Audio Player (TcSE ROIN-290884-1)
BTP-UC-REQ-033759/B-Pairing a phone with other phone(s) paired via non SSP – Discoverable Mode (TcSE ROIN-290851-2)
BTP-UC-REQ-033814/C-Connecting an Audio Player Upon Resume (TcSE ROIN-290883-1)
BTP-UC-REQ-033769/B-Pairing an Audio Device via non-SSP with other Device(s) connected – Discoverable Mode (TcSE ROIN-290863-1)
BTP-UC-REQ-033770/B-Pairing an Audio Device via non-SSP with no other Device(s) paired – Discovery Mode (TcSE ROIN-290864-1)
BTP-UC-REQ-033771/B-Pairing an Audio Device via non-SSP with other Device(s) connected – Discovery Mode (TcSE ROIN-290865-1)

BTP-UC-REQ-033772/B-Pairing an Audio Device with other Device(s) paired – Discoverable / Discoverable Mode (TcSE ROIN-290866-1)
BTP-UC-REQ-033762/B-Pairing a phone with other device(s) connected (TcSE ROIN-290854-1)
BTP-UC-REQ-033767/B-Pairing an Audio Device via SSP with other Device(s) connected – Discovery Mode (TcSE ROIN-290861-1)
BTP-UC-REQ-033768/B-Pairing an Audio Device via non-SSP with no other Device(s) paired– Discoverable Mode (TcSE ROIN-290862-1)
BTP-UC-REQ-033764/B-Pairing an Audio Device via SSP with no other Device(s) paired – Discoverable Mode (TcSE ROIN-290856-1)
BTP-UC-REQ-033765/B-Pairing an Audio Device via SSP with other Device(s) connected – Discoverable Mode (TcSE ROIN-290859-1)
BTP-UC-REQ-033766/B-Pairing an Audio Device via SSP with no other Device(s) paired – Discovery Mode (TcSE ROIN-290860-1)
BTP-UC-REQ-033816/C-Connecting an Audio Player w/Audio Player Already Connected (TcSE ROIN-290885-1)
BTP-FUR-REQ-113744/C-Connection method

Actors	Customer Mobile Phone
Pre-conditions	Same as normal use case
Scenario Description	In-Vehicle Infotainment System In-Vehicle Infotainment System
Post-conditions	Audio Controls will not be displayed to customer
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.1.1.17 BTP-UC-REQ-033751/A-Unexpected Device Disconnect After Authentication, but prior to completing the overall connection / pairing process (TcSE ROIN-304164-1)

Linked Elements
BTP-UC-REQ-033735/B-Pairing a phone with no other phone paired via SSP – Discoverable Mode (TcSE ROIN-290831-2)

Actors	Customer Mobile Phone
Pre-conditions	Same as normal use case
Scenario Description	There was an unexpected Bluetooth disconnect after pairing authentication, but prior to completing the overall connection / pairing process.
Post-conditions	The In-Vehicle Infotainment System shall attempt to reconnect to the device for 180 seconds. The in-vehicle infotainment system shall follow the requirements listed within H28c_SHMI BT Devices specification AND H28a SHMI Phone PCA specification.
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.1.1.18 BTP-UC-REQ-033752/A-Pairing a phone with other phone(s) paired via SSP – Discoverable Mode (TcSE ROIN-290845-1)

Linked Elements
BTP-FUR-REQ-033773/B-Secure Simple Pairing (TcSE ROIN-295148-2)
BTP-FUR-REQ-033777/B-Discoverable Mode (Find In-Vehicle Infotainment System) (TcSE ROIN-295152-2)
BTP-FUR-REQ-033779/C-Pairing Process (TcSE ROIN-295154-2)

Actors	Customer, Mobile Phone
Pre-conditions	Infotainment System and device support Bluetooth 2.1 or above, no other Bluetooth device is connected. Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s).
Scenario Description	Customer opts to add a new phone In-Vehicle infotainment system is placed into discoverable mode Customer searches for system from their device. Customer selects system from their device Once pairing request is received from the device, In-Vehicle Infotainment System

	displays Secure Simple PIN. Customer confirms that Secure Simple PIN is the same on In-Vehicle Infotainment System and device
Post-conditions	The In-Vehicle Infotainment System is paired to the device. The In-Vehicle Infotainment System provides the Customer with the option to set the phone to favorite A HFP connection is established between the In-Vehicle Infotainment System The In-Vehicle Infotainment System downloads the phonebook and call history of the connected phone. The In-Vehicle Infotainment System synchronizes the text messages from the connected phone. Signal strength, phone battery strength and roaming status will be available for the In-Vehicle Infotainment System to display Audio Streaming Connections are established (if supported)
List of Exception Use Cases	E1 - Customer chooses 'No' the PIN doesn't match on the In-Vehicle Infotainment System. E2 - Customer chooses 'No' the PIN doesn't match on the device. E3 - Customer does not initiate pairing from device. E4 - Unexpected Device Disconnect During Pairing. E5 - Pairing Fails. E6 - Customer initiates pairing but does not confirm PIN. E7 - Connection cannot be established / maintained for Calling Features. E8 - Messages Cannot be Synchronized and Customer Cannot be Notified of New Messages. E9 - Customer Cannot be Notified of New Messages. E10 - Phonebook cannot be downloaded. E11 - Signal strength , phone battery strength and/or roaming status not available. E12 - Customer exits pairing by canceling action via In-Vehicle Infotainment System G-HMI options. E13 – Pairing a Non-Audio / Phone Device. E14 - Connection Cannot be established for audio source. E15 - Connection Cannot be established for audio control.
Interfaces	V-HMI G-HMI

3.1.1.19 BTP-UC-REQ-033753/A-Pairing a phone with no other phone paired via SSP – Discovery Mode (TcSE ROIN-290846-2)

Linked Elements
BTP-FUR-REQ-033773/B-Secure Simple Pairing (TcSE ROIN-295148-2)
BTP-FUR-REQ-033776/B-Discovery Mode (Find Devices) (TcSE ROIN-295151-2)

Actors	Customer, Mobile Phone
Pre-conditions	Infotainment System and device support Bluetooth 2.1 or above. Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s).
Scenario Description	Customer opts to add a new phone In-Vehicle infotainment system is placed into discovery mode The In-Vehicle Infotainment System searches for available devices to pair with The In-Vehicle Infotainment System displays all of the available devices Customer chooses one of the devices The In-Vehicle Infotainment System initiates pairing with the selected device, and displays secure simple PIN Customer confirms that Secure Simple PIN is the same on In-Vehicle Infotainment System and device
Post-conditions	The In-Vehicle Infotainment System is paired to the device. In-Vehicle Infotainment System sets the phone to the 'Favorite Phone' A HFP connection is established between the In-Vehicle Infotainment System

	The In-Vehicle Infotainment System attempts to download the phonebook and call history of the connected phone. The In-Vehicle Infotainment System synchronizes the text messages from the connected phone. Signal strength, phone battery strength and roaming status will be available for the In-Vehicle Infotainment System to display Audio Streaming Connections are established (if supported)
List of Exception Use Cases	E1 - Customer chooses 'No' the PIN doesn't match on the In-Vehicle Infotainment System. E2 - Customer chooses 'No' the PIN doesn't match on the device. E3 - Customer does not initiate pairing from device. E4 - Unexpected Device Disconnect During Pairing. E5 - Pairing Fails. E6 - Customer initiates pairing but does not confirm PIN. E7 - Connection cannot be established / maintained for Calling Features. E8 - Messages Cannot be Synchronized and Customer Cannot be Notified of New Messages. E9 - Customer Cannot be Notified of New Messages. E10 - Phonebook cannot be downloaded. E11 - Signal strength , phone battery strength and/or roaming status not available. E12 - Customer exits pairing by canceling action via In-Vehicle Infotainment System G-HMI options. E13 – Pairing a Non-Audio / Phone Device. E14 - Connection Cannot be established for audio source. E15 - Connection Cannot be established for audio control. E16 – In-Vehicle Infotainment System did not find any devices.
Interfaces	V-HMI G-HMI

3.1.1.20 BTP-UC-REQ-033754/A-Pairing a phone with phone paired via SSP – Discovery Mode (TcSE ROIN-290847-2)

Linked Elements
BTP-FUR-REQ-033776/B-Discovery Mode (Find Devices) (TcSE ROIN-295151-2)
BTP-FUR-REQ-033773/B-Secure Simple Pairing (TcSE ROIN-295148-2)
BTP-FUR-REQ-033779/C-Pairing Process (TcSE ROIN-295154-2)

Actors	Customer, Mobile Phone
Pre-conditions	Infotainment System and device support Bluetooth 2.1 or above, no other Bluetooth device is connected Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s).
Scenario Description	Customer opts to add a new phone In-Vehicle infotainment system is placed into discovery mode The In-Vehicle Infotainment System searches for available devices to pair with The In-Vehicle Infotainment System displays all of the available devices Customer chooses one of the devices The In-Vehicle Infotainment System initiates pairing with the selected device, and displays secure simple PIN Customer confirms that Secure Simple PIN is the same on In-Vehicle Infotainment System and device
Post-conditions	The In-Vehicle Infotainment System is paired to the device. The In-Vehicle Infotainment System provides the Customer with the option to set the phone to favorite A HFP connection is established between the In-Vehicle Infotainment System The In-Vehicle Infotainment System downloads the phonebook and call history of the connected phone. The In-Vehicle Infotainment System synchronizes the text messages from the connected phone.

	Signal strength, phone battery strength and roaming status will be available for the In-Vehicle Infotainment System to display Audio Streaming Connections are established (if supported)
List of Exception Use Cases	E1 - Customer chooses 'No' the PIN doesn't match on the In-Vehicle Infotainment System. E2 - Customer chooses 'No' the PIN doesn't match on the device. E3 - Customer does not initiate pairing from device. E4 - Unexpected Device Disconnect During Pairing. E5 - Pairing Fails. E6 - Customer initiates pairing but does not confirm PIN. E7 - Connection cannot be established / maintained for Calling Features. E8 - Messages Cannot be Synchronized and Customer Cannot be Notified of New Messages. E9 - Customer Cannot be Notified of New Messages. E10 - Phonebook cannot be downloaded. E11 - Signal strength , phone battery strength and/or roaming status not available. E12 - Customer exits pairing by canceling action via In-Vehicle Infotainment System G-HMI options. E13 – Pairing a Non-Audio / Phone Device. E14 - Connection Cannot be established for audio source. E15 - Connection Cannot be established for audio control. E16 – In-Vehicle Infotainment System did not find any devices.
Interfaces	V-HMI G-HMI

3.1.1.21 BTP-UC-REQ-033755/A-Pairing a phone with no other phone paired via non-SSP – Discoverable Mode (TcSE ROIN-290848-1)

Linked Elements
BTP-FUR-REQ-033777/B-Discoverable Mode (Find In-Vehicle Infotainment System) (TcSE ROIN-295152-2)
BTP-FUR-REQ-033774/B-Legacy Pairing (TcSE ROIN-295149-1)

Actors	Customer, Mobile Phone
Pre-conditions	Device support Bluetooth 2.0 or below Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s).
Scenario Description	Customer opts to add a new phone In-Vehicle infotainment system is placed into discoverable mode Customer searches for system from their device. Customer selects system from their device Customer enters PIN from their mobile device, and completes pairing.
Post-conditions	The In-Vehicle Infotainment System is paired to the device. In-Vehicle Infotainment System sets the phone to the 'Favorite Phone' A HFP connection is established between the In-Vehicle Infotainment System The In-Vehicle Infotainment System attempts to download the phonebook and call history of the connected phone. The In-Vehicle Infotainment System synchronizes the text messages from the connected phone. Signal strength, phone battery strength and roaming status will be available for the In-Vehicle Infotainment System to display Audio Streaming Connections are established (if supported)
List of Exception Use Cases	E1 - Customer does not enter PIN on Device. E2 - Customer inputs the incorrect PIN in Device. E3 - Customer does not initiate pairing from device. E4 - Unexpected Device Disconnect During Pairing. E5 - Pairing Fails. E6 - Customer initiates pairing but does not confirm PIN. E7 - Connection cannot be established / maintained for Calling Features.

	E8 - Messages Cannot be Synchronized and Customer Cannot be Notified of New Messages. E9 - Customer Cannot be Notified of New Messages. E10 - Phonebook cannot be downloaded. E11 - Signal strength , phone battery strength and/or roaming status not available. E12 - Customer exits pairing by canceling action via In-Vehicle Infotainment System G-HMI options. E13 – Pairing a Non-Audio / Phone Device. E14 - Connection Cannot be established for audio source. E15 - Connection Cannot be established for audio control.
Interfaces	V-HMI G-HMI

3.1.1.22 BTP-UC-REQ-033756/A-In-Vehicle Infotainment System did not find any devices (TcSE ROIN-304492-1)

Linked Elements
BTP-UC-REQ-033753/A-Pairing a phone with no other phone paired via SSP – Discovery Mode (TcSE ROIN-290846-2)
BTP-UC-REQ-033754/A-Pairing a phone with phone paired via SSP – Discovery Mode (TcSE ROIN-290847-2)

Actors	Customer Mobile Phone
Pre-conditions	Same as normal use case
Scenario Description	In-Vehicle Infotainment System did not find any devices.
Post-conditions	The In-Vehicle Infotainment System does not display any devices.
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.1.1.23 BTP-UC-REQ-033757/A-Customer Does Not Enter PIN on device (TcSE ROIN-290849-1)

Linked Elements
BTP-UC-REQ-033755/A-Pairing a phone with no other phone paired via non-SSP – Discoverable Mode (TcSE ROIN-290848-1)
BTP-UC-REQ-033760/A-Pairing a phone with no other phone paired via non-SSP – Discovery Mode (TcSE ROIN-290852-1)
BTP-UC-REQ-033761/A-Pairing a phone with phone paired via non SSP – Discovery Mode (TcSE ROIN-290853-1)
BTP-UC-REQ-033759/B-Pairing a phone with other phone(s) paired via non SSP – Discoverable Mode (TcSE ROIN-290851-2)
BTP-UC-REQ-033769/B-Pairing an Audio Device via non-SSP with other Device(s) connected – Discoverable Mode (TcSE ROIN-290863-1)
BTP-UC-REQ-033770/B-Pairing an Audio Device via non-SSP with no other Device(s) paired – Discovery Mode (TcSE ROIN-290864-1)
BTP-UC-REQ-033771/B-Pairing an Audio Device via non-SSP with other Device(s) connected – Discovery Mode (TcSE ROIN-290865-1)
BTP-UC-REQ-033772/B-Pairing an Audio Device with other Device(s) paired – Discoverable / Discoverable Mode (TcSE ROIN-290866-1)
BTP-UC-REQ-033762/B-Pairing a phone with other device(s) connected (TcSE ROIN-290854-1)
BTP-UC-REQ-033768/B-Pairing an Audio Device via non-SSP with no other Device(s) paired– Discoverable Mode (TcSE ROIN-290862-1)

Actors	Customer, Mobile Phone
Pre-conditions	Same as normal use case
Scenario Description	Customer does not enter PIN on device
Post-conditions	The In-Vehicle Infotainment System remains in originating mode for the specified length of time.
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.1.1.24 BTP-UC-REQ-033758/A-Customer inputs the incorrect PIN on device (TcSE ROIN-290850-1)

Linked Elements
BTP-UC-REQ-033755/A-Pairing a phone with no other phone paired via non-SSP – Discoverable Mode (TcSE ROIN-290848-1)
BTP-UC-REQ-033760/A-Pairing a phone with no other phone paired via non-SSP – Discovery Mode (TcSE ROIN-290852-1)

BTP-UC-REQ-033761/A-Pairing a phone with phone paired via non SSP – Discovery Mode (TcSE ROIN-290853-1)
BTP-UC-REQ-033759/B-Pairing a phone with other phone(s) paired via non SSP – Discoverable Mode (TcSE ROIN-290851-2)
BTP-UC-REQ-033769/B-Pairing an Audio Device via non-SSP with other Device(s) connected – Discoverable Mode (TcSE ROIN-290863-1)
BTP-UC-REQ-033770/B-Pairing an Audio Device via non-SSP with no other Device(s) paired – Discovery Mode (TcSE ROIN-290864-1)
BTP-UC-REQ-033771/B-Pairing an Audio Device via non-SSP with other Device(s) connected – Discovery Mode (TcSE ROIN-290865-1)
BTP-UC-REQ-033772/B-Pairing an Audio Device with other Device(s) paired – Discoverable / Discoverable Mode (TcSE ROIN-290866-1)
BTP-UC-REQ-033762/B-Pairing a phone with other device(s) connected (TcSE ROIN-290854-1)
BTP-UC-REQ-033768/B-Pairing an Audio Device via non-SSP with no other Device(s) paired– Discoverable Mode (TcSE ROIN-290862-1)

Actors	Customer, Mobile Phone
Pre-conditions	Same as normal use case
Scenario Description	In-Vehicle Infotainment System. Customer indicates enters the incorrect PIN on device
Post-conditions	Error Message Displayed In-Vehicle Infotainment System remains discoverable for specified length of time.
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.1.1.25 BTP-UC-REQ-033759/B-Pairing a phone with other phone(s) paired via non SSP – Discoverable Mode (TcSE ROIN-290851-2)

Linked Elements
BTP-FUR-REQ-033777/B-Discoverable Mode (Find In-Vehicle Infotainment System) (TcSE ROIN-295152-2)
BTP-FUR-REQ-033774/B-Legacy Pairing (TcSE ROIN-295149-1)
BTP-FUR-REQ-033779/C-Pairing Process (TcSE ROIN-295154-2)

Actors	Customer, Mobile Phone
Pre-conditions	Device supports Bluetooth 2.0 or below, no other Bluetooth device is connected Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s).
Scenario Description	Customer opts to add a new phone In-Vehicle infotainment system is placed into discoverable mode Customer searches for system from their device. Customer selects system from their device Once pairing request is received from the device, In-Vehicle Infotainment System displays PIN. Customer enters PIN from their mobile device, and completes pairing.
Post-conditions	The In-Vehicle Infotainment System is paired to the device. The In-Vehicle Infotainment System provides the Customer to with the option to set the phone to favorite A HFP connection is established between the In-Vehicle Infotainment System The In-Vehicle Infotainment System downloads the phonebook and call history of the connected phone. The In-Vehicle Infotainment System synchronizes the text messages from the connected phone. Signal strength, phone battery strength and roaming status will be available for the In-Vehicle Infotainment System to display Audio Streaming Connections are established (if supported)
List of Exception Use Cases	E1 - Customer does not enter PIN on Device. E2 - Customer inputs the incorrect PIN in Device. E3 - Customer does not initiate pairing from device. E4 - Unexpected Device Disconnect During Pairing. E5 - Pairing Fails. E6 - Customer initiates pairing but does not confirm PIN. E7 - Connection cannot be established / maintained for Calling Features. E8 - Messages Cannot be Synchronized and Customer Cannot be Notified of New Messages. E9 - Customer Cannot be Notified of New Messages.

	E10 - Phonebook cannot be downloaded. E11 - Signal strength , phone battery strength and/or roaming status not available. E12 - Customer exits pairing by canceling action via In-Vehicle Infotainment System G-HMI options. E13 – Pairing a Non-Audio / Phone Device. E14 - Connection Cannot be established for audio source. E15 - Connection Cannot be established for audio control.
Interfaces	G-HMI V-HMI

3.1.1.26 BTP-UC-REQ-033760/A-Pairing a phone with no other phone paired via non-SSP – Discovery Mode (TcSE ROIN-290852-1)

Linked Elements
BTP-FUR-REQ-033776/B-Discovery Mode (Find Devices) (TcSE ROIN-295151-2)
BTP-FUR-REQ-033774/B-Legacy Pairing (TcSE ROIN-295149-1)

Actors	Customer, Mobile Phone
Pre-conditions	Mobile Phone supports Bluetooth 2.0 or below Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s).
Scenario Description	Customer opts to add a new phone In-Vehicle infotainment system is placed into discovery mode The In-Vehicle Infotainment System searches for available devices to pair with The In-Vehicle Infotainment System displays all of the available devices Customer chooses one of the devices Customer enters PIN from their mobile device, and completes pairing.
Post-conditions	The In-Vehicle Infotainment System is paired to the device. In-Vehicle Infotainment System sets the phone to the 'Favorite Phone' A HFP connection is established between the In-Vehicle Infotainment System The In-Vehicle Infotainment System attempts to download the phonebook and call history of the connected phone. The In-Vehicle Infotainment System synchronizes the text messages from the connected phone. Signal strength, phone battery strength and roaming status will be available for the In-Vehicle Infotainment System to display Audio Streaming Connections are established (if supported)
List of Exception Use Cases	E1 - Customer does not enter PIN on Device. E2 - Customer inputs the incorrect PIN in Device. E3 - Customer does not initiate pairing from device. E4 - Unexpected Device Disconnect During Pairing. E5 - Pairing Fails. E6 - Customer initiates pairing but does not confirm PIN. E7 - Connection cannot be established / maintained for Calling Features. E8 - Messages Cannot be Synchronized and Customer Cannot be Notified of New Messages. E9 - Customer Cannot be Notified of New Messages. E10 - Phonebook cannot be downloaded. E11 - Signal strength , phone battery strength and/or roaming status not available. E12 - Customer exits pairing by canceling action via In-Vehicle Infotainment System G-HMI options. E13 – Pairing a Non-Audio / Phone Device. E14 - Connection Cannot be established for audio source. E15 - Connection Cannot be established for audio control.
Interfaces	V-HMI G-HMI

3.1.1.27 BTP-UC-REQ-033761/A-Pairing a phone with phone paired via non SSP – Discovery Mode (TcSE ROIN-290853-1)

Linked Elements
BTP-FUR-REQ-033776/B-Discovery Mode (Find Devices) (TcSE ROIN-295151-2)
BTP-FUR-REQ-033774/B-Legacy Pairing (TcSE ROIN-295149-1)
BTP-FUR-REQ-033779/C-Pairing Process (TcSE ROIN-295154-2)

Actors	Customer, Mobile Phone
Pre-conditions	Device support Bluetooth 2.0 or below, no other Bluetooth device is connected Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s).
Scenario Description	Customer opts to add a new phone In-Vehicle infotainment system is placed into discovery mode The In-Vehicle Infotainment System searches for available devices to pair with The In-Vehicle Infotainment System displays all of the available devices Customer chooses one of the devices The In-Vehicle Infotainment System initiates pairing with the selected device, and displays PIN Customer enters PIN from their mobile device, and completes pairing.
Post-conditions	The In-Vehicle Infotainment System is paired to the device. The In-Vehicle Infotainment System provides the Customer to with the option to set the phone to favorite A HFP connection is established between the In-Vehicle Infotainment System The In-Vehicle Infotainment System downloads the phonebook and call history of the connected phone. The In-Vehicle Infotainment System synchronizes the text messages from the connected phone. Signal strength, phone battery strength and roaming status will be available for the In-Vehicle Infotainment System to display Audio Streaming Connections are established (if supported)
List of Exception Use Cases	E1 - Customer does not enter PIN on Device. E2 - Customer inputs the incorrect PIN in Device. E3 - Customer does not initiate pairing from device. E4 - Unexpected Device Disconnect During Pairing. E5 - Pairing Fails. E6 - Customer initiates pairing but does not confirm PIN. E7 - Connection cannot be established / maintained for Calling Features. E8 - Messages Cannot be Synchronized and Customer Cannot be Notified of New Messages. E9 - Customer Cannot be Notified of New Messages. E10 - Phonebook cannot be downloaded. E11 - Signal strength , phone battery strength and/or roaming status not available. E12 - Customer exits pairing by canceling action via In-Vehicle Infotainment System G-HMI options. E13 – Pairing a Non-Audio / Phone Device. E14 - Connection Cannot be established for audio source. E15 - Connection Cannot be established for audio control.
Interfaces	V-HMI G-HMI

3.1.1.28 BTP-UC-REQ-033762/B-Pairing a phone with other device(s) connected (TcSE ROIN-290854-1)

Linked Elements
BTP-FUR-REQ-033779/C-Pairing Process (TcSE ROIN-295154-2)
BTP-FUR-REQ-033773/B-Secure Simple Pairing (TcSE ROIN-295148-2)
BTP-FUR-REQ-033774/B-Legacy Pairing (TcSE ROIN-295149-1)
BTP-FUR-REQ-033776/B-Discovery Mode (Find Devices) (TcSE ROIN-295151-2)
BTP-FUR-REQ-033777/B-Discoverable Mode (Find In-Vehicle Infotainment System) (TcSE ROIN-295152-2)

Actors	Customer, Mobile Phone
Pre-conditions	Mobile phone supports ability to pair to the In-Vehicle Infotainment System Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device. Another device is connected
Scenario Description	Customer opts to add a new phone while other device(s) connected to IVIS. In-Vehicle Infotainment System is placed into a 'pair-able' mode (i.e. Discoverable / Discovery). All other steps are consistent with the described scenarios for pairing a mobile phone within this section.
Post-conditions	Currently connected device(s) will be disconnected. All post conditions are consistent with the described scenarios for pairing a mobile phone within this section.
List of Exception Use Cases	E1 - Pairing a phone with another phone connected and Pairing / Connecting Not Successful. E2 - Customer chooses 'No' the PIN doesn't match on the In-Vehicle Infotainment System. E3 - Customer chooses 'No' the PIN doesn't match on the device. E4 - Customer does not initiate pairing from device. E5 - Unexpected Device Disconnect During Pairing. E6 - Pairing Fails. E7 - Customer initiates pairing but does not confirm PIN. E8 - Connection cannot be established / maintained for Calling Features. E9 - Messages Cannot be Synchronized and Customer Cannot be Notified of New Messages. E10 - Customer Cannot be Notified of New Messages. E11 - Phonebook cannot be downloaded. E12 - Signal strength , phone battery strength and/or roaming status not available. E13 - Customer exits pairing by canceling action via In-Vehicle Infotainment System G-HMI options. E14 – Pairing a Non-Audio / Phone Device. E15 - Connection Cannot be established for audio source. E16 - Connection Cannot be established for audio control. E17 - Customer does not enter PIN on Device. E18 - Customer inputs the incorrect PIN in Device.
Interfaces	V-HMI G-HMI

3.1.1.29 BTP-UC-REQ-033763/B-Pairing a phone with other device(s) connected and Pairing / Connecting Not Successful (TcSE ROIN-290855-2)

Linked Elements
BTP-FUR-REQ-033779/C-Pairing Process (TcSE ROIN-295154-2)
BTP-UC-REQ-033762/B-Pairing a phone with other device(s) connected (TcSE ROIN-290854-1)

Actors	Customer, Mobile Phone
Pre-conditions	Same as original use case
Scenario Description	Customer opts to add a new phone while other device(s) connected. The pairing and connecting process fails.
Post-conditions	Previously connected device(s) disconnected. Customer is updated via G-HMI that the pairing process failed.
List of Exception Use Cases	N/A
Interfaces	V-HMI G-HMI

3.1.1.30 BTP-UC-REQ-033764/B-Pairing an Audio Device via SSP with no other Device(s) paired – Discoverable Mode (TcSE ROIN-290856-1)

Linked Elements
BTP-FUR-REQ-033773/B-Secure Simple Pairing (TcSE ROIN-295148-2)
BTP-FUR-REQ-033777/B-Discoverable Mode (Find In-Vehicle Infotainment System) (TcSE ROIN-295152-2)

Actors	Customer Audio Device
Pre-conditions	Infotainment System and device support Bluetooth 2.1 or above. Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device.
Scenario Description	Customer opts to add a new audio device In-Vehicle Infotainment System is placed into discoverable mode Customer searches for system from their device. Customer selects system from their device Once pairing request is received from the device, In-Vehicle Infotainment System displays Secure Simple PIN. Customer confirms that Secure Simple PIN is the same on In-Vehicle Infotainment System and device
Post-conditions	The In-Vehicle Infotainment System is paired to the device. A connection is established between the device and In-Vehicle Infotainment System .
List of Exception Use Cases	E1 - Customer chooses 'No' the PIN doesn't match on the In-Vehicle Infotainment System. E2 - Customer chooses 'No' the PIN doesn't match on the device. E3 - Customer does not initiate pairing from device. E4 - Unexpected Device Disconnect During Pairing. E5 - Pairing Fails. E6 - Customer initiates pairing but does not confirm PIN. E7 - Connection Cannot be established for audio source. E8 - Connection Cannot be established for audio control.
Interfaces	V-HMI G-HMI

3.1.1.31 BTP-UC-REQ-033765/B-Pairing an Audio Device via SSP with other Device(s) connected – Discoverable Mode (TcSE ROIN-290859-1)

Linked Elements
BTP-FUR-REQ-033779/C-Pairing Process (TcSE ROIN-295154-2)
BTP-FUR-REQ-033773/B-Secure Simple Pairing (TcSE ROIN-295148-2)
BTP-FUR-REQ-033777/B-Discoverable Mode (Find In-Vehicle Infotainment System) (TcSE ROIN-295152-2)

Actors	Customer Audio Device
Pre-conditions	Infotainment System and device support Bluetooth 2.1 or above. Another device is paired to In-Vehicle Infotainment System Another device is connected to In-Vehicle Infotainment System
Scenario Description	Customer opts to add a new audio device. In-Vehicle Infotainment System is placed into discoverable mode Customer searches for system from their device. Customer selects system from their device Once pairing request is received from the device, In-Vehicle Infotainment System displays Secure Simple PIN. Customer confirms that Secure Simple PIN is the same on In-Vehicle Infotainment System and device

Post-conditions	The In-Vehicle Infotainment System is disconnected from the previously connected device(s). The In-Vehicle Infotainment System is paired to the new device and provides the Customer with the option to set the device to favorite. A connection is established between the newly paired audio device and In-Vehicle Infotainment System.
List of Exception Use Cases	E1 - Customer chooses 'No' the PIN doesn't match on the In-Vehicle Infotainment System. E2 - Customer chooses 'No' the PIN doesn't match on the device. E3 - Customer does not initiate pairing from device. E4 - Unexpected Device Disconnect During Pairing. E5 - Pairing Fails. E6 - Customer initiates pairing but does not confirm PIN. E7 - Connection Cannot be established for audio source. E8 - Connection Cannot be established for audio control.
Interfaces	V-HMI G-HMI

3.1.1.32 BTP-UC-REQ-033766/B-Pairing an Audio Device via SSP with no other Device(s) paired – Discovery Mode (TcSE ROIN-290860-1)

Linked Elements
BTP-FUR-REQ-033773/B-Secure Simple Pairing (TcSE ROIN-295148-2)
BTP-FUR-REQ-033776/B-Discovery Mode (Find Devices) (TcSE ROIN-295151-2)

Actors	Customer Audio Device
Pre-conditions	Infotainment System and device support Bluetooth 2.1 or above. Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device.
Scenario Description	Customer opts to add a new audio device In-Vehicle Infotainment System is placed into discovery mode. The In-Vehicle Infotainment System searches for available devices to pair with. The In-Vehicle Infotainment System displays all of the available devices Customer chooses one of the devices. The In-Vehicle Infotainment System initiates pairing with the selected device, and displays Secure Simple PIN. Customer confirms that Secure Simple PIN is the same on In-Vehicle Infotainment System and device.
Post-conditions	The In-Vehicle Infotainment System is paired to the device. A connection is established between the device and In-Vehicle Infotainment System
List of Exception Use Cases	E1 - Customer chooses 'No' the PIN doesn't match on the In-Vehicle Infotainment System. E2 - Customer chooses 'No' the PIN doesn't match on the device. E3 - Customer does not initiate pairing from device. E4 - Unexpected Device Disconnect During Pairing. E5 - Pairing Fails. E6 - Customer initiates pairing but does not confirm PIN. E7 - Connection Cannot be established for audio source. E8 - Connection Cannot be established for audio control.
Interfaces	V-HMI G-HMI

3.1.1.33 BTP-UC-REQ-033767/B-Pairing an Audio Device via SSP with other Device(s) connected – Discovery Mode (TcSE ROIN-290861-1)

Linked Elements
BTP-FUR-REQ-033779/C-Pairing Process (TcSE ROIN-295154-2)

BTP-FUR-REQ-033773/B-Secure Simple Pairing (TcSE ROIN-295148-2)
BTP-FUR-REQ-033776/B-Discovery Mode (Find Devices) (TcSE ROIN-295151-2)

Actors	Customer Audio Device
Pre-conditions	Infotainment System and device support Bluetooth 2.1 or above. Audio device is paired to In-Vehicle Infotainment System Audio device is connected to In-Vehicle Infotainment System
Scenario Description	Customer opts to add a new audio device. In-Vehicle infotainment system is placed into discovery mode The In-Vehicle Infotainment System searches for available devices to pair with The In-Vehicle Infotainment System displays all of the available devices Customer chooses one of the devices The In-Vehicle Infotainment System initiates pairing with the selected device, and displays secure simple PIN Customer confirms that Secure Simple PIN is the same on In-Vehicle Infotainment System and device
Post-conditions	The In-Vehicle Infotainment System is disconnected from the previously connected device(s). The In-Vehicle Infotainment System is paired to the new device and provides the Customer with the option to set the device to favorite. A connection is established between the newly paired audio device and In-Vehicle Infotainment System.
List of Exception Use Cases	E1 - Customer chooses 'No' the PIN doesn't match on the In-Vehicle Infotainment System. E2 - Customer chooses 'No' the PIN doesn't match on the device. E3 - Customer does not initiate pairing from device. E4 - Unexpected Device Disconnect During Pairing. E5 - Pairing Fails. E6 - Customer initiates pairing but does not confirm PIN. E7 - Connection Cannot be established for audio source. E8 - Connection Cannot be established for audio control.
Interfaces	V-HMI G-HMI

3.1.1.34 BTP-UC-REQ-033768/B-Pairing an Audio Device via non-SSP with no other Device(s) paired– Discoverable Mode (TcSE ROIN-290862-1)

Linked Elements
BTP-FUR-REQ-033777/B-Discoverable Mode (Find In-Vehicle Infotainment System) (TcSE ROIN-295152-2)
BTP-FUR-REQ-033774/B-Legacy Pairing (TcSE ROIN-295149-1)

Actors	Customer Audio Device
Pre-conditions	Infotainment System and device support Bluetooth 2.0 or below Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s).
Scenario Description	Customer opts to add a new audio device In-Vehicle infotainment system is placed into discoverable mode Customer searches for system from their device. Customer selects system from their device Customer inputs the same PIN within the Audio Device
Post-conditions	The In-Vehicle Infotainment System is paired to the device. A connection is established between the device and In-Vehicle Infotainment System.
List of Exception Use Cases	E1 - Customer does not enter PIN on Device. E2 - Customer inputs the incorrect PIN in Device.

	E3 - Customer does not initiate pairing from device. E4 - Unexpected Device Disconnect During Pairing. E5 - Pairing Fails. E6 - Connection Cannot be established for audio source. E7 - Connection Cannot be established for audio control.
Interfaces	V-HMI G-HMI

3.1.1.35 BTP-UC-REQ-033769/B-Pairing an Audio Device via non-SSP with other Device(s) connected – Discoverable Mode (TcSE ROIN-290863-1)

Linked Elements
BTP-FUR-REQ-033779/C-Pairing Process (TcSE ROIN-295154-2)
BTP-FUR-REQ-033777/B-Discoverable Mode (Find In-Vehicle Infotainment System) (TcSE ROIN-295152-2)
BTP-FUR-REQ-033774/B-Legacy Pairing (TcSE ROIN-295149-1)

Actors	Customer Audio Device
Pre-conditions	Infotainment System and device support Bluetooth 2.1 or above. Audio device is paired to In-Vehicle Infotainment System Audio device is connected to In-Vehicle Infotainment System
Scenario Description	Customer opts to add a new audio device. In-Vehicle Infotainment System is placed into discoverable mode Customer searches for system from their device. Customer selects system from their device Customer inputs the same PIN within the Audio Device
Post-conditions	The In-Vehicle Infotainment System is disconnected from the previously connected device(s). The In-Vehicle Infotainment System is paired to the new device and provides the Customer with the option to set the device to favorite. A connection is established between the newly paired audio device and In-Vehicle Infotainment System.
List of Exception Use Cases	E1 - Customer does not enter PIN on Device. E2 - Customer inputs the incorrect PIN in Device. E3 - Customer does not initiate pairing from device. E4 - Unexpected Device Disconnect During Pairing. E5 - Pairing Fails. E6 - Connection Cannot be established for audio source. E7 - Connection Cannot be established for audio control.
Interfaces	V-HMI G-HMI

3.1.1.36 BTP-UC-REQ-033770/B-Pairing an Audio Device via non-SSP with no other Device(s) paired – Discovery Mode (TcSE ROIN-290864-1)

Linked Elements
BTP-FUR-REQ-033776/B-Discovery Mode (Find Devices) (TcSE ROIN-295151-2)
BTP-FUR-REQ-033774/B-Legacy Pairing (TcSE ROIN-295149-1)

Actors	Customer Audio Device
Pre-conditions	Infotainment System and device support Bluetooth 2.0 or below Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s).
Scenario Description	Customer opts to add a new audio device. In-Vehicle Infotainment System is placed into discovery mode. The In-Vehicle Infotainment System searches for available devices to pair with.

	The In-Vehicle Infotainment System displays all of the available devices. Customer chooses one of the devices. Customer inputs the same PIN within the Audio Device.
Post-conditions	The In-Vehicle Infotainment System is paired to the device. A connection is established between the device and In-Vehicle Infotainment System
List of Exception Use Cases	E1 - Customer does not enter PIN on Device. E2 - Customer inputs the incorrect PIN in Device. E3 - Customer does not initiate pairing from device. E4 - Unexpected Device Disconnect During Pairing. E5 - Pairing Fails. E6 - Connection Cannot be established for audio source. E7 - Connection Cannot be established for audio control.
Interfaces	V-HMI G-HMI

3.1.1.37 BTP-UC-REQ-033771/B-Pairing an Audio Device via non-SSP with other Device(s) connected – Discovery Mode (TcSE ROIN-290865-1)

Linked Elements
BTP-FUR-REQ-033779/C-Pairing Process (TcSE ROIN-295154-2)
BTP-FUR-REQ-033776/B-Discovery Mode (Find Devices) (TcSE ROIN-295151-2)
BTP-FUR-REQ-033774/B-Legacy Pairing (TcSE ROIN-295149-1)

Actors	Customer Audio Device
Pre-conditions	Infotainment System and device support Bluetooth 2.0 or below. Audio device is paired to In-Vehicle Infotainment System. Audio device is connected to In-Vehicle Infotainment System.
Scenario Description	Customer opts to add a new phone. In-Vehicle Infotainment System is placed into discovery mode. The In-Vehicle Infotainment System searches for available devices to pair with. The In-Vehicle Infotainment System displays all of the available devices Customer chooses one of the devices. The In-Vehicle Infotainment System initiates pairing with the selected device, and displays PIN. Customer inputs the same PIN within the Audio Device.
Post-conditions	The In-Vehicle Infotainment System is disconnected from the previously connected device(s). The In-Vehicle Infotainment System is paired to the new device and provides the Customer with the option to set the device to favorite. A connection is established between the newly paired audio device and In-Vehicle Infotainment System.
List of Exception Use Cases	E1 - Customer does not enter PIN on Device. E2 - Customer inputs the incorrect PIN in Device. E3 - Customer does not initiate pairing from device. E4 - Unexpected Device Disconnect During Pairing. E5 - Pairing Fails. E6 - Connection Cannot be established for audio source. E7 - Connection Cannot be established for audio control.
Interfaces	V-HMI G-HMI

3.1.1.38 BTP-UC-REQ-033772/B-Pairing an Audio Device with other Device(s) paired – Discoverable / Discoverable Mode (TcSE ROIN-290866-1)

Linked Elements
BTP-FUR-REQ-033779/C-Pairing Process (TcSE ROIN-295154-2)
BTP-FUR-REQ-033773/B-Secure Simple Pairing (TcSE ROIN-295148-2)

BTP-FUR-REQ-033774/B-Legacy Pairing (TcSE ROIN-295149-1)
BTP-FUR-REQ-033776/B-Discovery Mode (Find Devices) (TcSE ROIN-295151-2)
BTP-FUR-REQ-033777/B-Discoverable Mode (Find In-Vehicle Infotainment System) (TcSE ROIN-295152-2)

Actors	Customer Audio Device
Pre-conditions	Infotainment System and device support ability to pair Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s).
Scenario Description	The customer has opted to pair an audio device while another device has been previously paired. These steps are outlined in the Use Cases within the 'Audio Device Pairing Section'
Post-conditions	The In-Vehicle Infotainment System is paired to the device and provides the Customer with the option to set the device to favorite. A connection is established between the device and In-Vehicle Infotainment System
List of Exception Use Cases	E1 - Customer chooses 'No' the PIN doesn't match on the In-Vehicle Infotainment System. E2 - Customer chooses 'No' the PIN doesn't match on the device. E3 - Customer does not initiate pairing from device. E4 - Unexpected Device Disconnect During Pairing. E5 - Pairing Fails. E6 - Customer initiates pairing but does not confirm PIN. E7 - Customer does not enter PIN on Device. E8 - Customer inputs the incorrect PIN in Device. E9 - Customer exits pairing by canceling action via In-Vehicle Infotainment System G-HMI options. E10 - Connection Cannot be established for audio source. E11 - Connection Cannot be established for audio control.
Interfaces	V-HMI G-HMI

3.1.1.39 BTP-UC-REQ-130387/B-Pairing a phone via iAP with no other Device(s) paired

Linked Elements
BTP-FUR-REQ-033775/A-Pairing via Dock Connector to iOS Devices (TcSE ROIN-295150-1)
BTP-FUR-REQ-033778/B-Pairing via Dock Connector Requirements (TcSE ROIN-295153-2)

Actors	Customer Mobile Phone
Pre-conditions	Device supports iAP pairing. Infotainment System must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device.
Scenario Description	Customer connects the device which is not paired yet via dock connector for the first time. In-Vehicle Infotainment System shall offer the option to pair the device, either in an active form like a popup, or in a passive form via menu entry. The active form shall offer the options "yes, no, and do not ask again". Customer confirms the pairing request/selects pairing option on the system. For the active form the user will have the option to cancel the procedure from the In-Vehicle Infotainment System, and also not to be asked again for this device.
Post-conditions	The In-Vehicle Infotainment System is paired to the device. In-Vehicle Infotainment System sets the phone as the 'Favorite Phone' A HFP connection is established between the In-Vehicle Infotainment System. The In-Vehicle Infotainment System attempts to download the phonebook and call history of the connected phone.

	The In-Vehicle Infotainment System synchronizes the text messages from the connected phone.(if supported) Signal strength, phone battery strength and roaming status will be available for the In-Vehicle Infotainment System to display. Audio Streaming Connections are established (if supported). For iAP1 protocol the BTAudio connection shall only be established if customer is sourcing BTAudio, or as soon as USB connection is disconnected later on. *Note: The In-Vehicle Infotainment System should alert the customer to look at their phone to authorize the phonebook download and/or text message access (if supported by the newly paired phone).
List of Exception Use Cases	E1 - Unexpected Device Disconnect During Pairing prior to authentication. E2 - Pairing Fails. E3 - Connection cannot be established / maintained for Calling Features. E4 - Messages Cannot be Synchronized and Customer Cannot be Notified of New Messages. E5 - Customer Cannot be Notified of New Messages. E6 - Phonebook cannot be downloaded. E7 - Signal strength, phone battery strength and/or roaming status not available. E8 - Customer exits pairing by canceling action via In-Vehicle Infotainment System G-HMI options. E9 - Connection Cannot be established for audio source. E10 - Connection Cannot be established for audio control. E11 – Unexpected Device Disconnect After Authentication, but prior to completing the overall connection / pairing process. E12 – Customer disconnect device prior to completing the pairing. E13 – Customer declined iAP pairing with the same device previously
Interfaces	V-HMI G-HMI Audio Out

3.1.1.40 BTP-UC-REQ-130392/B-Pairing a phone via iAP with other Device(s) paired

Linked Elements
BTP-FUR-REQ-033775/A-Pairing via Dock Connector to iOS Devices (TcSE ROIN-295150-1)
BTP-FUR-REQ-033778/B-Pairing via Dock Connector Requirements (TcSE ROIN-295153-2)

Actors	Customer, Mobile Phone
Pre-conditions	Device supports iAP pairing, other Bluetooth device(s) are paired, and no other Bluetooth device is connected. Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device.
Scenario Description	Customer connects the device which is not paired yet via dock connector. In-Vehicle Infotainment System shall offer the option to pair the device. Customer confirms the pairing request on the system. For the active form, the user will have the option to confirm or cancel the procedure from the In-Vehicle Infotainment System, and also not to be asked again for this device.
Post-conditions	The In-Vehicle Infotainment System is paired to the device. The In-Vehicle Infotainment System provides the Customer with the option to set the phone to favorite.

	A HFP connection is established between the In-Vehicle Infotainment System The In-Vehicle Infotainment System attempts to download the phonebook and call history of the connected phone. (if supported) The In-Vehicle Infotainment System synchronizes the text messages from the connected phone. (if supported) Signal strength, phone battery strength and roaming status will be available for the In-Vehicle Infotainment System to display. Audio Streaming Connections are established (if supported). For iAP1 protocol the BTAudio connection shall only be established if customer is sourcing BTAudio, or as soon as USB connection is disconnected later on. *Note: The In-Vehicle Infotainment System should alert the customer to look at their phone to authorize the phonebook download and/or text message access (if supported by the newly paired phone).
List of Exception Use Cases	E1 - Unexpected Device Disconnect During Pairing prior to authentication. E2 - Pairing Fails. E3 - Connection cannot be established / maintained for Calling Features. E4 - Messages Cannot be Synchronized and Customer Cannot be Notified of New Messages. E5 - Customer Cannot be Notified of New Messages. E6 - Phonebook cannot be downloaded. E7 - Signal strength, phone battery strength and/or roaming status not available. E8 - Customer exits pairing by canceling action via In-Vehicle Infotainment System G-HMI options. E9 - Connection Cannot be established for audio source. E10 - Connection Cannot be established for audio control. E11 – Unexpected Device Disconnect After Authentication, but prior to completing the overall connection / pairing process. E12 – Customer disconnect device prior to completing the pairing. E13 – Customer declined iAP pairing with the same device previously
Interfaces	V-HMI G-HMI Audio Out

3.1.1.41 BTP-UC-REQ-130395/B-Pairing a phone via iAP with other Device(s) connected via Bluetooth

Linked Elements
BTP-FUR-REQ-033775/A-Pairing via Dock Connector to iOS Devices (TcSE ROIN-295150-1)
BTP-FUR-REQ-033778/B-Pairing via Dock Connector Requirements (TcSE ROIN-295153-2)

Actors	Customer, Mobile Phone
Pre-conditions	Device supports iAP pairing, other Bluetooth device(s) connected. Infotainment System must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device.
Scenario Description	Customer connects the device which is not paired yet via dock connector for the first time. In-Vehicle Infotainment System shall offer the option to pair the device, either in an active form like a popup, or in a passive form via menu entry. Customer confirms the pairing request or selects the pairing option on the system, dependent on the given form.

	For the active form, the user will have the option to confirm or cancel the procedure from the In-Vehicle Infotainment System, and also not to be asked again for this device.
Post-conditions	Currently connected device(s) will be disconnected. The In-Vehicle Infotainment System is paired to the new device. The In-Vehicle Infotainment System provides the Customer with the option to set the phone to favorite. A HFP connection is established between the In-Vehicle Infotainment System The In-Vehicle Infotainment System attempts to download the phonebook and call history of the connected phone. (if supported) The In-Vehicle Infotainment System synchronizes the text messages from the connected phone. (if supported) Signal strength, phone battery strength and roaming status will be available for the In-Vehicle Infotainment System to display. Audio Streaming Connections are established (if supported). For iAP1 protocol, the BTAudio connection shall only be established if customer is sourcing BTAudio, or as soon as USB connection is disconnected later on. *Note: The In-Vehicle Infotainment System should alert the customer to look at their phone to authorize the phonebook download and/or text message access
List of Exception Use Cases	E1 - Unexpected Device Disconnect During Pairing prior to authentication. E2 - Pairing Fails. E3 - Connection cannot be established / maintained for Calling Features. E4 - Messages Cannot be Synchronized and Customer Cannot be Notified of New Messages. E5 - Customer Cannot be Notified of New Messages. E6 - Phonebook cannot be downloaded. E7 - Signal strength, phone battery strength and/or roaming status not available. E8 - Customer exits pairing by canceling action via In-Vehicle Infotainment System G-HMI options. E9 - Connection Cannot be established for audio source. E10 - Connection Cannot be established for audio control. E11 – Unexpected Device Disconnect After Authentication, but prior to completing the overall connection / pairing process. E12 – Customer disconnect device prior to completing the pairing. E13 – Customer declined iAP pairing with the same device previously
Interfaces	V-HMI G-HMI Audio Out

3.1.1.42 BTP-UC-REQ-130393/B-Customer disconnect device prior to completing the pairing

Linked Elements
BTP-FUR-REQ-033775/A-Pairing via Dock Connector to iOS Devices (TcSE ROIN-295150-1)
BTP-FUR-REQ-033778/B-Pairing via Dock Connector Requirements (TcSE ROIN-295153-2)

Actors	Customer, Mobile Phone
Pre-conditions	Device supports iAP pairing (iOS device). Infotainment System must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device. Applies only if HMI is designed to provide an active option to proceed with dock pairing, like

	a popup.
Scenario Description	Customer connects the device which is not paired yet via dock connector. In-Vehicle infotainment system offers the option to pair the device. The user will have the option to cancel the procedure from the In-Vehicle Infotainment System. The user has chosen to proceed with the pairing, but has disconnected this device prior to completing the pairing.
Post-conditions	The In-Vehicle Infotainment System provides the Customer with the information that pairing failed The In-Vehicle Infotainment System is not paired to the device.
List of Exception Use Cases	
Interfaces	G-HMI

3.1.1.43 BTP-UC-REQ-130394/B-Customer declined iAP Pairing with the same device previously

Linked Elements
BTP-FUR-REQ-033775/A-Pairing via Dock Connector to iOS Devices (TcSE ROIN-295150-1)
BTP-FUR-REQ-033778/B-Pairing via Dock Connector Requirements (TcSE ROIN-295153-2)

Actors	Customer, Mobile Phone
Pre-conditions	Device supports iAP pairing. Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device. Applies only if HMI is designed to provide an active option to proceed with dock pairing, like a popup.
Scenario Description	Customer connects the device which is not paired yet via dock connector. The user had connected this device previously already and – in case of an active notification e.g. a popup – had declined the pairing request by selecting “do not ask again”.
Post-conditions	If HMI provided an active option like a popup to the customer, this option shall not be shown furthermore once the customer has chosen the option “do not ask again”.
List of Exception Use Cases	
Interfaces	G-HMI

3.1.2 Requirements

3.1.2.1 BTP-FUR-REQ-033773/B-Secure Simple Pairing (TcSE ROIN-295148-2)

In-Vehicle Infotainment System shall support Secure Simple Pairing (SSP), and use the number comparison association model (as defined within the Bluetooth Core Specification v2.1) for devices that support this feature.
The In-Vehicle Infotainment System shall detect SSP capability of the device by the LMP_Feature Request “SSP=YES” and the IO_Capability_Transfer.
The in-vehicle infotainment system shall provide the user with the option of confirming the complete 6 digit PIN via the HMI (note: this includes PIN’s that may lead with 0’s).

Once the In-Vehicle Infotainment System calculates the “User Confirm Value” the value shall be displayed to the customer.

Once the In-Vehicle Infotainment System receives the LMP_dhkey_Check from the initiating side, the In-Vehicle Infotainment System shall assume that the Calculated User Confirm Value is accurate and continue to check the “E” value. If the check is successful, the in-vehicle infotainment shall accept the LMP_dhkey from the initiator and complete the pairing process by exchanging and storing authentication information.

The user will still have the option of confirming the 'User Confirm Value' via the GUI within the In-Vehicle Infotainment System.

3.1.2.2 BTP-FUR-REQ-033774/B-Legacy Pairing (TcSE ROIN-295149-1)

In-Vehicle Infotainment System shall support the legacy pairing method defined within the Bluetooth Core 2.0 specification, and use this method when pairing with a device that does not support Secure Simple Pairing.
The In-Vehicle Infotainment System shall detect legacy pairing devices based on the LMP_Feature_Request if this indicates "SSP=No", or if this Request does not contain the SSP Feature as specified for Bluetooth 2.0 devices.
The IVIS should not display a legacy PIN unless the pairing request is being received by a legacy device. In discover mode IVIS should not show up the keypad unless a legacy device is detected.

3.1.2.3 BTP-FUR-REQ-033776/B-Discovery Mode (Find Devices) (TcSE ROIN-295151-2)

The user shall have the option of placing In-Vehicle Infotainment System into discovery mode. This mode enables In-Vehicle Infotainment System to search for Bluetooth enabled devices that are discoverable. This search shall take place for a maximum of 20 seconds. In-Vehicle Infotainment System shall populate a list of found devices as it searches. In-Vehicle Infotainment System shall display a maximum of 10 devices during this search. The user shall have the option of stopping the search, by selecting one of the found devices. In-Vehicle Infotainment System shall broadcast its' name (refer to BTP-FUR-REQ-097661-In Vehicle Infotainment System Name) to the selected device.

If the selected device supports SSP and the number association model, In-Vehicle Infotainment System shall use this method to complete pairing.

If the selected device does not support SSP, In-Vehicle Infotainment System shall use the legacy pairing method. The user should have the option enter the PIN through the GUI This action shall prompt In-Vehicle Infotainment System to attempt to pair with the selected device. The user will have to enter the PIN that he/she selected on the other Bluetooth device. Once this PIN is verified, the pairing routine will be completed by exchanging and storing authentication information on each device.

The user shall have the option to exit this mode at any time. This process shall end if driver restrictions have become enabled.

3.1.2.4 BTP-FUR-REQ-033777/B-Discoverable Mode (Find In-Vehicle Infotainment System) (TcSE ROIN-295152-2)

The user shall have the option of placing In-Vehicle Infotainment System into discoverable mode. While in this mode, In-Vehicle Infotainment System shall broadcast its' name (refer to BTP-FUR-REQ-097661-In Vehicle Infotainment System Name) and its' Bluetooth address so that other Bluetooth enabled devices can find it.

If the initiating device supports SSP and the number association model, In-Vehicle Infotainment System shall use this method to complete pairing. Once the PIN's have been confirmed on both devices, the pairing routine shall be completed by exchanging and storing authentication information on each device. This shall be the default method for pairing all devices.

If the initiating device does not support SSP, In-Vehicle Infotainment System shall use the legacy pairing method and In-Vehicle Infotainment System shall generate a 4 digit PIN (). Once this PIN is entered into the other Bluetooth device, it will complete the pairing routine by exchanging and storing authentication information on each device.

In-Vehicle Infotainment System shall remain in discoverable mode until either one of the following criteria is met:

- A device successfully pairs with it.
- A maximum of 180 seconds has passed.
- Driver Restrictions have been enabled.

The user shall have the option to exit this mode at any time.

3.1.2.5 BTP-FUR-REQ-033775/A-Pairing via Dock Connector to iOS Devices (TcSE ROIN-295150-1)

In-Vehicle Infotainment System, shall support the ability to pair to an iOS device upon its' connection via the dock connector.

3.1.2.6 BTP-FUR-REQ-033778/B-Pairing via Dock Connector Requirements (TcSE ROIN-295153-2)

This method of pairing allows a user to pair their iOS device by connecting its' dock connector to the In-Vehicle Infotainment System. The technical details are contained in the MFi specifications.
For the feature to work, the In-Vehicle Infotainment System must be ready to receive and complete the pairing process from the connected iOS device after some dock pairing specific USB communication is exchanged between the iOS device and the In-Vehicle Infotainment System. In-Vehicle Infotainment System shall offer the option for the customer to trigger the pairing with the device, either in an active form like a popup, or in a passive form via menu entry.

Upon USB insertion of an iOS device, In-Vehicle Infotainment System shall determine if the iOS device supports the ability to report its Bluetooth connection status. If support is present, In-Vehicle Infotainment System shall determine the following:

1. If the device is paired.
2. For active forms of initiating pairing only: If the user has opted not to pair the device via Bluetooth in the past. (A maximum list of the most recent 10 devices that have opted not to pair via iAP shall be retained)

If either the device has been paired or the user has opted not pair the device via iAP in the past, In-Vehicle Infotainment System shall not take any action to attempt to pair the device via iAP.

If none of the above conditions are valid, then In-Vehicle Infotainment System shall attempt to pair the device via iAP, when the user selects the option given by the HMI.

Notice that at the time of writing, the only way to determine if the device is paired is via the Bluetooth device name. If a device with the same name is already paired, then the iOS device will be considered as already paired.

Once the pairing is triggered, the pairing request is slightly different than the normal pairing requests because it will have "MITM protection" set to inactive.

The In-Vehicle Infotainment System shall auto accept this pairing request provided it comes within 5 sec after the IVIS initiated the USB commands for dock pairing, and the name of the device sending the pairing request corresponds to the name of the device to which the USB commands were sent.

See the latest released versions of HMI and Media Player Specification for additional information.

3.1.2.7 BTP-FUR-REQ-033779/C-Pairing Process (TcSE ROIN-295154-2)

In-Vehicle Infotainment System shall allow a maximum of 12 devices to be paired at one time. If the user attempts to place In-Vehicle Infotainment System into Discovery or Discoverable Mode when there are already 12 devices paired, the user shall be prompted to delete one or more of the previously paired devices prior to proceeding.

In-Vehicle Infotainment System shall disconnect all connected Bluetooth devices if the user has entered Discovery or Discoverable mode, or the customer has confirmed the iAP pairing. If In-Vehicle Infotainment System was connected to a device upon entering Discovery or Discoverable mode and pairing fails or is not completed, In-Vehicle Infotainment System shall not reconnect to the device that was disconnected.
In the case that other devices are already paired, the In-Vehicle Infotainment System shall only connect or allow an incoming connection request to / from the newly paired device.

When a successful pairing has taken place, In-Vehicle Infotainment System shall indicate that a device has been successfully paired, and the identity of the paired device.

In-Vehicle Infotainment System shall notify the user in the event that their pairing attempt has failed and/or timed out.

3.1.2.8 BTP-FUR-REQ-033780/B-Service Discovery (TcSE ROIN-295155-2)

Once paired successfully, the In-Vehicle Infotainment System shall use Service Discovery to determine if the device supports the following profiles and profile versions:

- Handsfree Profile
- Message Access Profile
- Message Notification Service
- Phonebook Access Profile
- Advanced Audio Distribution Profile
- Audio / Video Remote Control Profile
- Device ID Profile
- AppLink

If the newly paired device does not support any of the following:

-Handsfree Profile 1.0+ (AG)
-Advanced Audio Distribution Profile 1.0+ (SRC)
-AppLink

The In-Vehicle Infotainment System shall delete the device, and prompt the user as specified within the H28a Phone SHMI specification.

3.1.2.9 BTP-FUR-REQ-033781/B-Device Display Requirements (TcSE ROIN-295156-1)

When displaying paired devices, In-Vehicle Infotainment System shall always show the paired devices in order of last connection with the exception of device that is designated as the primary device. The primary device shall always be shown first. This means that the display order of the paired devices can be modified by selecting a new primary device.

3.1.2.10 BTP-FUR-REQ-033782/D-Connection Order and Requirements (TcSE ROIN-295157-2)

The user shall be able to select a primary device.

On all subsequent automatic connections, In-Vehicle Infotainment System shall attempt to connect to the primary device for HFP and A2DP. If the primary device is not available, then In-Vehicle Infotainment System shall attempt to connect to the most recent connected device (excluding the primary device). In-Vehicle Infotainment System shall attempt to connect to the primary device for at least 10 seconds before moving to the next device. In-Vehicle Infotainment System shall attempt to connect the remaining devices a total of 10 seconds each before moving to the next device. The automatic connection sequence shall take no more than 120 seconds for all previously paired devices.

The user shall be able to select any previously paired device and attempt to connect it manually. In this case, In-Vehicle Infotainment System shall drop any device that is currently connected and using that service. In-Vehicle Infotainment System shall attempt to connect to the selected device for a total of 30 seconds.

In-Vehicle Infotainment System shall attempt to connect to an A2DP device when prompted by the user (through pairing, activating an A2DP Source, or suspending and resuming when the source is an A2DP device).

If the user turns Bluetooth 'ON' and In-Vehicle Infotainment System does not receive a connection request from a paired device within 5 seconds, then In-Vehicle Infotainment System shall attempt to connect to an AG as described above.

If the user selects the device manually on the In-Vehicle Infotainment System via the Bluetooth Device List for phone functionality, the device shall be connected via HFP and A2DP even if another device is already connected to A2DP.

If the user selects the device manually on the In-Vehicle Infotainment System for Media functionality, the device shall be connected via HFP and A2DP if no other device is currently connected via HFP.

If the user selects the device manually on the In-Vehicle Infotainment System for Media functionality, the device shall be connected only via A2DP if another device is currently connected via HFP.
This is also the case if the newly selected device is supporting A2DP only. The HFP connection shall remain on the other device which was connected already.

3.1.2.11 BTP-FUR-REQ-033783/B-Profile Connection Order (TcSE ROIN-295158-2)

When the In-Vehicle Infotainment System is automatically connecting to a device for phone based features, i.e. HFP, the In-Vehicle Infotainment System shall connect to the following profiles in priority order (if supported by the paired device):

Service Discovery Profile
Device ID Profile
1. Handsfree Profile
2. Phonebook Access Profile
3. Message Access Profile

When the In-Vehicle Infotainment System is automatically connecting to a device for media player based features, i.e. A2DP, In-Vehicle Infotainment System shall connect to the following profiles in priority order:

Service Discovery Profile
Device ID Profile
1. Advanced Audio Distribution Profile
2. Audio / Video Remote Control Profile
3. AppLink

When the In-Vehicle Infotainment System is automatically connecting to both a device or devices for phone and media player functions, the In-Vehicle Infotainment System shall connect to the devices in the following order priority:

Service Discovery Profile
Device ID Profile
1. Handsfree Profile
2. Advanced Audio Distribution Profile
3. Audio / Video Remote Control Profile
4. AppLink
5. Phonebook Access Profile
6. Message Access Profile

3.1.2.12 BTP-FUR-REQ-033784/A-Connecting to Device that has Lost Pairing Information (TcSE ROIN-295159-2)

The In-Vehicle Infotainment System shall have the ability to detect when a device has no longer retained authentication information from a pairing perspective. Once this issue has been detected, as defined within the Connection Error States section of this document, the In-Vehicle Infotainment System shall have the ability to alert the customer that they will have to repair their device.

3.1.2.13 BTP-FUR-REQ-033785/B-Delete Device (TcSE ROIN-295160-1)

The user shall have the option of deleting a previously paired device. The stored device information for that Bluetooth device will be removed, thus preventing that device from being able to connect with In-Vehicle Infotainment System. In order to connect the Bluetooth device again, the user will need to pair the device again.
If the deleted device was the primary device, the next device of the device list shall be set as primary device automatically.

3.1.2.14 BTP-FUR-REQ-033786/B-Secure Simple Pairing Debug Mode (TcSE ROIN-295161-1)

The supplier shall provide two USB based installation files for the following actions:

1. Place In-Vehicle Infotainment System into Secure Simple Pairing Debug Mode. This forces In-Vehicle Infotainment System to use a pre-defined Diffie-Hellman private key during pairing to enable debug equipment to monitor an encrypted Bluetooth connection.
2. Disable Secure Simple Pairing Debug Mode.

The intent of these installation files will be to enable / disable Secure Simple Pairing Debug mode by accessing the file via In-Vehicle Infotainment System via the available USB port.

3.1.2.15 BTP-FUR-REQ-033787/B-Link Key Extraction (TcSE ROIN-295162-1)

The In-Vehicle Infotainment System shall provide the ability to extract the link key via USB by accessing a supplier provided installation file stored within a USB Flash drive. The In-Vehicle Infotainment System shall write following information of each paired device to a text file on the USB Flash drive:

- Link Key
- Bluetooth Mac Address
- Friendly Name

3.1.2.16 BTP-FUR-REQ-033788/B-Bluetooth Trace Extraction (TcSE ROIN-295163-1)

The In-Vehicle Infotainment System shall provide the ability to write a .CFA file to a USB Flash drive. This .CFA file shall include all HCI traffic from the Bluetooth IC. The supplier shall provide an installation file to enable / disable this mode within the In-Vehicle Infotainment System. This .CFA shall be accessible via the Frontline Bluetooth Trace Analysis tools.

3.1.2.17 BTP-FUR-REQ-033789/A-Pairing Exceptions (TcSE ROIN-304235-1)

The in-vehicle infotainment system shall have the ability to determine that an error has occurred during the process as defined via the Bluetooth Core Specification v2.1.

More specifically, the secure simple pairing errors and process states as outlined within section 4.2 (pg. 870) within the Bluetooth Core Specification v2.1 shall be taken into consideration when secure simple pairing is the method used to pair a new device.

3.2 BTP-FUN-REQ-033790/B-Connecting a Paired Phone (TcSE ROIN-294311-1)

3.2.1 Use Cases

3.2.1.1 BTP-UC-REQ-033791/C-Connecting to a previously paired phone upon resume (No Active Call) (TcSE ROIN-290867-1)

Linked Elements
BTP-UC-REQ-033814/C-Connecting an Audio Player Upon Resume (TcSE ROIN-290883-1)
BTP-FUR-REQ-033782/D-Connection Order and Requirements (TcSE ROIN-295157-2)
BTP-FUR-REQ-113744/C-Connection method

Actors	Customer Mobile Phone
Pre-conditions	A mobile phone is currently paired to the In-Vehicle Infotainment System. Bluetooth must be on in In-Vehicle Infotainment System and mobile device.
Scenario Description	Upon entering and activating the vehicle's In-Vehicle Infotainment System, the In-Vehicle Infotainment System will initiate a connection to a previously paired phone.
Post-conditions	A HFP and A2DP connection is established between the In-Vehicle Infotainment System and the primary device. A Message Notification Service has been established between the connected phone and In-Vehicle Infotainment System. (if supported) If the requirements are met to download the phonebook, the phonebook of the connected phone is downloaded (if supported). The In-Vehicle Infotainment System downloads the call history of the connected phone (if supported).

	The In-Vehicle Infotainment System synchronizes the text messages from the connected phone (if supported). Signal strength, phone battery strength and roaming status will be available for the In-Vehicle Infotainment System to display
List of Exception Use Cases	E1 – Failed to Connect to Previously Paired Phone upon Resume. E2 – Connected to previously paired phone for phone features, but Phonebook Download Fails. E3 – Connected to previously paired phone for phone features, but Call History Download Fails. E4 – Connected to previously paired phone for phone features, but Text Messaging Synchronization Fails. E5 – Connected to previously paired phone for phone features, but Message Notification Fails. E6 - Signal, Phone Battery Strength and/or Roaming Status not available.
Interfaces	G-HMI Vehicle System Interface

3.2.1.2 BTP-UC-REQ-033746/A-Signal, Phone Battery Strength and/or Roaming Status not available (TcSE ROIN-290842-1)

Linked Elements
BTP-UC-REQ-033752/A-Pairing a phone with other phone(s) paired via SSP – Discoverable Mode (TcSE ROIN-290845-1)
BTP-UC-REQ-033753/A-Pairing a phone with no other phone paired via SSP – Discovery Mode (TcSE ROIN-290846-2)
BTP-UC-REQ-033754/A-Pairing a phone with phone paired via SSP – Discovery Mode (TcSE ROIN-290847-2)
BTP-UC-REQ-033755/A-Pairing a phone with no other phone paired via non-SSP – Discoverable Mode (TcSE ROIN-290848-1)
BTP-UC-REQ-033760/A-Pairing a phone with no other phone paired via non-SSP – Discovery Mode (TcSE ROIN-290852-1)
BTP-UC-REQ-033761/A-Pairing a phone with phone paired via non SSP – Discovery Mode (TcSE ROIN-290853-1)
BTP-UC-REQ-033804/C-Connecting to a previously paired phone via phone (Active Call) (TcSE ROIN-290880-1)
BTP-UC-REQ-033735/B-Pairing a phone with no other phone paired via SSP – Discoverable Mode (TcSE ROIN-290831-2)
BTP-UC-REQ-033759/B-Pairing a phone with other phone(s) paired via non SSP – Discoverable Mode (TcSE ROIN-290851-2)
BTP-UC-REQ-033791/C-Connecting to a previously paired phone upon resume (No Active Call) (TcSE ROIN-290867-1)
BTP-UC-REQ-033798/C-Connecting to a previously paired phone upon resume (Active Call) (TcSE ROIN-290874-1)
BTP-UC-REQ-033802/C-Connecting to a previously paired phone w/phone connected (Active Call) (TcSE ROIN-290878-1)
BTP-UC-REQ-033803/C-Connecting to a previously paired phone via phone (No Active Call) (TcSE ROIN-290879-1)
BTP-UC-REQ-033762/B-Pairing a phone with other device(s) connected (TcSE ROIN-290854-1)
BTP-UC-REQ-033800/D-Connecting to a previously paired phone w/phone connected (No Active Call) (TcSE ROIN-290876-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as normal use case
Scenario Description	In-Vehicle Infotainment System In-Vehicle Infotainment System Signal, Phone Battery Strength and/or Roaming Status not available (i.e. HFP)
Post-conditions	The unavailable information is not displayed to the customer
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.2.1.3 BTP-UC-REQ-033792/A-Failed to Connect to Previously Paired Phone upon Resume (TcSE ROIN-290868-1)

Linked Elements
BTP-UC-REQ-033804/C-Connecting to a previously paired phone via phone (Active Call) (TcSE ROIN-290880-1)
BTP-UC-REQ-033791/C-Connecting to a previously paired phone upon resume (No Active Call) (TcSE ROIN-290867-1)
BTP-UC-REQ-033798/C-Connecting to a previously paired phone upon resume (Active Call) (TcSE ROIN-290874-1)
BTP-UC-REQ-033802/C-Connecting to a previously paired phone w/phone connected (Active Call) (TcSE ROIN-290878-1)
BTP-UC-REQ-033803/C-Connecting to a previously paired phone via phone (No Active Call) (TcSE ROIN-290879-1)
BTP-FUR-REQ-033782/D-Connection Order and Requirements (TcSE ROIN-295157-2)

Actors	Customer Mobile Phone

Pre-conditions	Same as in original use case
Scenario Description	Upon resume, the In-Vehicle Infotainment System cannot connect to any previously paired device and / or unable to connect to the previously paired device for phone features.
Post-conditions	The user is not indicated that a connection was not successful. The In-Vehicle Infotainment System continues to attempt to connect to previously paired devices for phone features.
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.2.1.4 BTP-UC-REQ-033793/A-Connected to previously paired phone for phone features, but Phonebook Download Fails (TcSE ROIN-290869-1)

Linked Elements
BTP-UC-REQ-033804/C-Connecting to a previously paired phone via phone (Active Call) (TcSE ROIN-290880-1)
BTP-UC-REQ-033791/C-Connecting to a previously paired phone upon resume (No Active Call) (TcSE ROIN-290867-1)
BTP-UC-REQ-033798/C-Connecting to a previously paired phone upon resume (Active Call) (TcSE ROIN-290874-1)
BTP-UC-REQ-033802/C-Connecting to a previously paired phone w/phone connected (Active Call) (TcSE ROIN-290878-1)
BTP-UC-REQ-033803/C-Connecting to a previously paired phone via phone (No Active Call) (TcSE ROIN-290879-1)
BTP-UC-REQ-033800/D-Connecting to a previously paired phone w/phone connected (No Active Call) (TcSE ROIN-290876-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as in original use case
Scenario Description	The In-Vehicle Infotainment System was able to connect to the previously paired phone for phone features, but was not able to download the phonebook.
Post-conditions	The user is not indicated that the failed action was unsuccessful. *Note: Reason we are not displaying an error message here is because the user would have already seen the error message if when they paired and connected for the first time or when they set 'Auto-Phonebook' download to 'On'.
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.2.1.5 BTP-UC-REQ-033794/A-Connected to previously paired phone for phone features, but Call History Download Fails (TcSE ROIN-290870-1)

Linked Elements
BTP-UC-REQ-033804/C-Connecting to a previously paired phone via phone (Active Call) (TcSE ROIN-290880-1)
BTP-UC-REQ-033791/C-Connecting to a previously paired phone upon resume (No Active Call) (TcSE ROIN-290867-1)
BTP-UC-REQ-033798/C-Connecting to a previously paired phone upon resume (Active Call) (TcSE ROIN-290874-1)
BTP-UC-REQ-033802/C-Connecting to a previously paired phone w/phone connected (Active Call) (TcSE ROIN-290878-1)
BTP-UC-REQ-033803/C-Connecting to a previously paired phone via phone (No Active Call) (TcSE ROIN-290879-1)
BTP-UC-REQ-033800/D-Connecting to a previously paired phone w/phone connected (No Active Call) (TcSE ROIN-290876-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as in original use case
Scenario Description	The In-Vehicle Infotainment System was able to connect to the previously paired phone for phone features, but was not able to download the Call History. The user attempts to access the Call History via the In-Vehicle Infotainment System.
Post-conditions	The user is indicated that the failed action was unsuccessful.
List of Exception Use Cases	N/A
Interfaces	G-HMI

	Vehicle System Interface

3.2.1.6 BTP-UC-REQ-033795/A-Connected to previously paired phone for phone features, but Text Messaging Synchronization Fails (TcSE ROIN-290871-1)

Linked Elements
BTP-UC-REQ-033804/C-Connecting to a previously paired phone via phone (Active Call) (TcSE ROIN-290880-1)
BTP-UC-REQ-033791/C-Connecting to a previously paired phone upon resume (No Active Call) (TcSE ROIN-290867-1)
BTP-UC-REQ-033798/C-Connecting to a previously paired phone upon resume (Active Call) (TcSE ROIN-290874-1)
BTP-UC-REQ-033802/C-Connecting to a previously paired phone w/phone connected (Active Call) (TcSE ROIN-290878-1)
BTP-UC-REQ-033803/C-Connecting to a previously paired phone via phone (No Active Call) (TcSE ROIN-290879-1)
BTP-UC-REQ-033800/D-Connecting to a previously paired phone w/phone connected (No Active Call) (TcSE ROIN-290876-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as in original use case
Scenario Description	The In-Vehicle Infotainment System was able to connect to the previously paired phone for phone features, but was not able to synchronize the text messages from the connected device. The user attempts to access text messaging features via the In-Vehicle Infotainment System.
Post-conditions	The user is indicated that the failed action was unsuccessful.
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.2.1.7 BTP-UC-REQ-033796/A-Connected to previously paired phone for phone features, but Message Notification Fails (TcSE ROIN-290872-1)

Linked Elements
BTP-UC-REQ-033804/C-Connecting to a previously paired phone via phone (Active Call) (TcSE ROIN-290880-1)
BTP-UC-REQ-033791/C-Connecting to a previously paired phone upon resume (No Active Call) (TcSE ROIN-290867-1)
BTP-UC-REQ-033798/C-Connecting to a previously paired phone upon resume (Active Call) (TcSE ROIN-290874-1)
BTP-UC-REQ-033802/C-Connecting to a previously paired phone w/phone connected (Active Call) (TcSE ROIN-290878-1)
BTP-UC-REQ-033803/C-Connecting to a previously paired phone via phone (No Active Call) (TcSE ROIN-290879-1)
BTP-UC-REQ-033800/D-Connecting to a previously paired phone w/phone connected (No Active Call) (TcSE ROIN-290876-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as in original use case
Scenario Description	The In-Vehicle Infotainment System was able to connect to the previously paired phone for phone features, but was message notification fails (i.e. In-Vehicle Infotainment System is not able to display new incoming messages)
Post-conditions	The user is indicated that the failed action text message notifications are not available. Periodic polling when this error is detected.
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.2.1.8 BTP-UC-REQ-033798/C-Connecting to a previously paired phone upon resume (Active Call) (TcSE ROIN-290874-1)

Linked Elements
BTP-UC-REQ-033814/C-Connecting an Audio Player Upon Resume (TcSE ROIN-290883-1)
BTP-FUR-REQ-033782/D-Connection Order and Requirements (TcSE ROIN-295157-2)
BTP-FUR-REQ-113744/C-Connection method

Actors	Customer, Mobile Phone
Pre-conditions	A phone is currently paired to the In-Vehicle Infotainment System. Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s).
Scenario Description	Upon entering and activating the vehicle's In-Vehicle Infotainment System, the In-Vehicle Infotainment System will initiate a connection to the primary phone. In this case, there is an active call present during the connection.
Post-conditions	A HFP and A2DP connection is established between the In-Vehicle Infotainment System and the primary device The active call becomes active and audio is routed out of the In-Vehicle Infotainment System's speakers. The active phone call metadata is displayed A Message Notification Service has been established between the connected phone and In-Vehicle Infotainment System. If the requirements are met to download the phonebook, the phonebook of the connected phone is downloaded (if supported). The In-Vehicle Infotainment System downloads the call history of the connected phone (if supported). The In-Vehicle Infotainment System synchronizes the text messages from the connected phone (if supported). Signal strength, phone battery strength and roaming status will be available for the In-Vehicle Infotainment System to display.
List of Exception Use Cases	E1 – Failed to Connect to Previously Paired Phone upon Resume. E2 – Connected to previously paired phone for phone features, but Phonebook Download Fails. E3 – Connected to previously paired phone for phone features, but Call History Download Fails. E4 – Connected to previously paired phone for phone features, but Text Messaging Synchronization Fails. E5 – Connected to previously paired phone for phone features, but Message Notification Fails. E6 - Signal, Phone Battery Strength and/or Roaming Status not available. E7 - The active call does not become Handsfree after a connection to the In-Vehicle Infotainment System.
Interfaces	G-HMI Vehicle System Interface

3.2.1.9 BTP-UC-REQ-033799/A-The active call does not become Handsfree after a connection to the In-Vehicle Infotainment System (TcSE ROIN-290875-1)

Linked Elements
BTP-UC-REQ-033804/C-Connecting to a previously paired phone via phone (Active Call) (TcSE ROIN-290880-1)
BTP-UC-REQ-033798/C-Connecting to a previously paired phone upon resume (Active Call) (TcSE ROIN-290874-1)
BTP-UC-REQ-033802/C-Connecting to a previously paired phone w/phone connected (Active Call) (TcSE ROIN-290878-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as in original use case
Scenario Description	The In-Vehicle Infotainment System was able to connect to the previously paired phone for phone features and an active call was present at the time of the connection. The active call audio was not able to be routed to the speakers of the In-Vehicle Infotainment System.
Post-conditions	The customer is alerted that the audio In-Vehicle Infotainment System was not able to route the call audio via the In-Vehicle Infotainment System speakers. The In-Vehicle Infotainment System alerts the customer that the audio is on the handset for the active call.

List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.2.1.10 BTP-UC-REQ-033800/D-Connecting to a previously paired phone w/phone connected (No Active Call) (TcSE ROIN-290876-1)

Linked Elements
BTP-FUR-REQ-033782/D-Connection Order and Requirements (TcSE ROIN-295157-2)
BTP-FUR-REQ-113744/C-Connection method

Actors	Customer Mobile Phone
Pre-conditions	More than one phone is currently paired to the In-Vehicle Infotainment System. The In-Vehicle Infotainment System is connected to one of the phones for phone features. Another paired phone is available.
Scenario Description	The In-Vehicle Infotainment System is connected to a mobile phone for phone features, and paired one or more phones other than the one currently connected. The customer has indicated via the In-Vehicle Infotainment System G-HMI that they want to establish a connection to one of the other previously paired phones to access phone related features.
Post-conditions	The In-Vehicle Infotainment System releases the connection to the device(s) that was initially connected - either for phone feature or media player feature - when the Customer indicated a desire to connect to a new phone for phone features. The In-Vehicle Infotainment System establishes a connection for phone and for media player functionality to the phone which was manually selected by the customer. If the newly selected device is only supporting phone functionality, then the A2DP connection to another device shall remain as is. A Message Notification Service has been established between the connected phone and In-Vehicle Infotainment System. If the requirements are met to download the phonebook, the phonebook of the connected phone is downloaded (if supported). The In-Vehicle Infotainment System downloads the call history of the connected phone (if supported). The In-Vehicle Infotainment System synchronizes the text messages from the connected phone (if supported). Signal strength, phone battery strength and roaming status will be available for the In-Vehicle Infotainment System to display.
List of Exception Use Cases	E1 – Failed to Connect to Previously Paired Phone w/Phone Connected. E2 – Connected to previously paired phone for phone features, but Phonebook Download Fails. E3 – Connected to previously paired phone for phone features, but Call History Download Fails. E4 – Connected to previously paired phone for phone features, but Text Messaging Synchronization Fails. E5 – Connected to previously paired phone for phone features, but Message Notification Fails. E6 - Signal, Phone Battery Strength and/or Roaming Status not available.
Interfaces	G-HMI V-HMI

3.2.1.11 BTP-UC-REQ-033801/A-Failed to Connect to Previously Paired Phone w/Phone Connected (TcSE ROIN-290877-1)

Linked Elements
BTP-UC-REQ-033800/D-Connecting to a previously paired phone w/phone connected (No Active Call) (TcSE ROIN-290876-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as in original use case
Scenario Description	While connected to a phone, the customer has opted to initiate a connection via the In-Vehicle Infotainment System to another paired phone. The connection to the selected phone has failed.
Post-conditions	The user is notified via G-HMI that a connection could not be established to the selected phone.
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.2.1.12 BTP-UC-REQ-033802/C-Connecting to a previously paired phone w/phone connected (Active Call) (TcSE ROIN-290878-1)

Linked Elements
BTP-FUR-REQ-033782/D-Connection Order and Requirements (TcSE ROIN-295157-2)
BTP-FUR-REQ-113744/C-Connection method

Actors	Customer Mobile Phone
Pre-conditions	More than one phone is currently paired to the In-Vehicle Infotainment System. The In-Vehicle Infotainment System is connected to one of the phones for phone features. Another paired phone is available and in an active call
Scenario Description	The In-Vehicle Infotainment System is connected to a mobile phone for phone features, and paired one or more phones other than the one currently connected. The customer has indicated via the In-Vehicle Infotainment System G-HMI that they want to establish a connection to one of the other previously paired phones to access phone related features.
Post-conditions	The In-Vehicle Infotainment System releases the connection to the device(s) that was initially connected - either for phone feature or media player feature - when the Customer indicated a desire to connect to a new phone for phone features. The In-Vehicle Infotainment System establishes a connection for phone and for media player functionality to the phone which was manually selected by the customer. The active call becomes active and audio is routed out of the In-Vehicle Infotainment System's speakers. A Message Notification Service has been established between the connected phone and In-Vehicle Infotainment System (if supported). If the requirements are met to download the phonebook, the phonebook of the connected phone is downloaded (if supported). The In-Vehicle Infotainment System downloads the call history of the connected phone (if supported). The In-Vehicle Infotainment System synchronizes the text messages from the connected phone (if supported). Signal strength, phone battery strength and roaming status will be available for the In-Vehicle Infotainment System to display.
List of Exception Use Cases	E1 – Failed to Connect to Previously Paired Phone upon Resume. E2 – Connected to previously paired phone for phone features, but Phonebook Download Fails.

	E3 – Connected to previously paired phone for phone features, but Call History Download Fails. E4 – Connected to previously paired phone for phone features, but Text Messaging Synchronization Fails. E5 – Connected to previously paired phone for phone features, but Message Notification Fails. E6 - Signal, Phone Battery Strength and/or Roaming Status not available. E7 - The active call does not become Handsfree after a connection to the In-Vehicle Infotainment System.
Interfaces	G-HMI V-HMI Vehicle System Interface

3.2.1.13 BTP-UC-REQ-033803/C-Connecting to a previously paired phone via phone (No Active Call) (TcSE ROIN-290879-1)

Linked Elements
BTP-FUR-REQ-033782/D-Connection Order and Requirements (TcSE ROIN-295157-2)
BTP-FUR-REQ-113744/C-Connection method

Actors	Customer Mobile Phone
Pre-conditions	A mobile phone is currently paired to the In-Vehicle Infotainment System No phone is connected to In-Vehicle Infotainment System for phone features. Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s).
Scenario Description	The In-Vehicle Infotainment System is not connected to another mobile phone for either phone or media features. A paired phone has indicated that it wants to connect to the In-Vehicle Infotainment System for phone features.
Post-conditions	A HFP and A2DP connection is established between the In-Vehicle Infotainment System and the selected device. A Message Notification Service has been established between the connected phone and In-Vehicle Infotainment System (if supported). If the requirements are met to download the phonebook, the phonebook of the connected phone is downloaded (if supported). The In-Vehicle Infotainment System downloads the call history of the connected phone (if supported). The In-Vehicle Infotainment System synchronizes the text messages from the connected phone (if supported). Signal strength, phone battery strength and roaming status will be available for the In-Vehicle Infotainment System to display.
List of Exception Use Cases	E1 – Failed to Connect to Previously Paired Phone upon Resume. E2 – Connected to previously paired phone for phone features, but Phonebook Download Fails. E3 – Connected to previously paired phone for phone features, but Call History Download Fails. E4 – Connected to previously paired phone for phone features, but Text Messaging Synchronization Fails. E5 – Connected to previously paired phone for phone features, but Message Notification Fails. E6 - Signal, Phone Battery Strength and/or Roaming Status not available.
Interfaces	G-HMI

3.2.1.14 BTP-UC-REQ-033804/C-Connecting to a previously paired phone via phone (Active Call) (TcSE ROIN-290880-1)

Linked Elements

BTP-FUR-REQ-033782/D-Connection Order and Requirements (TcSE ROIN-295157-2)
BTP-FUR-REQ-113744/C-Connection method

Actors	Customer Mobile Phone
Pre-conditions	A mobile phone is currently paired to the In-Vehicle Infotainment System No phone is connected to In-Vehicle Infotainment System for phone features. Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device.
Scenario Description	The In-Vehicle Infotainment System is not connected to another mobile phone for phone or for media features. A paired phone has indicated that it wants to connect to the In-Vehicle Infotainment System for either phone or media features.
Post-conditions	A HFP and A2DP connection is established between the In-Vehicle Infotainment System and the selected device. The active call becomes active and audio is routed out of the In-Vehicle Infotainment System's speakers. A Message Notification Service has been established between the connected phone and In-Vehicle Infotainment System (if supported). If the requirements are met to download the phonebook, the phonebook of the connected phone is downloaded (if supported). The In-Vehicle Infotainment System downloads the call history of the connected phone (if supported). The In-Vehicle Infotainment System synchronizes the text messages from the connected phone (if supported). Signal strength, phone battery strength and roaming status will be available for the In-Vehicle Infotainment System to display.
List of Exception Use Cases	E1 – Failed to Connect to Previously Paired Phone upon Resume. E2 – Connected to previously paired phone for phone features, but Phonebook Download Fails. E3 – Connected to previously paired phone for phone features, but Call History Download Fails. E4 – Connected to previously paired phone for phone features, but Text Messaging Synchronization Fails. E5 – Connected to previously paired phone for phone features, but Message Notification Fails. E6 - Signal, Phone Battery Strength and/or Roaming Status not available. E7 - The active call does not become Handsfree after a connection to the In-Vehicle Infotainment System.
Interfaces	G-HMI

3.2.1.15 BTP-UC-REQ-033805/B-Incoming Connection Received from a previously paired phone , while already connected to another previously paired phone (TcSE ROIN-290881-1)

Linked Elements
BTP-FUR-REQ-033782/D-Connection Order and Requirements (TcSE ROIN-295157-2)
BTP-FUR-REQ-113744/C-Connection method

Actors	Customer Mobile Phone
Pre-conditions	More than one mobile phone is currently paired to the In-Vehicle Infotainment System. A phone is connected to In-Vehicle Infotainment System for phone or media player features, or both. Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s).
Scenario Description	The In-Vehicle Infotainment System is connected to another mobile phone for phone or for media player features. A paired phone has indicated that it wants to

	connect to the In-Vehicle Infotainment System.
Post-conditions	The In-Vehicle Infotainment System remains connected to the current phone. The In-Vehicle Infotainment System rejects the connection request from the non-connected paired phone. No customer notification required.
List of Exception Use Cases	N/A
Interfaces	N/A

3.2.1.16 BTP-UC-REQ-033806/B-Changing the Primary Device (TcSE ROIN-290882-1)

Actors	Customer Mobile Phone
Pre-conditions	More than one mobile device is currently paired to the In-Vehicle Infotainment System. Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System.
Scenario Description	The user wants to change the primary device from one paired device to another paired device. They opt to do this via the G-HMI options provided by the In-Vehicle Infotainment System.
Post-conditions	The In-Vehicle Infotainment System indicates to the user that the favorite device has been updated.
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.2.2 Requirements

3.2.2.1 BTP-FUR-REQ-033807/A-# of Connections and Connection Confirmation (TcSE ROIN-295039-2)

The HFP Port of In-Vehicle Infotainment System will support being connected to one device at a time. The in-vehicle infotainment system shall query the connected AG for the correct RFCOMM channels to ensure that it requests to connect on the appropriate channel.

3.2.2.2 BTP-FUR-REQ-033808/C-Connection (TcSE ROIN-295040-1)

If the user initiates an interaction on In-Vehicle Infotainment System to connect to a new Bluetooth device to a profile port that is already connected to a device, the previously connected device will be disconnected for this profile port, and the new device will be connected.
If a device is not connected to the In-Vehicle Infotainment System shall connect to the selected device.

If the device should be connected for phone features, then additionally the connection for the media player feature shall be established. If the user intends to connect the device for media player functionality only, the previous connected device should stay connected for phone functionality.

If a newly selected device is only supporting Phone or Media functionality, then only the profiles for the supported function shall be connected, and the other function shall remain on the other device which was already connected before.

For more information see BTP-FUR-REQ-033782-Connection Order and Requirements.

3.2.2.3 BTP-FUR-REQ-033809/B-Automatic Connection (TcSE ROIN-295041-2)

An automatic connection will be triggered within 2 seconds of In-Vehicle Infotainment System entering a power state in which Infotainment is set to on as defined in the latest released version of Power Management APIM SPSS, any phone related function initiated by the user via In-Vehicle Infotainment System (when a phone is not connected for HFP).

In the event that the In-Vehicle Infotainment System does not receive any Bluetooth communication from any previously paired devices upon an automatic connection, the In-Vehicle Infotainment System shall initiate another automatic connection attempt to each device of the device list after 90 seconds (after each cycle) according the order described within BTP-GREQ-295157.

*Note: The In-Vehicle Infotainment System shall not try to reconnect to a device while the user is attempting to pair a new device as described within H28c SHMI Pairing Specification.

3.2.2.4 BTP-FUR-REQ-033810/A-Connection Error States (TcSE ROIN-304240-1)

The in-vehicle infotainment system shall have the ability to detect the following error states when attempting to connect to a previously paired device:

1. Authentication has failed.
2. The device is present, but has rejected the in-vehicle infotainment's request to connect to a specific profile.

3.2.2.5 BTP-FUR-REQ-033811/A-Authentication Failed (TcSE ROIN-304241-1)

The in-vehicle infotainment system shall determine that authentication has failed when the device that it is attempting to connect to responds with Not Accepted with a reason code PIN or Key Missing to its au_rand request.

3.2.2.6 BTP-FUR-REQ-033812/A-Device is Preset, but has rejected or failed to allow a connection to HFP/A2DP (TcSE ROIN-304242-1)

The in-vehicle infotainment system shall determine that a profile connection has failed or been rejected in the following scenarios:

1. Handsfree Profile:
    a. The in-vehicle infotainment system is attempting to connect to an AG for Handsfree Profile and has received some Bluetooth communication from an AG, but does not receive a response from the AG to the commands included within BTP-GREQ-295108-Advanced Error Correction (Functional). This shall be determined by the process defined within BTP-GREQ-295108-Advanced Error Correction (Functional).
2. Advanced Audio Streaming
    a.The in-vehicle infotainment system has received some Bluetooth communication from the source, but receives a negative response from the Open (via AVDTP) request or does not receive a response to the Open Stream request within 10 seconds~~is not able to determine the capabilities of the connected AG~~.

3.2.2.7 BTP-FUR-REQ-113744/C-Connection method

The In-Vehicle Infotainment System shall start the automatic connection only after system start up and for the scenario where the customer was activating Bluetooth manually on IVIS as described in *BTP-FUR-REQ-033809-Automatic Connection* and *BTP-FUR-REQ-033782-Connection Order and Requirements*.

For the case of a link loss event only the previously connected device shall be reconnected as described in BTP-FUR-REQ-041712-Linkloss Door Open Signal and *BTP-FUR-REQ-041713- Linkloss No Door Open Signal*.

In a case of a failed manual connection attempt to a device which is unavailable or unresponsive no other device(s) shall be reconnected automatically. Please see HMI specification for optional error message.

If In-Vehicle Infotainment System was connected to a device upon entering Discovery or Discoverable mode, and pairing fails or is not completed, In-Vehicle Infotainment System shall NOT reconnect to the device that was disconnected (refer to BTP-FUR-REQ-033779-Pairing Process).

If the customer disconnects a device manually no other device of the paired devices shall be reconnected. (refer to BTP-UC-REQ-033875-Manual In-Vehicle Infotainment System Initiated Disconnect.

3.3 BTP-FUN-REQ-033813/B-Connecting a Paired Audio Device (TcSE ROIN-294314-1)

3.3.1 Requirements

3.3.1.1 BTP-FUR-REQ-116805/A-Bluetooth Audio Volume Set

The In-Vehicle Infotainment System shall advertise itself as an AVRCP target to be able to implement the absolute volume feature described in the AVRCP 1.4 Bluetooth specifications.
Sync shall advertise support of the volume changed event notification.
Sync should advertise its current absolute volume to be 0x7f (100%). Sync will never send an event to notify the connected phone that the volume changed, and will not change its volume in case the phone sends absolute volume change commands.
See also the associated requirement in the Media SPSS (*MP-FUR-REQ-093951/A-Bluetooth Audio Volume)*

3.3.1.2 BTP-FUR-REQ-131123/A-iAP2 via Bluetooth

The In-Vehicle Infotainment System shall support iAP2 via Bluetooth to offer the customer the best experience for Browsing on iOS devices. (Refer to MP-FUR-REQ-019894/A-Indexing – AVRCP 1.4 Support). For more information see also MFi Accessory Interface Specification R18.

3.3.2 Use Cases

3.3.2.1 BTP-UC-REQ-033814/C-Connecting an Audio Player Upon Resume (TcSE ROIN-290883-1)

Linked Elements
BTP-FUR-REQ-116805/A-Bluetooth Audio Volume Set
BTP-UC-REQ-033791/C-Connecting to a previously paired phone upon resume (No Active Call) (TcSE ROIN-290867-1)
BTP-UC-REQ-033798/C-Connecting to a previously paired phone upon resume (Active Call) (TcSE ROIN-290874-1)
BTP-FUR-REQ-033782/D-Connection Order and Requirements (TcSE ROIN-295157-2)
BTP-FUR-REQ-113744/C-Connection method

Actors	Customer Audio Player
Pre-conditions	Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s). At prior suspend (or system shut down) In-Vehicle Infotainment System was sourced and connected to Audio Player (via Bluetooth)
Scenario Description	The customer has returned to the vehicle and activated the In-Vehicle Infotainment System.
Post-conditions	The same device will be connected for Media Player Functionality which is connected for Phone Functionality. If the newly connected audio player was connected prior to system shut down the new device is now the active source.
List of Exception Use Cases	E1 – Connection Cannot be established for audio source. E2 – Connection Cannot be established for audio control. E3 – Another BTAudio device is connected after resume
Interfaces	G-HMI Vehicle System Interface

3.3.2.2 BTP-UC-REQ-033749/A-Connection Cannot be established for audio source (TcSE ROIN-290857-1)

Linked Elements
BTP-UC-REQ-033752/A-Pairing a phone with other phone(s) paired via SSP – Discoverable Mode (TcSE ROIN-290845-1)
BTP-UC-REQ-033753/A-Pairing a phone with no other phone paired via SSP – Discovery Mode (TcSE ROIN-290846-2)
BTP-UC-REQ-033754/A-Pairing a phone with phone paired via SSP – Discovery Mode (TcSE ROIN-290847-2)
BTP-UC-REQ-033755/A-Pairing a phone with no other phone paired via non-SSP – Discoverable Mode (TcSE ROIN-290848-1)
BTP-UC-REQ-033760/A-Pairing a phone with no other phone paired via non-SSP – Discovery Mode (TcSE ROIN-290852-1)
BTP-UC-REQ-033761/A-Pairing a phone with phone paired via non SSP – Discovery Mode (TcSE ROIN-290853-1)
BTP-UC-REQ-033735/B-Pairing a phone with no other phone paired via SSP – Discoverable Mode (TcSE ROIN-290831-2)
BTP-UC-REQ-033815/B-Connecting an Audio Player (TcSE ROIN-290884-1)

BTP-UC-REQ-033759/B-Pairing a phone with other phone(s) paired via non SSP – Discoverable Mode (TcSE ROIN-290851-2)
BTP-UC-REQ-033814/C-Connecting an Audio Player Upon Resume (TcSE ROIN-290883-1)
BTP-UC-REQ-033769/B-Pairing an Audio Device via non-SSP with other Device(s) connected – Discoverable Mode (TcSE ROIN-290863-1)
BTP-UC-REQ-033770/B-Pairing an Audio Device via non-SSP with no other Device(s) paired – Discovery Mode (TcSE ROIN-290864-1)
BTP-UC-REQ-033771/B-Pairing an Audio Device via non-SSP with other Device(s) connected – Discovery Mode (TcSE ROIN-290865-1)
BTP-UC-REQ-033772/B-Pairing an Audio Device with other Device(s) paired – Discoverable / Discoverable Mode (TcSE ROIN-290866-1)
BTP-UC-REQ-033762/B-Pairing a phone with other device(s) connected (TcSE ROIN-290854-1)
BTP-UC-REQ-033767/B-Pairing an Audio Device via SSP with other Device(s) connected – Discovery Mode (TcSE ROIN-290861-1)
BTP-UC-REQ-033768/B-Pairing an Audio Device via non-SSP with no other Device(s) paired– Discoverable Mode (TcSE ROIN-290862-1)
BTP-UC-REQ-033764/B-Pairing an Audio Device via SSP with no other Device(s) paired – Discoverable Mode (TcSE ROIN-290856-1)
BTP-UC-REQ-033765/B-Pairing an Audio Device via SSP with other Device(s) connected – Discoverable Mode (TcSE ROIN-290859-1)
BTP-UC-REQ-033766/B-Pairing an Audio Device via SSP with no other Device(s) paired – Discovery Mode (TcSE ROIN-290860-1)
BTP-UC-REQ-033816/C-Connecting an Audio Player w/Audio Player Already Connected (TcSE ROIN-290885-1)
BTP-FUR-REQ-113744/C-Connection method

Actors	Customer Mobile Phone
Pre-conditions	Same as normal use case
Scenario Description	In-Vehicle Infotainment System In-Vehicle Infotainment System Connection cannot be established for audio source (i.e. A2DP)
Post-conditions	An error message is displayed.
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.3.2.3 BTP-UC-REQ-033750/A-Connection Cannot be established for audio control (TcSE ROIN-290858-1)

Linked Elements

BTP-UC-REQ-033752/A-Pairing a phone with other phone(s) paired via SSP – Discoverable Mode (TcSE ROIN-290845-1)
BTP-UC-REQ-033753/A-Pairing a phone with no other phone paired via SSP – Discovery Mode (TcSE ROIN-290846-2)
BTP-UC-REQ-033754/A-Pairing a phone with phone paired via SSP – Discovery Mode (TcSE ROIN-290847-2)
BTP-UC-REQ-033755/A-Pairing a phone with no other phone paired via non-SSP – Discoverable Mode (TcSE ROIN-290848-1)
BTP-UC-REQ-033760/A-Pairing a phone with no other phone paired via non-SSP – Discovery Mode (TcSE ROIN-290852-1)
BTP-UC-REQ-033761/A-Pairing a phone with phone paired via non SSP – Discovery Mode (TcSE ROIN-290853-1)
BTP-UC-REQ-033735/B-Pairing a phone with no other phone paired via SSP – Discoverable Mode (TcSE ROIN-290831-2)
BTP-UC-REQ-033815/B-Connecting an Audio Player (TcSE ROIN-290884-1)
BTP-UC-REQ-033759/B-Pairing a phone with other phone(s) paired via non SSP – Discoverable Mode (TcSE ROIN-290851-2)
BTP-UC-REQ-033814/C-Connecting an Audio Player Upon Resume (TcSE ROIN-290883-1)
BTP-UC-REQ-033769/B-Pairing an Audio Device via non-SSP with other Device(s) connected – Discoverable Mode (TcSE ROIN-290863-1)
BTP-UC-REQ-033770/B-Pairing an Audio Device via non-SSP with no other Device(s) paired – Discovery Mode (TcSE ROIN-290864-1)
BTP-UC-REQ-033771/B-Pairing an Audio Device via non-SSP with other Device(s) connected – Discovery Mode (TcSE ROIN-290865-1)
BTP-UC-REQ-033772/B-Pairing an Audio Device with other Device(s) paired – Discoverable / Discoverable Mode (TcSE ROIN-290866-1)
BTP-UC-REQ-033762/B-Pairing a phone with other device(s) connected (TcSE ROIN-290854-1)
BTP-UC-REQ-033767/B-Pairing an Audio Device via SSP with other Device(s) connected – Discovery Mode (TcSE ROIN-290861-1)
BTP-UC-REQ-033768/B-Pairing an Audio Device via non-SSP with no other Device(s) paired– Discoverable Mode (TcSE ROIN-290862-1)
BTP-UC-REQ-033764/B-Pairing an Audio Device via SSP with no other Device(s) paired – Discoverable Mode (TcSE ROIN-290856-1)
BTP-UC-REQ-033765/B-Pairing an Audio Device via SSP with other Device(s) connected – Discoverable Mode (TcSE ROIN-290859-1)
BTP-UC-REQ-033766/B-Pairing an Audio Device via SSP with no other Device(s) paired – Discovery Mode (TcSE ROIN-290860-1)
BTP-UC-REQ-033816/C-Connecting an Audio Player w/Audio Player Already Connected (TcSE ROIN-290885-1)
BTP-FUR-REQ-113744/C-Connection method

Actors	Customer Mobile Phone
Pre-conditions	Same as normal use case
Scenario Description	In-Vehicle Infotainment System In-Vehicle Infotainment System
Post-conditions	Audio Controls will not be displayed to customer
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.3.2.4 BTP-UC-REQ-131104/A-Another BTAudio Device is connected after resume

Actors	Customer Audio Player
Pre-conditions	Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s). At prior suspend (or system shut down) In-Vehicle Infotainment System was sourced and connected to an Audio Player (via Bluetooth)
Scenario Description	The customer has returned to the vehicle and activated the In-Vehicle Infotainment System.
Post-conditions	The same device will be connected for Media Player Functionality which is connected for Phone Functionality. If another Audio player was connected prior to system shut down the new device shall not be the active source. The In-Vehicle Infotainment System shall switch to the previous Audio Source, which was active prior to BTAudio.
List of Exception Use Cases	
Interfaces	G-HMI Vehicle System Interface

3.3.2.5 BTP-UC-REQ-033815/B-Connecting an Audio Player (TcSE ROIN-290884-1)

Linked Elements
BTP-FUR-REQ-116805/A-Bluetooth Audio Volume Set
BTP-FUR-REQ-033782/D-Connection Order and Requirements (TcSE ROIN-295157-2)
BTP-FUR-REQ-113744/C-Connection method

Actors	Customer Audio Player
Pre-conditions	Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s). An audio player must be paired. No other device is connected currently.
Scenario Description	The customer has indicated that they intend to connect a previously paired device for Media Player functionality
Post-conditions	The In-Vehicle Infotainment System connects the selected device for Phone and for Media Player functionality. The newly connected audio player is now the active source.
List of Exception Use Cases	E1 – Connection Cannot be established for audio source. E2 – Connection Cannot be established for audio control.
Interfaces	G-HMI Vehicle System Interface

3.3.2.6 BTP-UC-REQ-033816/C-Connecting an Audio Player w/Audio Player Already Connected (TcSE ROIN-290885-1)

Linked Elements
BTP-FUR-REQ-116805/A-Bluetooth Audio Volume Set
BTP-FUR-REQ-033782/D-Connection Order and Requirements (TcSE ROIN-295157-2)
BTP-FUR-REQ-113744/C-Connection method

Actors	Customer Audio Player
Pre-conditions	Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s). An audio player must be paired. Another device is connected for media player functionality.

Scenario Description	The customer has indicated that they intend to connect a previously paired audio player.
Post-conditions	The In-Vehicle Infotainment System releases the connection to the device that was initially connected for media player feature when the Customer indicated a desire to connect to a new device for Media Player feature. The In-Vehicle Infotainment System connects the selected device for Media Player functionality. The newly connected audio player is now the active A2DP device.
List of Exception Use Cases	E1 – Connection Cannot be established for audio source. E2 – Connection Cannot be established for audio control.
Interfaces	G-HMI

3.3.2.7 BTP-UC-REQ-113756/B-Connecting an Audio Player w/Phone Already Connected

Linked Elements
BTP-FUR-REQ-116805/A-Bluetooth Audio Volume Set
BTP-FUR-REQ-033782/D-Connection Order and Requirements (TcSE ROIN-295157-2)
BTP-FUR-REQ-113744/C-Connection method

Actors	Customer Audio Player
Pre-conditions	Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s). An audio player must be paired. Another device is already connected for Phone and for Media Player Functionality
Scenario Description	The customer has indicated that they intend to connect a previously paired audio player, either by selecting the device for media feature only, or by selecting a device which does only support media player functionality.
Post-conditions	The In-Vehicle Infotainment System connects the selected device for Media Player functionality. The previous connected device is still connected for Phone functionality. The newly connected audio player is now the active A2DP device.
List of Exception Use Cases	E1 – Connection Cannot be established for audio source. E2 – Connection Cannot be established for audio control.
Interfaces	G-HMI

3.4 BTP-FUN-REQ-041857/A-Display Phone Home Screen Information (TcSE ROIN-294457-1)

3.4.1 Sequence Diagrams

3.4.1.1 BTP-SD-REQ-030695/A-Phone Home Screen-no call is active (TcSE ROIN-118778-2)

Linked Elements
BTP-FUN-REQ-047944/A-Hands-Free Audio Performance (TcSE ROIN-303968-1)
BTP-FUN-REQ-047958/A-Bluetooth Diagnostics Strategies and Procedures (TcSE ROIN-304518-1)
BTP-FUN-REQ-041857/A-Display Phone Home Screen Information (TcSE ROIN-294457-1)

Scenarios

Normal Usage

User is monitoring status of the BT phone that is connected, via the cluster display.

Constraints

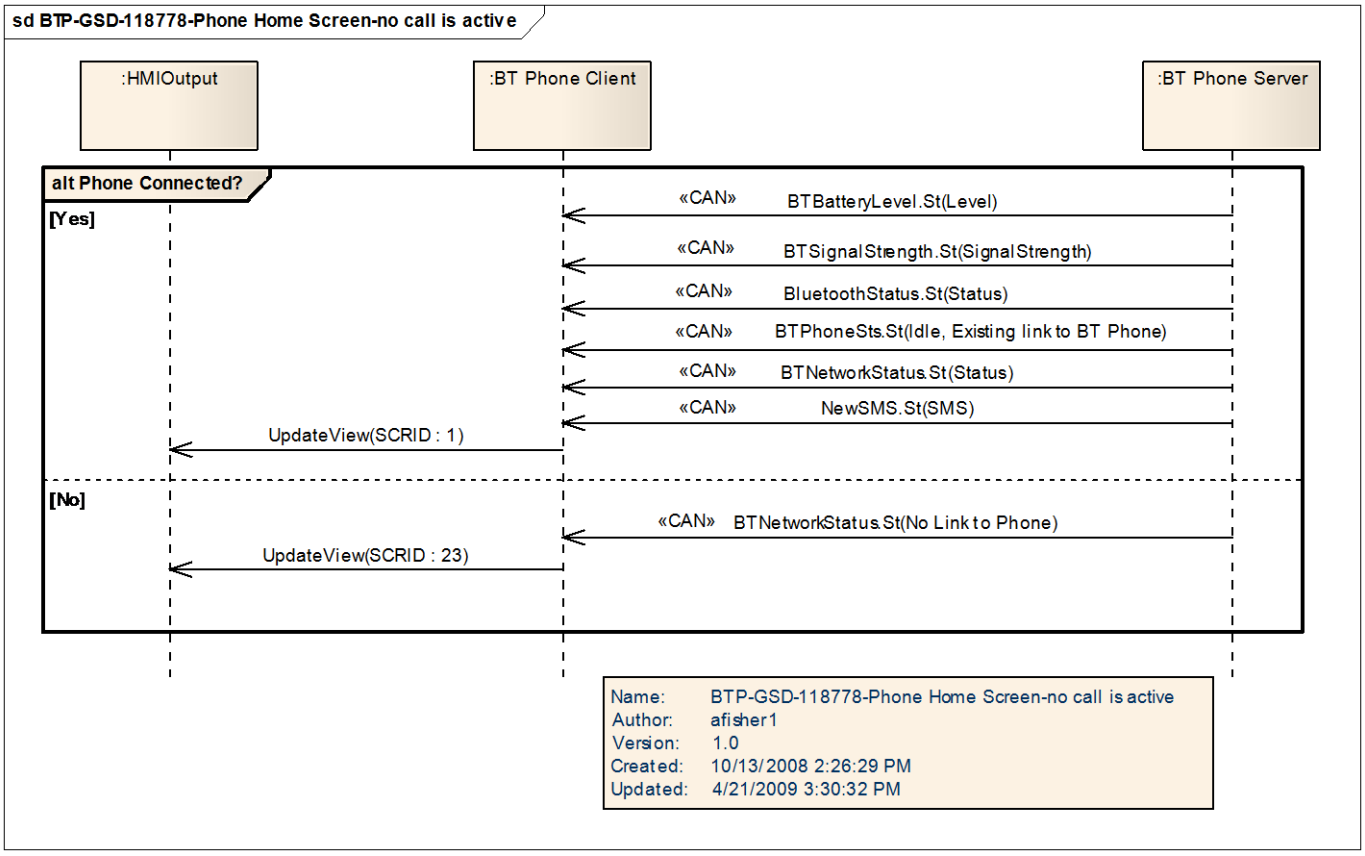
Pre-condition

User is on the Cluster Phone home screen. HMI displays status for {Battery level, signal strength, Bluetooth connection, Network, Text message/email message available indication}

Post-condition

User is on the Cluster Phone home screen. HMI displays status for {Battery level, signal strength, Bluetooth connection, Network, Text message/email message available indication}

Sequence Diagram



3.5 BTP-FUN-REQ-041845/A-Incoming Call (TcSE ROIN-294451-1)

3.5.1 Use Cases

3.5.1.1 BTP-UC-REQ-041846/A-Incoming Call Ringing (TcSE ROIN-290908-2)

Linked Elements

BTP-FUR-REQ-041856/A-Incoming Calls (TcSE ROIN-295050-1)

Actors	Connected Phone Customer
Pre-conditions	Mobile phone is connected
Scenario Description	A mobile phone is connected to the In-Vehicle Infotainment System, and while it is connected an incoming call has been indicated by ringing. The In-Vehicle Infotainment System notifies the Customer that an incoming call is present by having the ability to:

	Provide ring from connected phone Provide a default ring Show the information provided by the connected phone relative to the incoming call (i.e. phone number, etc.) Show the phonebook metadata if available
Post-conditions	The Customer would have the option to: Ignore (no action) Answer Reject the incoming call
List of Exception Use Cases	E1 – Connected phone does not indicate to In-Vehicle Infotainment System that an incoming call is present. E2 – Network Coverage Lost
Interfaces	G-HMI Vehicle System Interface SWC

3.5.1.2 BTP-UC-REQ-041847/A-Connected phone does not indicate to In-Vehicle Infotainment System that an incoming call is present (TcSE ROIN-292572-1)

Linked Elements
BTP-UC-REQ-041846/A-Incoming Call Ringing (TcSE ROIN-290908-2)
BTP-UC-REQ-041855/A-Incoming Call Waiting Notification (TcSE ROIN-290917-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as in original use case
Scenario Description	Connected phone does not indicate to In-Vehicle Infotainment System that an incoming call is present.
Post-conditions	No Action
List of Exception Use Cases	N/A
Interfaces	N/A

3.5.1.3 BTP-UC-REQ-041848/A-Incoming Call Answer via In-Vehicle Infotainment System (TcSE ROIN-290909-2)

Linked Elements
BTP-FUR-REQ-041856/A-Incoming Calls (TcSE ROIN-295050-1)

Actors	Connected Phone Customer
Pre-conditions	Mobile phone is connected
Scenario Description	A mobile phone is connected to the In-Vehicle Infotainment System, and while it is connected an incoming call has been indicated (i.e. ringing), and the customer has opted to answer the incoming call via the In-Vehicle Infotainment System.
Post-conditions	The incoming call has been answered. The incoming ring notification is no longer present. The audio for the call is available through the In-Vehicle Infotainment System speakers. The In-Vehicle Infotainment System has the ability to display the information as provided by the connected phone relating to the name or number of the currently active call. The Customer has the active call options available to them.

List of Exception Use Cases	E1 – The incoming call is not answered. E2 – Incoming Call is answered, but Audio is not Handsfree. E3 – Network Coverage Lost
Interfaces	G-HMI Vehicle System Interface SWC

3.5.1.4 BTP-UC-REQ-041849/A-The incoming call is not answered (TcSE ROIN-290910-1)

Linked Elements
BTP-UC-REQ-041848/A-Incoming Call Answer via In-Vehicle Infotainment System (TcSE ROIN-290909-2)
BTP-FUR-REQ-041856/A-Incoming Calls (TcSE ROIN-295050-1)

Actors	Connected Phone Customer
Pre-conditions	Same as original use case
Scenario Description	The customer has opted to answer an incoming call via the means available within the In-Vehicle Infotainment System, but the call is not answered.
Post-conditions	An error message is displayed to the customer. The In-Vehicle Infotainment System is no longer alerting the user of an incoming call. The In-Vehicle Infotainment System returns to its prior state
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.5.1.5 BTP-UC-REQ-041850/A-Incoming Call is answered, but Audio is not Handsfree (TcSE ROIN-290911-1)

Linked Elements
BTP-UC-REQ-041848/A-Incoming Call Answer via In-Vehicle Infotainment System (TcSE ROIN-290909-2)
BTP-UC-REQ-041851/A-Incoming Call Answer via Mobile Phone (TcSE ROIN-290912-1)

Actors	Connected Phone Customer
Pre-conditions	Same as original use case
Scenario Description	The customer has opted to answer an incoming call via the means available within the In-Vehicle Infotainment System the call has been answered, but the call audio is not Handsfree
Post-conditions	An error message is displayed to the customer. The In-Vehicle Infotainment System routes the call audio to the connected phone (if audio was routed from the connected phone to In-Vehicle Infotainment System). The In-Vehicle Infotainment System is no longer alerting the user of an incoming call. The In-Vehicle Infotainment System indicates that there is an active call, and the audio should be on the connected phone. Display call metadata if available.
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.5.1.6 BTP-UC-REQ-041851/A-Incoming Call Answer via Mobile Phone (TcSE ROIN-290912-1)

Linked Elements
BTP-FUR-REQ-041856/A-Incoming Calls (TcSE ROIN-295050-1)

Actors	Connected Phone Customer
Pre-conditions	Mobile phone is connected
Scenario Description	A mobile phone is connected to the In-Vehicle Infotainment System, and while it is connected an incoming call has been indicated (i.e. ringing), and the customer has opted to answer the incoming call from the connected mobile phone.
Post-conditions	The incoming call has been answered. The incoming ring notification is no longer present. The audio for the call is available via the means indicated from the mobile phone. The In-Vehicle Infotainment System has the ability to display the information as provided by the connected phone relating to the name or number of the currently active call. The Customer has the active call options available to them. Display phone call metadata.
List of Exception Use Cases	E1 – Incoming Call is answered, but Audio is not Handsfree.
Interfaces	G-HMI Vehicle System Interface

3.5.1.7 BTP-UC-REQ-041852/A-Incoming Call Ringing (No Answer) (TcSE ROIN-290913-1)

Linked Elements
BTP-FUR-REQ-041856/A-Incoming Calls (TcSE ROIN-295050-1)

Actors	Connected Phone Customer
Pre-conditions	Mobile phone is connected
Scenario Description	A mobile phone is connected to the In-Vehicle Infotainment System, and while it is connected an incoming call has been indicated by ringing / alerting. In this scenario, the Customer has opted not to answer the call and ignore it until the call stops alerting.
Post-conditions	The incoming call is no longer alerting A customer is indicated that a missed call is present. The In-Vehicle Infotainment System returns to prior state.
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.5.1.8 BTP-UC-REQ-041853/A-Incoming Call Ringing (Reject from In-Vehicle Infotainment System) (TcSE ROIN-290914-1)

Linked Elements
BTP-FUR-REQ-041856/A-Incoming Calls (TcSE ROIN-295050-1)

Actors	Connected Phone Customer
Pre-conditions	Mobile phone is connected
Scenario Description	A mobile phone is connected to the In-Vehicle Infotainment System, and while it is connected an incoming call has been indicated by ringing / alerting. In this scenario, the Customer has opted to manually reject the call from the In-Vehicle Infotainment System. .
Post-conditions	The incoming call is no longer alerting via the In-Vehicle Infotainment System and connected phone. A customer is indicated that the call was rejected.

	The In-Vehicle Infotainment System returns to prior state.
List of Exception Use Cases	E1 – Rejecting Call via In-Vehicle Infotainment System fails.
Interfaces	G-HMI SWC Vehicle System Interface

3.5.1.9 BTP-UC-REQ-033869/A-Rejecting Call via In-Vehicle Infotainment System fails (TcSE ROIN-290915-1)

Linked Elements
BTP-UC-REQ-033868/A-Do Not Disturb Active– Incoming Call (TcSE ROIN-290918-1)
BTP-UC-REQ-041853/A-Incoming Call Ringing (Reject from In-Vehicle Infotainment System) (TcSE ROIN-290914-1)

Actors	Connected Phone Customer
Pre-conditions	Same as original use case
Scenario Description	A mobile phone is connected to the In-Vehicle Infotainment System, and while it is connected an incoming call has been indicated by ringing / alerting. In this scenario, the Customer has opted to manually reject the call from the In-Vehicle Infotainment System, but the call is not rejected.
Post-conditions	The incoming call is no longer alerting via the In-Vehicle Infotainment System. The In-Vehicle Infotainment System returns to the prior state
List of Exception Use Cases	N/A
Interfaces	G-HMI SWC Vehicle System Interface

3.5.1.10 BTP-UC-REQ-041854/A-Incoming Call Ringing (Reject from connected phone) (TcSE ROIN-290916-1)

Linked Elements
BTP-FUR-REQ-041856/A-Incoming Calls (TcSE ROIN-295050-1)

Actors	Connected Phone, Customer,
Pre-conditions	Mobile phone is connected
Scenario Description	A mobile phone is connected to the In-Vehicle Infotainment System, and while it is connected an incoming call has been indicated by ringing / alerting. In this scenario, the Customer has opted to manually reject the call from the connected phone.
Post-conditions	The incoming call is no longer alerting via the In-Vehicle Infotainment System and connected phone. Customer is alerted that there is a missed call. The In-Vehicle Infotainment System returns to the prior state.
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.5.1.11 BTP-UC-REQ-041855/A-Incoming Call Waiting Notification (TcSE ROIN-290917-1)

Actors	Connected Phone Customer
Pre-conditions	Mobile phone is connected Active call is present
Scenario Description	A mobile phone is connected to the In-Vehicle Infotainment System, and while it is connected and in an active call, an incoming call waiting call has been indicated by

	the phone. The In-Vehicle Infotainment System notifies the Customer that an incoming call is present by having the ability to: Show the information provided by the connected phone relative to the incoming call (i.e. phone number, etc.) Show the phonebook metadata if available
Post-conditions	The Customer would have the option to: Ignore (no action) Answer Reject the incoming call
List of Exception Use Cases	E1 – Connected phone does not indicate to In-Vehicle Infotainment System that an incoming call is present.
Interfaces	G-HMI Vehicle System Interface SWC

3.5.2 Requirements

3.5.2.1 BTP-FUR-REQ-041856/A-Incoming Calls (TcSE ROIN-295050-1)

During an incoming call notification the user will have the following options:

-Rejecting the incoming call by physically rejecting the call via In-Vehicle Infotainment System

-Accepting the call by answering the call via In-Vehicle Infotainment System

-Ignore the call: No Action, In-Vehicle Infotainment System shall consider this as a missed call

-Accepting the call by answering the call via the AG

-Rejecting the call via the AG

3.5.3 Sequence Diagrams

3.5.3.1 BTP-SD-REQ-030699/A-Incoming Call - Accept Call (TcSE ROIN-118785-3)

Scenarios

Normal Usage

The user receives an incoming call, and chooses to accept it. HMI displays {Caller ID, Name, Call duration}

Constraints

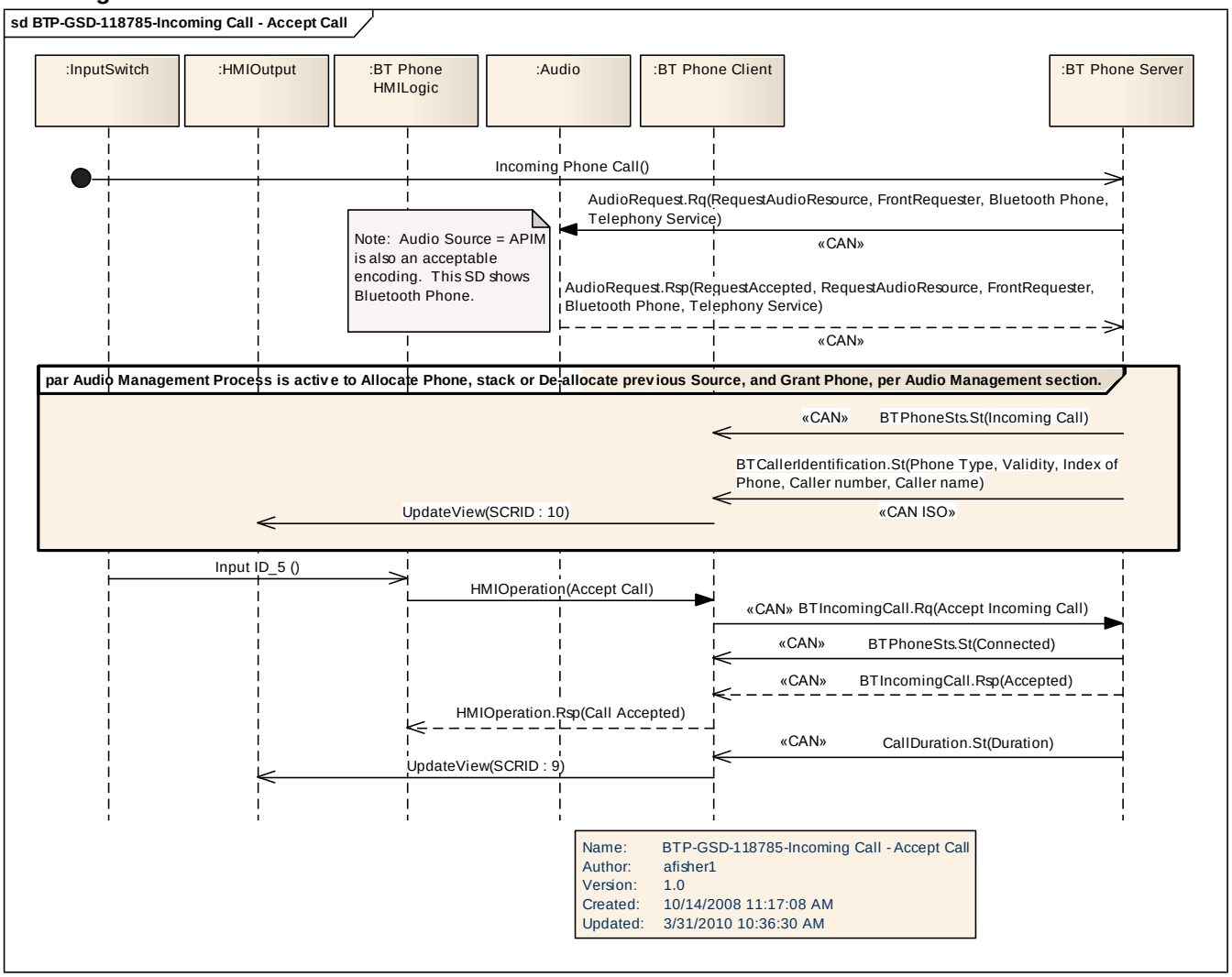
Pre-condition

A Bluetooth phone is connected to the vehicle interface. Vehicle power is On.

Post-condition

The user <accepts the incoming call> from the HMI interface.

Sequence Diagram



3.5.3.2 BTP-SD-REQ-030700/A-Incoming Call - Reject Call (TcSE ROIN-149690-3)

Scenarios

Normal Usage

The user receives an incoming call, and chooses to reject it. HMI returns to previous screen.

Constraints

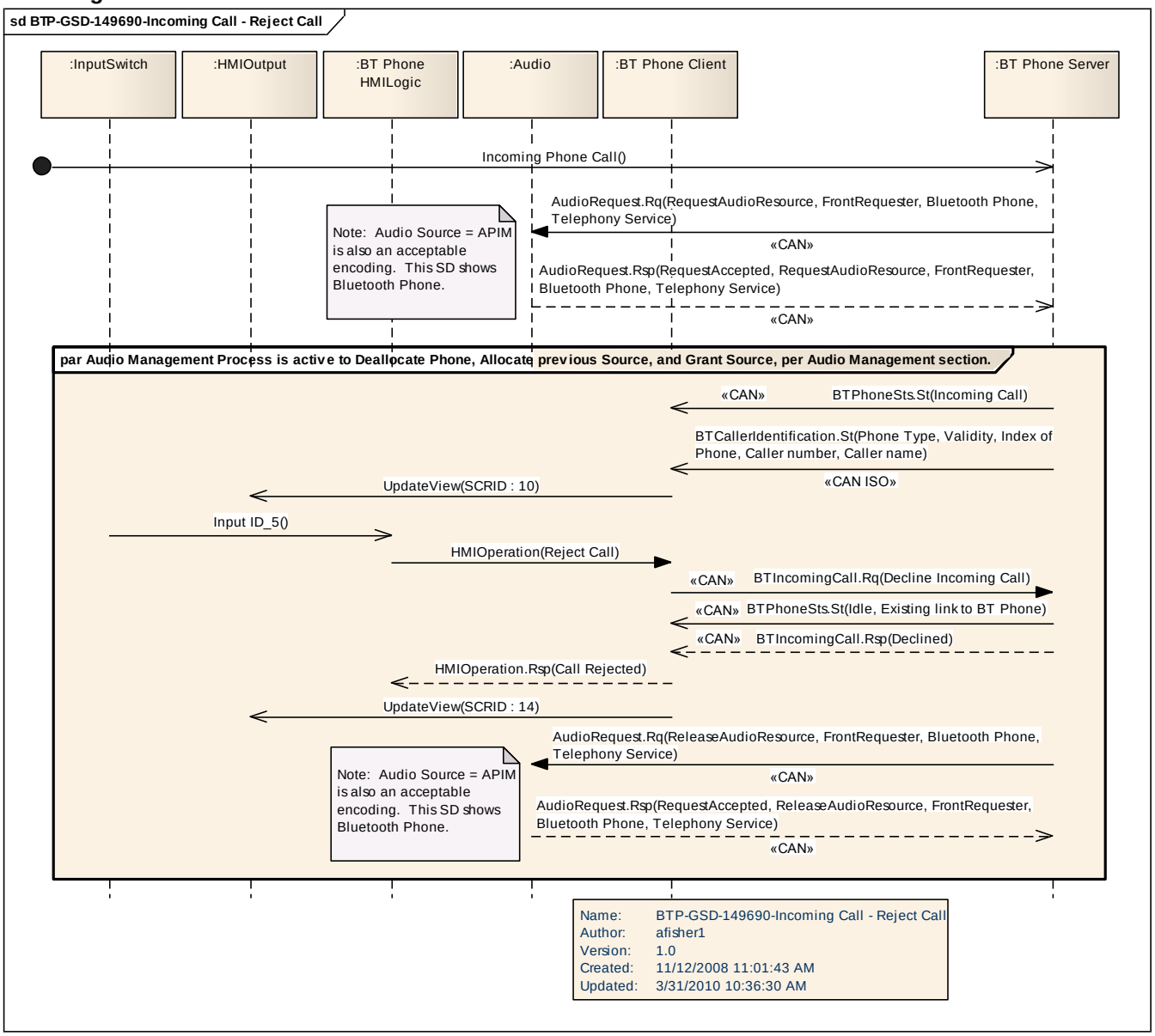
Pre-condition

A Bluetooth phone is connected to the vehicle interface. Vehicle power is On.

Post-condition

HMI indicates {previous screen prior to incoming call}

Sequence Diagram



3.6 BTP-FUN-REQ-033851/A-Outgoing Call (TcSE ROIN-294320-1)

3.6.1 Use Cases

3.6.1.1 BTP-UC-REQ-033852/B-Outgoing Call to Phonebook Contact (TcSE ROIN-290897-1)

Linked Elements
BTP-FUR-REQ-033864/B-Outgoing Call Methods (TcSE ROIN-295048-2)

Actors	Customer, Connected Phone, In-Vehicle Infotainment System
Pre-conditions	A phone has been paired and is connected. The phonebook has been downloaded AND is available
Scenario Description	The Customer has opted to initiate a phone call to a contact within his / her phonebook. This action can be completed via V-HMI, manually selecting a contact from the phonebook, or manually selecting a contact to call from the call history (if

	available).
Post-conditions	A call is established to the chosen contact. The In-Vehicle Infotainment System displays the name of the called contact. The In-Vehicle Infotainment System displays the photo of the contact (if available) Two way audio (i.e. SCO, eSCO, etc.) is available. A call timer is available to display the time of the active call. The Customer presented with the following options: End Call Return the audio to the handset (i.e. Privacy) Mute Call
List of Exception Use Cases	E1 – Outgoing call failed. E2 – No audio available for call. E3 – Number busy. E4 – Call failed and no network coverage . E5 – Phonebook is empty
Interfaces	V-HMI G-HMI

3.6.1.2 BTP-UC-REQ-033853/A-Outgoing Call Failed (TcSE ROIN-290898-1)

Linked Elements
BTP-UC-REQ-033857/A-Outgoing Call via Digit Dial (TcSE ROIN-290902-2)
BTP-UC-REQ-033861/A-Outgoing call initiated via Redial from the In-Vehicle Infotainment System (TcSE ROIN-290905-3)
BTP-UC-REQ-033863/A-Outgoing call initiated while Roaming (TcSE ROIN-290907-1)
BTP-UC-REQ-033852/B-Outgoing Call to Phonebook Contact (TcSE ROIN-290897-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as in original use case
Scenario Description	When attempting to make an outgoing call, the call was unsuccessful.
Post-conditions	The customer is notified that the call is unsuccessful. The In-Vehicle Infotainment System returns to prior state.
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.6.1.3 BTP-UC-REQ-033854/A-No Audio Available for Call (TcSE ROIN-290899-1)

Linked Elements
BTP-UC-REQ-033857/A-Outgoing Call via Digit Dial (TcSE ROIN-290902-2)
BTP-UC-REQ-033852/B-Outgoing Call to Phonebook Contact (TcSE ROIN-290897-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as in original use case
Scenario Description	When attempting to make an outgoing call, the call audio was not routed via the speakers within the In-Vehicle Infotainment System.
Post-conditions	The In-Vehicle Infotainment System routes call audio back to connected phone. The customer is notified that the call audio is not routed through the In-Vehicle Infotainment System speakers, and that the call audio is on the handset.
List of Exception Use Cases	N/A
Interfaces	G-HMI

	Vehicle System Interface

3.6.1.4 BTP-UC-REQ-033855/A-Number busy (TcSE ROIN-290900-1)

Linked Elements
BTP-UC-REQ-033852/B-Outgoing Call to Phonebook Contact (TcSE ROIN-290897-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as in original use case
Scenario Description	When attempting to make an outgoing call, the number is busy. *Note: Based on the implementation of the connected phone, the customer is informed by a busy tone transferred via SCO.
Post-conditions	The customer is notified that the call is unsuccessful (via connected phone). The In-Vehicle Infotainment System returns to prior state. **Note: No specific action is required by the In-Vehicle Infotainment System.
List of Exception Use Cases	N/A
Interfaces	N/A

3.6.1.5 BTP-UC-REQ-033856/A-Call Failed and No network coverage (TcSE ROIN-290901-1)

Linked Elements
BTP-UC-REQ-033857/A-Outgoing Call via Digit Dial (TcSE ROIN-290902-2)
BTP-UC-REQ-033858/A-Outgoing call initiated from the connected phone (TcSE ROIN-290903-2)
BTP-UC-REQ-033861/A-Outgoing call initiated via Redial from the In-Vehicle Infotainment System (TcSE ROIN-290905-3)
BTP-UC-REQ-033852/B-Outgoing Call to Phonebook Contact (TcSE ROIN-290897-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as in original use case
Scenario Description	When attempting to make an outgoing call, the call failed and the phone has no network coverage.
Post-conditions	The customer is notified that the call is unsuccessful. The In-Vehicle Infotainment System returns to prior state.
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.6.1.6 BTP-UC-REQ-033857/A-Outgoing Call via Digit Dial (TcSE ROIN-290902-2)

Linked Elements
BTP-FUR-REQ-033864/B-Outgoing Call Methods (TcSE ROIN-295048-2)

Actors	Customer, Connected Phone, In-Vehicle Infotainment System
Pre-conditions	A phone has been paired and is connected. The phonebook has been downloaded AND available
Scenario Description	The Customer has opted to initiate a phone call to a contact within his / her phonebook, but manually dialing (via V-HMI or In-Vehicle Infotainment System G-HMI options) a phone number that is matched to a contact name within the In-Vehicle Infotainment System.
Post-conditions	A call is established to the chosen contact. The In-Vehicle Infotainment System displays the metadata of the called contact (if

	available); if the metadata is not available the number is displayed. Two way audio (i.e. SCO, eSCO, etc.) is available. A call timer is available to display the time of the active call. The Customer presented with the following options: End Call Return the audio to the handset (i.e. Privacy) Mute Call
List of Exception Use Cases	E1 – Outgoing call failed. E2 – No audio available for call. E3 – Number busy. E4 – Call Failed and no network coverage.
Interfaces	V-HMI G-HMI Vehicle System Interface

3.6.1.7 BTP-UC-REQ-033858/A-Outgoing call initiated from the connected phone (TcSE ROIN-290903-2)

Linked Elements
BTP-FUR-REQ-033864/B-Outgoing Call Methods (TcSE ROIN-295048-2)

Actors	Customer, Connected Phone, In-Vehicle Infotainment System
Pre-conditions	A phone has been paired and is connected. Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s).
Scenario Description	During an active phone connection (i.e. HFP), the Customer has opted to initiate an outgoing call from the connected phone opposed to the In-Vehicle Infotainment System.
Post-conditions	A call is established to the specified number is established The In-Vehicle Infotainment System displays the phone number of the active call or the phonebook contact metadata if the phone number of the active call is stored within the phonebook. Two way audio (i.e. SCO, eSCO, etc.) is available. A call timer is available to display the time of the active call. The Customer presented with the following options: End Call Return the audio to the handset (i.e. Privacy) Mute Call
List of Exception Use Cases	E1 – The mobile phone does not provide the In-Vehicle Infotainment System with the appropriate call set up information to indicate that a new call is being established. E2 – Connected Phone Failed to Provide the In-Vehicle Infotainment System with the Phone number of the Active Call. E3 – Number busy. E4- Call failed and no network coverage.
Interfaces	G-HMI Vehicle System Interface

3.6.1.8 BTP-UC-REQ-033859/B-The mobile phone does not provide the In-Vehicle Infotainment System with the appropriate call set up information (TcSE ROIN-292571-1)

Linked Elements
BTP-UC-REQ-033858/A-Outgoing call initiated from the connected phone (TcSE ROIN-290903-2)

Actors	Customer Mobile Phone
Pre-conditions	Same as in original use case
Scenario Description	The mobile phone does not provide the In-Vehicle Infotainment System with the appropriate call set up information to indicate that a new call is being established.
Post-conditions	No Action
List of Exception Use Cases	N/A
Interfaces	N/A

3.6.1.9 BTP-UC-REQ-033860/A-Connected Phone Failed to Provide the In-Vehicle Infotainment System with the Phone number of the Active Call (TcSE ROIN-290904-1)

Linked Elements
BTP-UC-REQ-033858/A-Outgoing call initiated from the connected phone (TcSE ROIN-290903-2)
BTP-UC-REQ-033861/A-Outgoing call initiated via Redial from the In-Vehicle Infotainment System (TcSE ROIN-290905-3)
BTP-UC-REQ-033863/A-Outgoing call initiated while Roaming (TcSE ROIN-290907-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as in original use case
Scenario Description	The phone has indicated that an active call is present, but it has not provided the phone number of the active call.
Post-conditions	In-Vehicle Infotainment System displays specified default text.
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.6.1.10 BTP-UC-REQ-033861/A-Outgoing call initiated via Redial from the In-Vehicle Infotainment System (TcSE ROIN-290905-3)

Linked Elements
BTP-FUR-REQ-033864/B-Outgoing Call Methods (TcSE ROIN-295048-2)

Actors	Customer, Connected Phone, In-Vehicle Infotainment System
Pre-conditions	A phone has been paired and is connected. Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s). In-Vehicle Infotainment System supports this feature within HMI and/or VUI.
Scenario Description	During an active phone connection (i.e. HFP), the Customer has opted to initiate a redial via the In-Vehicle Infotainment System.
Post-conditions	A call is established to the specified number is established The In-Vehicle Infotainment System displays the phone number of the active call or the phonebook contact metadata if the phone number of the active call is stored within the phonebook. Two way audio (i.e. SCO, eSCO, etc.) is available. A call timer is available to display the time of the active call. The Customer presented with the following options: End Call Return the audio to the handset (i.e. Privacy) Mute Call
List of Exception Use Cases	E1 – Outgoing call failed. E2 – Connected Phone Failed to Provide the In-Vehicle Infotainment System with the Phone number of the Active Call.

	E3 – The mobile phone dials an call other than the last outgoing call (i.e. incoming call or missed call) E4 – Number busy E5 – Call failed and no network coverage
Interfaces	G-HMI Vehicle System Interface

3.6.1.11 BTP-UC-REQ-033862/A-The mobile phone dials an call other than the last outgoing call (i.e. incoming call or missed call) (TcSE ROIN-290906-1)

Linked Elements
BTP-UC-REQ-033861/A-Outgoing call initiated via Redial from the In-Vehicle Infotainment System (TcSE ROIN-290905-3)

Actors	Customer Mobile Phone
Pre-conditions	Same as in original use case
Scenario Description	The customer indicated a redial action, but the phone dialed another phone number other than the last outgoing call.
Post-conditions	In-Vehicle Infotainment System displays the dialed number or the phonebook contact that was dialed (if available within the phonebook)
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.6.1.12 BTP-UC-REQ-033863/A-Outgoing call initiated while Roaming (TcSE ROIN-290907-1)

Actors	Customer, Connected Phone, In-Vehicle Infotainment System
Pre-conditions	A phone has been paired and is connected, and roaming notification is set to ON.
Scenario Description	During an active phone connection (i.e. HFP), the Customer has opted to initiate an outgoing call via the In-Vehicle Infotainment System while the mobile phone is reporting that it is roaming. In-Vehicle Infotainment System
Post-conditions	The In-Vehicle Infotainment System will have the ability to notify the Customer that they are roaming, and request a confirmation that they still want to place the call. If the Customer opts not to place the call because the connected mobile phone is roaming, the outgoing call is not established. If the Customer opts to place the call: A call is established to the specified number is established The In-Vehicle Infotainment System displays the phone number of the active call or the phonebook contact metadata if the phone number of the active call is stored within the phonebook. Two way audio (i.e. SCO, eSCO, etc.) is available. A call timer is available to display the time of the active call. The Customer presented with the following options: End Call Return the audio to the handset (i.e. Privacy) Mute Call
List of Exception Use Cases	E1 – Outgoing call failed. E2 – Connected Phone Failed to Provide the In-Vehicle Infotainment System with the Phone number of the Active Call.
Interfaces	G-HMI

3.6.2 Requirements

3.6.2.1 BTP-FUR-REQ-033864/B-Outgoing Call Methods (TcSE ROIN-295048-2)

Voice Digit Entry with a maximum of 22 digits
Voice Phonebook Name Selection
Digit Entry (i.e. Touch screen) with a maximum of 22 digits (including #, * and +).
Phonebook Entry Selection (i.e. user selects an entry from their downloaded phonebook)
From the handset
From Call History Selection
Redial –

If there is valid call history present for outgoing calls, the last outgoing number shall be used as smart dial (redial) number.
When there is outgoing call from handset or SYNC while the device is connected, then the number is stored as new smart dial (redial) number.
If there is no call history present and there is no call made from handset or SYNC after connecting, executing REDIAL shall use AT+BLDN.

3.6.2.2 BTP-FUR-REQ-033865/A-Network Compatibility (TcSE ROIN-295049-1)

In-Vehicle Infotainment System shall manage the cases of invalid numbers, loss of network, and busy lines in the same manner as commercial available AG's currently manage them.

If the user enters an invalid number, the call will fail. Some mobile phones allow the user to send (ATD) a number even there is no signal available. This behavior shall be replicated on In-Vehicle Infotainment System.

3.6.2.3 BTP-FUR-REQ-033866/A-Outgoing Call Failures (TcSE ROIN-304248-1)

When the in-vehicle infotainment system attempts to place a call by sending an ATD or BLDN, it expects to receive an 'OK' and corresponding CIEV notifications. The in-vehicle infotainment system shall assume that an outgoing call failure has occurred under the following scenarios (when the in-vehicle infotainment system initiated the outgoing call):

1. If an 'OK' is not received within 15 seconds of the in-vehicle infotainment system sending the ATD or BLDN.
2. If a callsetup value of 2 is not received within 15 seconds of receiving an 'OK'

If either of the above scenarios occur, the in-vehicle infotainment system shall attempt to place the outgoing call again. If second attempt fails, the in-vehicle infotainment system shall determine that the call was not connected successfully. The In-Vehicle Infotainment System shall provide an alert that the connected AG has not responded to the In-Vehicle Infotainment System per the requirements (screen 39) provided in H28a SHMI Phone.

The in-vehicle infotainment system shall monitor the service availability (as reported via unsolicited CIEV responses) of the connected AG at the time of a placed call. In the event that the outgoing call has been classified as "Not Connected Successfully" or:

1. If a callsetup value of 3 is not received within 15 seconds of receiving a callsetup value of 2

and the service status of the connected phone is reported as 0, then the in-vehicle infotainment system shall assume that the call failed due to network availability. The In-Vehicle Infotainment System shall provide an alert that the connected AG has not responded to the In-Vehicle Infotainment System per the requirements (screen 37) provided in H28a SHMI Phone.

3.6.3 Sequence Diagrams

3.6.3.1 BTP-SD-REQ-030719/A-Redial (TcSE ROIN-149530-3)

Scenarios

Normal Usage

The user selects <redial> via the HMI.

Constraints

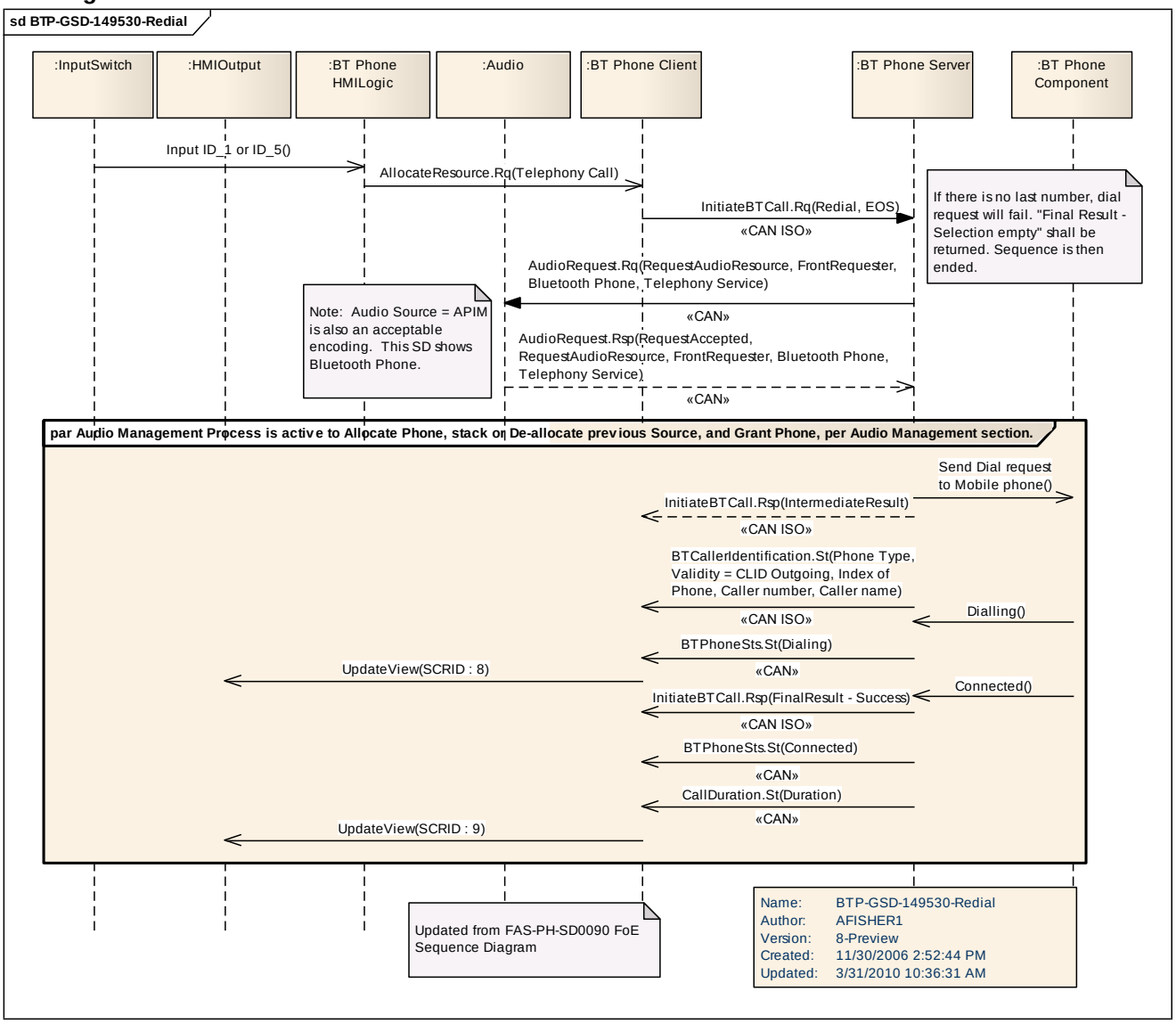
Pre-condition

The vehicle power is On. A BT phone is connected.

Post-condition

The user is in an active call. HMI indicates {Caller ID / Phone Number / Call duration}.

Sequence Diagram



3.6.3.2 BTP-SD-REQ-030722/B-Initiate a Phone Call from Browse (TcSE ROIN-159083-2)

Scenarios

Normal Usage

If an additional interface is able to show the phonebook/call history, then it also shall be possible to initiate an outgoing call.

Constraints

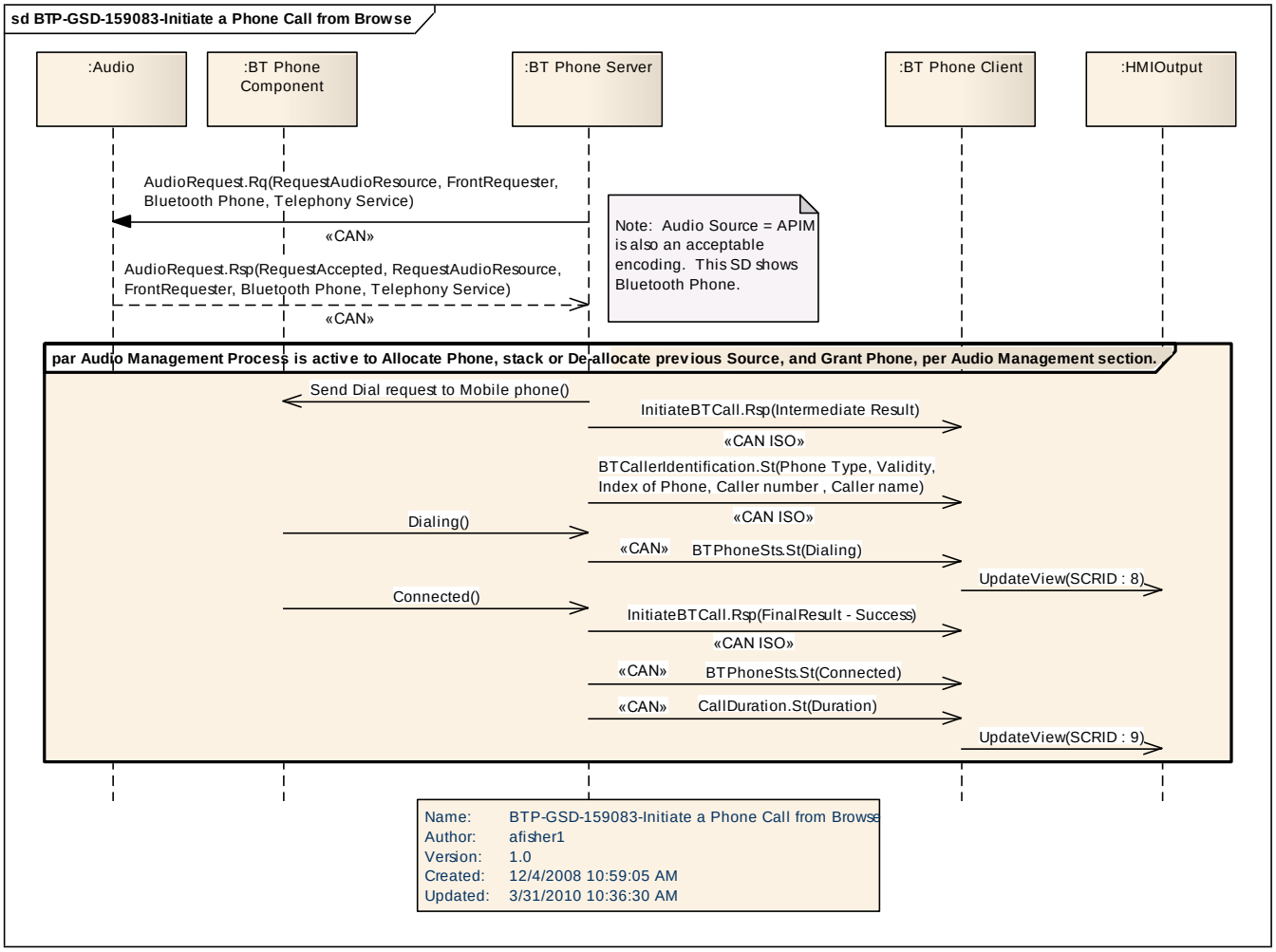
Pre-condition

The user is in phone browse mode.

Post-condition

The user is connected to the requested Caller Id and an active phone call is in progress.

Sequence Diagram



3.7 BTP-FUN-REQ-041788/A-Active Call Management (TcSE ROIN-294448-1)

3.7.1 Use Cases

3.7.1.1 BTP-UC-REQ-041789/A-Ending a Single or Joined Active Call via In-Vehicle Infotainment System (TcSE ROIN-290920-1)

Actors	Mobile Phone Customer
Pre-conditions	A mobile phone is connected to the In-Vehicle Infotainment System, and a call is active
Scenario Description	The customer is in an active phone call, and has opted to end the phone call via the In-Vehicle Infotainment System. In-Vehicle Infotainment System
Post-conditions	The phone call is ended. The In-Vehicle Infotainment System has the ability to indicate that a call has ended. Phone audio (i.e. SCO, eSCO, etc.) is not present via the In-Vehicle Infotainment System. The In-Vehicle Infotainment System returns to its prior state as specified.
List of Exception Use Cases	E1 – Ending a Call via In-Vehicle Infotainment System Failed.

Interfaces	G-HMI SWC Vehicle System Interface

3.7.1.2 BTP-UC-REQ-041790/A-Ending a Call via In-Vehicle Infotainment System Failed (TcSE ROIN-290921-1)

Linked Elements
BTP-UC-REQ-041789/A-Ending a Single or Joined Active Call via In-Vehicle Infotainment System (TcSE ROIN-290920-1)
BTP-UC-REQ-041791/A-Ending a Single Active Call w/ Call on Hold via In-Vehicle Infotainment System (TcSE ROIN-290922-1)

Actors	Mobile Phone Customer
Pre-conditions	Same as original use case
Scenario Description	The customer is in an active phone call, and has opted to end the phone call via the In-Vehicle Infotainment System. The connected phone has indicated that the call is not ended.
Post-conditions	An error is provided to the customer The phone call audio is no longer present via the In-Vehicle Infotainment System. The In-Vehicle Infotainment System returns to the prior state (as specified) as if the call has ended.
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.7.1.3 BTP-UC-REQ-041791/A-Ending a Single Active Call w/ Call on Hold via In-Vehicle Infotainment System (TcSE ROIN-290922-1)

Actors	Mobile Phone Customer
Pre-conditions	A mobile phone is connected, and one call is active and another call is on hold.
Scenario Description	The customer has one active call, and one call on hold. The customer wants to end the active call and return to the held call. As a result, the customer uses the G-HMI available via the In-Vehicle Infotainment System to end the active call.
Post-conditions	The active call is ended. The held call becomes the active call. The In-Vehicle Infotainment System has the ability to indicate that a call has ended. The In-Vehicle Infotainment System has the ability to indicate the current active call. The In-Vehicle Infotainment System provides the customer with the option to end the active call.
List of Exception Use Cases	E1 – Ending a Call via In-Vehicle Infotainment System Failed.
Interfaces	G-HMI Vehicle System Interface

3.7.1.4 BTP-UC-REQ-041792/A-Ending a Single or Joined Active Call via Mobile Phone (TcSE ROIN-290923-1)

Actors	Mobile Phone, Customer
Pre-conditions	A mobile phone is connected to the In-Vehicle Infotainment System, and a call is active
Scenario Description	The customer is in an active phone call, and the connected mobile phone has indicated that the active call is no longer active.
Post-conditions	The phone call is ended. The In-Vehicle Infotainment System has the ability to indicate that the call has ended. Phone audio (i.e. SCO, eSCO, etc.) is not present via the In-Vehicle Infotainment

	System. In-Vehicle Infotainment System returns to prior state.
List of Exception Use Cases	E1 – Phone does not notify In-Vehicle Infotainment System that a call(s) has ended.
Interfaces	G-HMI Vehicle System Interface

3.7.1.5 BTP-UC-REQ-041794/A-Ending a Single Call while in a Joined Call or in an Active Call with a Call on Hold via Mobile Phone (TcSE ROIN-290924-1)

Actors	Mobile Phone Customer
Pre-conditions	A mobile phone is connected to the In-Vehicle Infotainment System, and a joined call is active or a single call is active, with a call on hold (i.e. multi-party call).
Scenario Description	The customer is in an active multi-party call (joined call or single call w/ call on hold) and the connected mobile phone has indicated that one of the calls is no longer present.
Post-conditions	The phone call is ended. The In-Vehicle Infotainment System has the ability to indicate that the call has ended. The In-Vehicle Infotainment System has the ability to indicate the current active call. Phone audio (i.e. SCO, eSCO, etc.) is present via the In-Vehicle Infotainment System for the remaining call. The In-Vehicle Infotainment System provides the customer with the option to end the active call. The call timer is still present
List of Exception Use Cases	E1 – Mobile phone does not indicate that a call has ended in a multi-party call.
Interfaces	G-HMI Vehicle System Interface

3.7.1.6 BTP-UC-REQ-041793/A-Phone does not notify In-Vehicle Infotainment System that a call(s) has ended (TcSE ROIN-292573-1)

Linked Elements
BTP-UC-REQ-041792/A-Ending a Single or Joined Active Call via Mobile Phone (TcSE ROIN-290923-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as in original use case
Scenario Description	Phone does not notify In-Vehicle Infotainment System that a call(s) has ended
Post-conditions	No Action
List of Exception Use Cases	N/A
Interfaces	N/A

3.7.1.7 BTP-UC-REQ-041795/A-Mobile phone does not indicate that a call has ended in a multi-party call (TcSE ROIN-290925-1)

Linked Elements
BTP-UC-REQ-041794/A-Ending a Single Call while in a Joined Call or in an Active Call with a Call on Hold via Mobile Phone (TcSE ROIN-290924-1)

Actors	Mobile Phone Customer

Pre-conditions	Same as original use case
Scenario Description	The customer is in an active multi-party call (joined call or single call w/ call on hold) and that one of the calls is no longer present, but the phone has not indicated that call was no longer present.
Post-conditions	The In-Vehicle Infotainment System will still indicate that a multi-party call is active.
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.7.1.8 BTP-UC-REQ-041796/A-Muting the In-Vehicle Infotainment System Microphone while in an Active Call (TcSE ROIN-290926-1)

Actors	Customer, Connected Mobile Phone, Microphone
Pre-conditions	A mobile is connected. A call is active The active call audio is Handsfree and available via the In-Vehicle Infotainment System.
Scenario Description	In this scenario, there is an active call present and the audio is available through the speakers of the In-Vehicle Infotainment System. The customer has opted to mute the in-vehicle microphone by using the options available via the In-Vehicle Infotainment System G-HMI.
Post-conditions	The In-Vehicle Infotainment System indicates that the in-vehicle microphone is muted. The in-vehicle microphone is muted, and no audio from the vehicle cabin can be heard on the far end of the phone call. The far end audio is available via the In-Vehicle Infotainment System speakers. The In-Vehicle Infotainment System provides the Customer with option of un-muting the microphone.
List of Exception Use Cases	E1 – Fault Recognized with the microphone or muting effort failed. E2 – The call is placed into privacy while the call is muted.
Interfaces	G-HMI Vehicle System Interface SWC

3.7.1.9 BTP-UC-REQ-041797/A-Fault Recognized with the microphone or muting effort failed (TcSE ROIN-290927-2)

Linked Elements
BTP-UC-REQ-041796/A-Muting the In-Vehicle Infotainment System Microphone while in an Active Call (TcSE ROIN-290926-1)
BTP-UC-REQ-041799/A-Un-muting the In-Vehicle Infotainment System Microphone while in an Active Call (TcSE ROIN-290929-1)

Actors	Customer Connected Mobile Phone Microphone
Pre-conditions	Same as original use case
Scenario Description	In this scenario, there is an active call present and the audio is available through the speakers of the In-Vehicle Infotainment System. The customer has opted to mute the in-vehicle microphone by using the options available via the In-Vehicle Infotainment System G-HMI, but In-Vehicle Infotainment System has been alerted to a fault with the microphone and/or the muting effort failed.
Post-conditions	~~Error message displayed to customer~~ The In-Vehicle Infotainment System does not indicate that the call is muted.
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.7.1.10 BTP-UC-REQ-041798/A-The call is placed into Privacy while the Call is muted (TcSE ROIN-290928-1)

Linked Elements
BTP-UC-REQ-041796/A-Muting the In-Vehicle Infotainment System Microphone while in an Active Call (TcSE ROIN-290926-1)

Actors	Customer Connected Mobile Phone Microphone
Pre-conditions	Same as original use case
Scenario Description	In this scenario, there is an active call present and the audio is available through the speakers of the In-Vehicle Infotainment System. The customer has opted to mute the in-vehicle microphone by using the options available via the In-Vehicle Infotainment System G-HMI, but In-Vehicle Infotainment System has been alerted that the call has been placed into privacy (i.e. call audio is routed to the handset.)
Post-conditions	Customer is alerted that the microphone is no longer muted. The In-Vehicle Infotainment System indicates that the call is in privacy, as described in the privacy use cases.
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.7.1.11 BTP-UC-REQ-041799/A-Un-muting the In-Vehicle Infotainment System Microphone while in an Active Call (TcSE ROIN-290929-1)

Actors	Customer Connected Mobile Phone Microphone
Pre-conditions	A mobile is connected. A call is active The active call audio is Handsfree and the in-vehicle microphone is muted.
Scenario Description	In this scenario, there is an active call present and the in-vehicle microphone is muted. The customer has opted to un-mute the in-vehicle microphone by using the options available via the G-HMI.
Post-conditions	The In-Vehicle Infotainment System indicates that the in-vehicle microphone is un-muted. The in-vehicle microphone is un-muted, and audio from the vehicle cabin can be heard on the far end of the phone call. The In-Vehicle Infotainment System provides the Customer with the option of muting the microphone
List of Exception Use Cases	E1 – Fault Recognized with the microphone or muting effort failed.
Interfaces	G-HMI Vehicle System Interface

3.7.1.12 BTP-UC-REQ-041800/A-Customer opts to Mute / Unmute call via connected phone (TcSE ROIN-290930-1)

Actors	Customer Connected Mobile Phone
Pre-conditions	A mobile is connected. A call is active
Scenario Description	In this scenario, there is an active call present, and the customer opts to mute / unmute the call via the connected phone.

Post-conditions	The In-Vehicle Infotainment System does not take any action, as the In-Vehicle Infotainment System is not alerted to the mute / unmute status of the connected phone.
List of Exception Use Cases	N/A
Interfaces	N/A

3.7.1.13 BTP-UC-REQ-041801/A-Answering an Incoming Call Waiting Call via In-Vehicle Infotainment System (TcSE ROIN-290931-1)

Linked Elements
BTP-FUR-REQ-041821/A-Call Waiting Call (TcSE ROIN-295057-1)
BTP-FUR-REQ-041822/A-Call Waiting Call Accepted (TcSE ROIN-295058-1)

Actors	Customer Connected Mobile Phone
Pre-conditions	A mobile is connected. A call is active
Scenario Description	In this scenario, there is an active call present and the connected mobile phone indicates that an incoming call waiting call is present. As a result of this notification the In-Vehicle Infotainment System notifies the Customer of the incoming call by displaying the phone number of the incoming call or the phonebook contact name if the contact name is available. The Customer opts to answer the incoming call via the In-Vehicle Infotainment System G-HMI options available.
Post-conditions	The incoming call waiting call becomes the active call. The call that was the active call when the incoming call waiting call was indicated becomes the held call. The In-Vehicle Infotainment System has the ability to indicate to the Customer that there is an active call and a call on hold. The In-Vehicle Infotainment System provides the Customer with the opportunity to toggle between the active and held call.
List of Exception Use Cases	E1 – Answering an Incoming Call Waiting Call via In-Vehicle Infotainment System Failed.
Interfaces	G-HMI

3.7.1.14 BTP-UC-REQ-041802/A-Answering an Incoming Call Waiting Call via In-Vehicle Infotainment System Failed (TcSE ROIN-290932-1)

Linked Elements
BTP-UC-REQ-041801/A-Answering an Incoming Call Waiting Call via In-Vehicle Infotainment System (TcSE ROIN-290931-1)
BTP-FUR-REQ-041821/A-Call Waiting Call (TcSE ROIN-295057-1)

Actors	Customer Connected Mobile Phone
Pre-conditions	Same as original use case
Scenario Description	In this scenario, there is an active call present and the connected mobile phone indicates that an incoming call waiting call is present. As a result of this notification the In-Vehicle Infotainment System notifies the Customer of the incoming call by displaying the phone number of the incoming call or the phonebook contact name if the contact name is available. The Customer opts to answer the incoming call via the In-Vehicle Infotainment System G-HMI options available, but the call is not answered.
Post-conditions	Error message is provided to the customer. In-Vehicle Infotainment System indicates that the active call is the call that was present when the incoming call was received.
List of Exception	N/A

Use Cases	
Interfaces	G-HMI Vehicle System Interface

3.7.1.15 BTP-UC-REQ-041803/A-Answering an Incoming Call Waiting Call via Mobile Phone (TcSE ROIN-290933-1)

Linked Elements
BTP-FUR-REQ-041821/A-Call Waiting Call (TcSE ROIN-295057-1)
BTP-FUR-REQ-041822/A-Call Waiting Call Accepted (TcSE ROIN-295058-1)

Actors	Customer, Connected Mobile Phone
Pre-conditions	A mobile is connected. A call is active
Scenario Description	In this scenario, there is an active call present and the connected mobile phone indicates that an incoming call waiting call is present. As a result of this notification the In-Vehicle Infotainment System notifies the Customer of the incoming call by displaying the phone number of the incoming call or the phonebook contact name if the contact name is available. The mobile phone indicates that the incoming call awaiting call has been answered.
Post-conditions	The incoming call waiting call becomes the active call. The call that was the active call when the incoming call waiting call was indicated becomes the held call. The In-Vehicle Infotainment System has the ability to indicate to the Customer that there is an active call and a call on hold. The In-Vehicle Infotainment System provides the Customer with the opportunity to toggle between the active and held call.
List of Exception Use Cases	E1 – Mobile phone does not indicate that a call has been answered during an active call.
Interfaces	G-HMI Vehicle System Interface

3.7.1.16 BTP-UC-REQ-041804/A-Mobile phone does not indicate that a call has been answered during an active call (TcSE ROIN-290934-1)

Linked Elements
BTP-UC-REQ-041803/A-Answering an Incoming Call Waiting Call via Mobile Phone (TcSE ROIN-290933-1)

Actors	Mobile Phone Customer
Pre-conditions	Same as original use case
Scenario Description	During an incoming call waiting call, the incoming call is answered by the connected mobile phone, but the mobile phone does not update the In-Vehicle Infotainment System.
Post-conditions	In-Vehicle Infotainment SystemThe In-Vehicle Infotainment System indicates that the current call is the active call. (No In-Vehicle Infotainment System action required)
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.7.1.17 BTP-UC-REQ-041805/A-Rejecting an Incoming Call Waiting Call via In-Vehicle Infotainment System (TcSE ROIN-290935-1)

Linked Elements
BTP-FUR-REQ-041821/A-Call Waiting Call (TcSE ROIN-295057-1)
BTP-FUR-REQ-041823/A-Call Waiting Call Rejected (TcSE ROIN-295059-1)

Actors	Customer, Connected Mobile Phone
Pre-conditions	A mobile is connected. A call is active
Scenario Description	In this scenario, there is an active call present and the connected mobile phone indicates that an incoming call waiting call is present. As a result of this notification the In-Vehicle Infotainment System notifies the Customer of the incoming call by displaying the phone number of the incoming call or the phonebook contact name if the contact name is available. The Customer opts to reject the incoming call via the In-Vehicle Infotainment System G-HMI options available.
Post-conditions	The incoming call waiting call is no longer presented to the Customer via the In-Vehicle Infotainment System. The call that was the active call when the incoming call waiting call was indicated remains the active call.
List of Exception Use Cases	E1 – The incoming call waiting call is not rejected when Customer initiates rejection from In-Vehicle Infotainment System.
Interfaces	G-HMI Vehicle System Interface SWC

3.7.1.18 BTP-UC-REQ-041806/A-The incoming call waiting call is not rejected when Customer initiates rejection from In-Vehicle Infotainment System (TcSE ROIN-290936-1)

Linked Elements
BTP-UC-REQ-041805/A-Rejecting an Incoming Call Waiting Call via In-Vehicle Infotainment System (TcSE ROIN-290935-1)
BTP-FUR-REQ-041821/A-Call Waiting Call (TcSE ROIN-295057-1)

Actors	Mobile Phone Customer
Pre-conditions	Same as original use case
Scenario Description	During an incoming call waiting call, the incoming call is rejected by the In-Vehicle Infotainment System, but the connected mobile phone does not indicate that the call is rejected.
Post-conditions	The In-Vehicle Infotainment System no longer displays the incoming call waiting call. The In-Vehicle Infotainment System indicates that the call that was active upon receipt of the incoming call waiting call is the active call.
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.7.1.19 BTP-UC-REQ-041807/A-Rejecting an Incoming Call Waiting Call via Connected Mobile Phone (TcSE ROIN-290937-1)

Linked Elements
BTP-FUR-REQ-041821/A-Call Waiting Call (TcSE ROIN-295057-1)
BTP-FUR-REQ-041823/A-Call Waiting Call Rejected (TcSE ROIN-295059-1)

Actors	Customer Connected Mobile Phone
Pre-conditions	A mobile is connected. A call is active
Scenario Description	In this scenario, there is an active call present and the connected mobile phone indicates that an incoming call waiting call is present. As a result of this notification

	the In-Vehicle Infotainment System notifies the Customer of the incoming call by displaying the phone number of the incoming call or the phonebook contact name if the contact name is available. The connected mobile phone indicates that the incoming call waiting call is no longer present.
Post-conditions	The incoming call waiting call is no longer presented to the Customer via the In-Vehicle Infotainment System. The call that was the active call when the incoming call waiting call was indicated remains the active call.
List of Exception Use Cases	E1 – Mobile Phone did not indicate that the incoming call waiting call was rejected.
Interfaces	G-HMI Vehicle System Interface

3.7.1.20 BTP-UC-REQ-041808/A-Mobile Phone did not indicate that the incoming call waiting call was rejected (TcSE ROIN-290938-1)

Linked Elements
BTP-UC-REQ-041807/A-Rejecting an Incoming Call Waiting Call via Connected Mobile Phone (TcSE ROIN-290937-1)

Actors	Customer Connected Mobile Phone
Pre-conditions	Same as original use case
Scenario Description	In this scenario, there is an active call present and the connected mobile phone indicates that an incoming call waiting call is present. As a result of this notification the In-Vehicle Infotainment System notifies the Customer of the incoming call by displaying the phone number of the incoming call or the phonebook contact name if the contact name is available. The connected mobile phone indicates that the incoming call waiting call is no longer present, but that indication was not provided to the In-Vehicle Infotainment System.
Post-conditions	The In-Vehicle Infotainment System continues to display the incoming call waiting call as long as the connected phone provides a notification of the incoming call waiting call.
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.7.1.21 BTP-UC-REQ-041809/A-Transferring the Handsfree Audio to the Connected Mobile Phone via the In-Vehicle Infotainment System (i.e. Transfer to Privacy) (TcSE ROIN-290939-1)

Actors	Customer Connected Mobile Phone
Pre-conditions	A mobile is connected. A call is active The audio is Handsfree and available via the In-Vehicle Infotainment System speakers.
Scenario Description	An active Handsfree call is present and the customer has opted to have a private conversation by requesting that the call audio be transferred from the In-Vehicle Infotainment System speakers to the connected mobile phone. The customer opted to do this via the In-Vehicle Infotainment System G-HMI options available.
Post-conditions	The active call is still active. The active call audio can no longer be heard via the In-Vehicle Infotainment System speakers. The active call audio is on the connected mobile phone. The In-Vehicle Infotainment System indicates that the audio is now present on the

	connected mobile phone. The In-Vehicle Infotainment System provides the Customer with the option to place the audio back to the In-Vehicle Infotainment System speakers.
List of Exception Use Cases	E1 – Transferring the audio (via In-Vehicle Infotainment System) to handset failed.
Interfaces	G-HMI Vehicle System Interface

3.7.1.22 BTP-UC-REQ-041810/A-Transferring the audio (via In-Vehicle Infotainment System) to handset failed (TcSE ROIN-290940-1)

Linked Elements
BTP-UC-REQ-041809/A-Transferring the Handsfree Audio to the Connected Mobile Phone via the In-Vehicle Infotainment System (i.e. Transfer to Privacy) (TcSE ROIN-290939-1)

Actors	Customer Connected Mobile Phone
Pre-conditions	Same as original use case
Scenario Description	An active Handsfree call is present and the customer has opted to have a private conversation by requesting that the call audio be transferred from the In-Vehicle Infotainment System speakers to the connected mobile phone. The customer opted to do this via the In-Vehicle Infotainment System G-HMI options available, but the transfer failed.
Post-conditions	An error message is displayed to the customer. The call remains Handsfree via the In-Vehicle Infotainment System.
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.7.1.23 BTP-UC-REQ-041811/A-Transferring the Handsfree Audio to the Connected Mobile Phone via the Connected Mobile Phone (i.e. Transfer to Privacy) (TcSE ROIN-290941-1)

Actors	Customer, Connected Mobile Phone
Pre-conditions	A mobile is connected. A call is active The audio is Handsfree and available via the In-Vehicle Infotainment System speakers.
Scenario Description	An active Handsfree call is present and the customer has opted to have a private conversation by requesting that the call audio be transferred from the In-Vehicle Infotainment System speakers to the connected mobile phone. The connected mobile phone has requested that the audio be transferred to the connected mobile phone.
Post-conditions	The active call is still active. The In-Vehicle Infotainment System grants the connected mobile phone's request. The active call audio can no longer be heard via the In-Vehicle Infotainment System speakers. The active call audio is on the connected mobile phone. The In-Vehicle Infotainment System indicates that the audio is now present on the connected mobile phone. The In-Vehicle Infotainment System provides the Customer with the option to place the audio back to the In-Vehicle Infotainment System speakers.
List of Exception Use Cases	E1 – Transferring the Handsfree Audio to the Connected Mobile Phone via the Connected Mobile Phone (i.e. Transfer to Privacy) (Failed).
Interfaces	G-HMI Vehicle System Interface

3.7.1.24 BTP-UC-REQ-041812/A-Transferring the Handsfree Audio to the Connected Mobile Phone via the Connected Mobile Phone (i.e. Transfer to Privacy) (Failed (TcSE ROIN-290942-1)

Linked Elements
BTP-UC-REQ-041811/A-Transferring the Handsfree Audio to the Connected Mobile Phone via the Connected Mobile Phone (i.e. Transfer to Privacy) (TcSE ROIN-290941-1)

Actors	Customer Connected Mobile Phone
Pre-conditions	Same as original use case
Scenario Description	An active Handsfree call is present and the customer has opted to have a private conversation by requesting that the call audio be transferred from the In-Vehicle Infotainment System speakers to the connected mobile phone. The connected mobile phone has requested that the audio be transferred to the connected mobile phone, but failed to notify the In-Vehicle Infotainment System
Post-conditions	In-Vehicle Infotainment System continues to indicate an active Handsfree call
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.7.1.25 BTP-UC-REQ-041813/A-Transferring the Audio to the In-Vehicle Infotainment System from the Connected Phone via In-Vehicle Infotainment System (i.e. (TcSE ROIN-290943-1)

Actors	Customer, Connected Mobile Phone
Pre-conditions	A mobile is connected. A call is active The audio is present on the connected phone.
Scenario Description	An active call is present and the audio is presently available via the connected mobile phone. The customer has opted to transfer the audio from the connected mobile phone to the speakers of the In-Vehicle Infotainment System.
Post-conditions	The active call is still active. The active call audio can no longer be heard via the connected mobile phone. The active call audio is now available via the In-Vehicle Infotainment System speakers. The In-Vehicle Infotainment System indicates that the audio is now present via the In-Vehicle Infotainment System speakers. The In-Vehicle Infotainment System provides the Customer with the option to place the audio back to the connected mobile phone.
List of Exception Use Cases	E1 – Transferring the Audio to the In-Vehicle Infotainment System from the Connected Phone via In-Vehicle Infotainment System (i.e. Transfer to Handsfree) (Failed).
Interfaces	G-HMI Vehicle System Interface

3.7.1.26 BTP-UC-REQ-041814/A-Transferring the Audio to the In-Vehicle Infotainment System from the Connected Phone via In-Vehicle Infotainment System (i.e. (TcSE ROIN-290944-1)

Linked Elements
BTP-UC-REQ-041813/A-Transferring the Audio to the In-Vehicle Infotainment System from the Connected Phone via In-Vehicle Infotainment System (i.e. (TcSE ROIN-290943-1)

Actors	Customer, Connected Mobile Phone
Pre-conditions	Same as original use case.
Scenario	An active call is present and the audio is presently available via the connected

Description	mobile phone. The customer has opted to transfer the audio from the connected mobile phone to the speakers of the In-Vehicle Infotainment System, but the transfer failed.
Post-conditions	Error message is indicated to the customer. The audio is still routed to the connected phone.
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.7.1.27 BTP-UC-REQ-041815/A-Transferring the Audio to the In-Vehicle Infotainment System from the Connected Phone via the Connected Mobile Phone (i.e. Trans (TcSE ROIN-290945-1)

Actors	Customer, Connected Mobile Phone
Pre-conditions	A mobile is connected. A call is active The audio is present on the connected phone.
Scenario Description	An active call is present and the audio is presently available via the connected mobile phone. The mobile phone has indicated that the active call audio is to be transferred from the connected mobile phone to the In-Vehicle Infotainment System speakers.
Post-conditions	The active call is still active. The In-Vehicle Infotainment System grants the connected mobile phone's request. The active call audio can no longer be heard via the connected mobile phone. The active call audio is now available via the In-Vehicle Infotainment System speakers. The In-Vehicle Infotainment System indicates that the audio is now present via the In-Vehicle Infotainment System speakers. The In-Vehicle Infotainment System provides the Customer with the option to place the audio back to the connected mobile phone.
List of Exception Use Cases	E1 – Transferring the Audio from the Connected Mobile Phone to the In-Vehicle Infotainment System via the Connected Mobile Phone (i.e. Transfer to Handsfree) (Failed).
Interfaces	G-HMI Vehicle System Interface

3.7.1.28 BTP-UC-REQ-041816/A-Transferring the Audio from the Connected Mobile Phone to the In-Vehicle Infotainment System via the Connected Mobile Phone (i.e (TcSE ROIN-290946-1)

Linked Elements
BTP-UC-REQ-041815/A-Transferring the Audio to the In-Vehicle Infotainment System from the Connected Phone via the Connected Mobile Phone (i.e. Trans (TcSE ROIN-290945-1)

Actors	Customer Connected Mobile Phone
Pre-conditions	Same as original use case
Scenario Description	An active call is present and the audio is presently available via the connected mobile phone. The customer has opted to transfer the call audio to the In-Vehicle Infotainment System via the connected phone, but the phone has failed to indicate this to the In-Vehicle Infotainment System.
Post-conditions	In-Vehicle Infotainment System continues to indicate an active call in privacy The audio is still present on the connected phone. If alerted, the In-Vehicle Infotainment System to provide an error indication to the customer.
List of Exception Use Cases	N/A

Interfaces	G-HMI Vehicle System Interface

3.7.1.29 BTP-UC-REQ-041817/A-Entering DTMF Tones During an Active Phone Call (TcSE ROIN-290947-1)

Actors	Customer, Connected Mobile Phone
Pre-conditions	A mobile phone is connected. A call is active (Handsfree or Privacy)
Scenario Description	In this case there is an active call present, and Customer wants to send DTMF tones to the far end. (As an example, the Customer may want to join a conference call, etc.) Via the In-Vehicle Infotainment System G-HMI available, the Customer indicates which DTMF tones to send to the far end.
Post-conditions	The call is still active As each DTMF tone is requested by the Customer, it is sent to the connected mobile phone. The In-Vehicle Infotainment System displays to the Customer which DTMF tones have been sent to the far end.
List of Exception Use Cases	E1 – DTMF tones from the In-Vehicle Infotainment System fails.
Interfaces	G-HMI

3.7.1.30 BTP-UC-REQ-041818/A-DTMF tones from the In-Vehicle Infotainment System fails (TcSE ROIN-290948-1)

Linked Elements
BTP-UC-REQ-041817/A-Entering DTMF Tones During an Active Phone Call (TcSE ROIN-290947-1)

Actors	Customer, Connected Mobile Phone
Pre-conditions	Same as original use case
Scenario Description	In this case there is an active call present, and Customer wants to send DTMF tones to the far end. (As an example, the Customer may want to join a conference call, etc.) Via the In-Vehicle Infotainment System G-HMI available, the Customer indicates which DTMF tones to send to the far end, but the connected phone has failed to respond appropriately.
Post-conditions	An error is displayed to the customer. The In-Vehicle Infotainment System remains in an active call.
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.7.2 Requirements

3.7.2.1 BTP-FUR-REQ-041819/A-Ability to End a Single Call (TcSE ROIN-295051-1)

The ability to end a single active call shall only be available while in a single call. This will allow the user to end the call.
The user shall be able to end a call via In-Vehicle Infotainment System or the AG
After a call has been ended, the phone application shall release Primary Audio Source.

3.7.2.2 BTP-FUR-REQ-041820/A-Max Number of Calls (TcSE ROIN-295056-1)

The In-Vehicle Infotainment System shall a control a maximum of two calls simultaneously. While in a multi-party call state, the user will not have the option via The In-Vehicle Infotainment System to establish another call nor answer any incoming call waiting calls.

While in a single active call, the user shall be able to accept/place a second call. The active call shall be placed on hold, and the new (second) call shall become the active call. The user shall be able to then switch between the calls. The phone application shall present the status of the active / held calls to the user (if supported by the connected AG).

3.7.2.3 BTP-FUR-REQ-041821/A-Call Waiting Call (TcSE ROIN-295057-1)

When a call waiting notification is received from the connected AG, the phone application shall notify the user by displaying the calls characteristics as described in the Phonebook Matching section of this specification. The user shall be able to accept, reject, or ignore this call.

3.7.2.4 BTP-FUR-REQ-041822/A-Call Waiting Call Accepted (TcSE ROIN-295058-1)

If accepted via In-Vehicle Infotainment System or the AG, the phone application shall reflect that the incoming call waiting call (i.e. the second call) is now the active call.

3.7.2.5 BTP-FUR-REQ-041823/A-Call Waiting Call Rejected (TcSE ROIN-295059-1)

If rejected via the In-Vehicle Infotainment System, the phone application shall block the incoming call waiting call's caller ID, send it to voicemail (if supported by the connected AG), and shall continue with the active call.

3.7.2.6 BTP-FUR-REQ-041824/A-Call Waiting Call Ignored (TcSE ROIN-295060-1)

If the user ignores the incoming call waiting call (i.e. not pressing any buttons via In-Vehicle Infotainment System), the phone core shall continue to report an incoming call waiting call until the phone stops reporting a CCWA notification. At that time In-Vehicle Infotainment System shall inform the user they have a Missed Call, and a Missed Call shall be recorded in the Call History section within THE IN-VEHICLE INFOTAINMENT SYSTEM.

3.7.2.7 BTP-FUR-REQ-041826/A-Toggle Calls (TcSE ROIN-295062-1)

This function allows the user to switch between an active call and a held call. This function shall only be allowed in a multi-party call state where one call is on hold and one is active.

3.7.2.8 BTP-FUR-REQ-041827/A-Ending Specific Call (TcSE ROIN-295063-1)

This function allows the user to end an active call, and return to a held call.

Note: For CDMA devices, the user will not be able to end the active call. In this case, the user will end both calls, and the holding call will begin to ring as a new incoming call.

3.7.2.9 BTP-FUR-REQ-041828/A-Join Calls (TcSE ROIN-295064-1)

This function shall allow the user to join two calls, and create a conference call. This function shall only be allowed in a multi-party call state where one call is on hold and one is active.

3.7.2.10 BTP-FUR-REQ-041829/A-Ending Joined Calls (TcSE ROIN-295065-1)

This function shall allow the user to end a joined call. This function shall only be allowed in a multi-party call state where both calls are active. After the calls have been ended, the phone application shall release Primary Audio Source.

3.7.2.11 BTP-FUR-REQ-041830/A-DTMF Tones (TcSE ROIN-295066-1)

This feature shall only be available while in an active call. It shall allow the user to send DTMF tones during active calls. All numerals, asterisks, and pound shall be supported. The user shall be allowed to enter these tones using the GUI. In-Vehicle Infotainment System shall play a short tone over the mono-line each time a user sends a DTMF tone. This will provide some audio feedback to assure the user that their action was registered.

3.7.2.12 BTP-FUR-REQ-041831/A-Muting an Active Call(s) (TcSE ROIN-295067-1)

This feature shall only be available while in an active call. It shall mute the In-Vehicle Infotainment System microphone, and not pass audio to the connected AG. When this feature is set to 'ON', the In-Vehicle Infotainment System microphone will be muted. SCO shall still be connected, and the user shall be able to hear the party on the far end.

3.7.2.13 BTP-FUR-REQ-041832/A-Privacy Availability (TcSE ROIN-295068-1)

The ability to place a call into privacy / Handsfree shall only be available while in an active call. It will allow a user to transfer their call from the HF to the AG and vice versa via In-Vehicle Infotainment System or the AG.

3.7.2.14 BTP-FUR-REQ-041833/A-Privacy / Handsfree Call Management (TcSE ROIN-295069-1)

The call shall still be managed by the Handsfree connection with HF, while the call audio is on the handset.

3.7.2.15 BTP-FUR-REQ-041834/C-Enabling Privacy (TcSE ROIN-295070-1)

While this feature is set to 'ON', the audio will be transferred to the AG, and the phone application shall release primary audio to the previous Primary Audio Source (provided that the previous Primary Audio Source was not from the connected AG). The state of the previous Primary Audio Source whether muted or unmuted shall be set according to the default value of customer market requirement as specified in BTP-FUR-REQ-113745 Device Specific settings. The customer shall have the ability to change the default value of the Primary Audio Source state upon entering privacy mode through the HMI setting.

3.7.2.16 BTP-FUR-REQ-041835/A-Disabling Privacy (TcSE ROIN-295071-1)

While this feature is set to 'OFF' audio will be transferred to the HF, and the phone application shall take Primary Audio Source.

3.7.2.17 BTP-FUR-REQ-041836/A-Privacy Exception (TcSE ROIN-295072-1)

The In-Vehicle Infotainment System shall not indicate that the active call is in privacy when the customer is ending the call. To achieve this goal, the In-Vehicle Infotainment System shall wait 500ms before indicating that a call has been transferred into privacy when a Release SCO notification is received from the connected AG. Also, if the customer has opted to end the call via the In-Vehicle Infotainment System, the In-Vehicle Infotainment System shall not indicate that the call has transferred to privacy prior to phone call disconnect.

3.7.2.18 BTP-FUR-REQ-041837/A-Automatic Transfer to Privacy (TcSE ROIN-295073-1)

In the event that In-Vehicle Infotainment System has to release the Handsfree Connection with the AG while there is an active call present, it shall transfer the audio to the AG. In this case, In-Vehicle Infotainment System shall present a 180 second timer once the power mode transitions to Wait-Suspend. This timer shall indicate that the call will be transferred to privacy. The call shall be transferred if In-Vehicle Infotainment System receives a Driver Door open signal after a transition to Wait-Suspend. In the event that there is an active call, and In-Vehicle Infotainment System recognizes that the Driver Door is open and receives an ignition off In-Vehicle Infotainment System shall transfer the call to privacy. These scenarios can be found in In-Vehicle Infotainment System Welcome Power Modes.

3.7.2.19 BTP-FUR-REQ-041838/A-Automatic Transfer to Handsfree (TcSE ROIN-295074-1)

In the event that In-Vehicle Infotainment System connects to an AG, and it is in an active call, In-Vehicle Infotainment System shall transfer the call to Handsfree within 2 seconds.

3.7.2.20 BTP-FUR-REQ-130713/A-Hold Call

In the event that the connected device is capable of indicating the hold status of a connected call, the In-Vehicle Infotainment System shall be able to display this status to the customer.

3.7.2.21 BTP-FUR-REQ-041839/A-Advanced Call Tracking (TcSE ROIN-295103-1)

If supported by the connected AG, In-Vehicle Infotainment System shall use the Advance Call Tracking (i.e. CLCC) indicators as the call status indicator.

In the event of an Emergency Call, In-Vehicle Infotainment System shall use either CIEV and/or AT+CLCC updates to determine if an Emergency Call has been established.

3.7.2.22 BTP-FUR-REQ-041840/A-Call Timer (TcSE ROIN-295104-1)

During an active call, a call timer shall be maintained for all of the hands-free calls. In multi-party scenarios, the timer shall continue until the final call is terminated.

*****Note: In-Vehicle Infotainment System will not be able to display an accurate call timer when the call was active at the time of connection.

3.7.2.23 BTP-FUR-REQ-041841/A-Blower Motor Reduction / Activation (TcSE ROIN-295114-2)

The In-Vehicle Infotainment System shall request that the climate module reduce the blower motor when a Handsfree call is active. The In-Vehicle Infotainment System shall enable / disable the blower motor within 50ms of a handsfree phone call or the release of eSCO/SCO. Reference ~~P14 Phone Blower Motor Reduction Specification~~ BTP-GREQ-297103-Blower Motor Reduction Activation/Deactivation
BTP-GREQ-297104-Incoming Call (Setting Blower Motor Reduction Activation)
BTP-GREQ-297105-Outgoing Call Initiated from HF/AG (Setting Blower Motor Reduction Activation)
BTP-GREQ-297106-Active Call at Time of Connection (Setting Blower Motor Reduction Activation)
BTP-GREQ-297107-End of Call (Setting Blower Motor Reduction Activation)
BTP-GREQ-297108-AG Disconnect (Setting Blower Motor Reduction Activation)
BTP-GREQ-297109-Unspecified (per Handsfree Profile 1.5) Conditions Handling
BTP-GREQ-297110-Audio is placed into Privacy (i.e. SCO is Released)
BTP-GREQ-297111-Audio is placed into Handsfree from Privacy (i.e. SCO is granted)
BTP-GREQ-297112-Additional Notes.

3.7.2.24 BTP-FUR-REQ-041842/A-Active Call Audio Error Detection (TcSE ROIN-304249-1)

The in-vehicle infotainment system shall have the ability to detect when eSCO / SCO should be active per the requirements within Handsfree Profile Specification.

Outgoing Call:

When an outgoing call is initiated via the in-vehicle infotainment system, it shall determine that an external error with the AG has occurred when the following scenario takes place:

1. If the connected AG fails to establish the audio connection within 15 seconds of receiving a callsetup value of 2.

When the above scenario is detected, the in-vehicle infotainment system shall consider that the phone is not providing in-vehicle infotainment system with access to the phone call audio.

Incoming Call:

The in-vehicle infotainment system shall have the ability to detect when eSCO / SCO should be active per the requirements within Handsfree Profile Specification.

In-Band Ringing Support:

When the in-vehicle infotainment system is alerted to an incoming phone call via a callsetup value =1, it shall determine that an external audio routing error with AG has occurred when the following scenario takes place:

1. In-band ringing is active (as reported from the device)
2. If the connected AG fails to establish the audio connection within 15 seconds of receiving a callsetup value = 1.

When the above scenario is detected, the in-vehicle infotainment system shall consider that the phone is not providing Sync with access to the phone call audio.

Non In-Band Ringing Support:

When the in-vehicle infotainment system provides and ATA to the connected AG and has received the corresponding call value = 1 and callsetup value = 0 shall determine that an external audio routing error with the AG has occurred when the following scenario takes place:

1. The connected AG fails to establish the audio connection within 15 seconds of receiving the callsetup value = 0.

When the above scenario is detected, the in-vehicle infotainment system shall consider that the phone is not providing Sync with access to the phone call audio.

Retrieval From Privacy:

The in-vehicle infotainment system determine that an external audio routing error has taken place when attempting to retrieve a call from the handset (i.e. eSCO / SCO request) when the following scenario takes place:

1. The in-vehicle infotainment system has requested eSCO / SCO from the connected AG, but the AG has either:
    a. Failed to respond to the request within 5 seconds
    b. Rejected the request

3.7.2.25 BTP-FUR-REQ-041843/A-Incoming Call Answer Failure (TcSE ROIN-304250-1)

The in-vehicle infotainment system shall have the ability to detect when the connected AG has not responded to the request to answer an incoming call correctly per the requirements within Handsfree Phone Specification.

When the in-vehicle infotainment system provides an ATA or CHLD = 2 to the connected AG the in-vehicle infotainment system shall determine that an external error has occurred when the following scenario takes place:

1. The connected AG fails to respond with an OK within 15 seconds

*Note: For CHLD = 2; the categorization of an incoming call failure is only applicable when it is used in response to answering an incoming call waiting call (i.e. CCWA notification).

When the above scenario occurs the in-vehicle infotainment system shall consider this as an Error while accepting the call. The in-vehicle infotainment device shall continue to attempt to answer the call by repeating the message to the AG every 5 seconds until the AG is no longer indicating that an incoming call is present or the user has indicated that the in-vehicle infotainment system should stop trying.

3.7.2.26 BTP-FUR-REQ-041844/A-Incoming Call Rejection Failure (TcSE ROIN-304251-1)

The in-vehicle infotainment system shall have the ability to detect when the connected AG has not responded to the request to reject an incoming call correctly per the requirements within Handsfree Phone Specification.

When the in-vehicle infotainment system provides a CHUP to the connected AG the in-vehicle infotainment system shall determine that an external error has occurred when the following scenario takes place:

1. The connected AG fails to respond with an OK within 15 seconds

When the above scenario occurs the in-vehicle infotainment system shall consider this as an Error while rejecting the call. The in-vehicle infotainment device shall continue to reject the call by repeating the message to the AG every 5 seconds until

the AG is no longer indicating that an incoming call is present or the user has indicated that the in-vehicle infotainment system should stop trying.

3.7.2.27 BTP-FUR-REQ-130714/B-Phone Volume Adjustment

The In-Vehicle Infotainment System shall offer an opportunity for the costumer to adjust the phone volume level to the media volume level. This setting shall be stored and shall apply for each paired device separately.
This adjustment shall apply prior to the phone feature volume setting.
The offset shall cover a gain of –12 dB to + 12 dB in 7 steps.
The default value is specified in STMGNT-FUR-REQ-014654-AHU-DSP AMP Default Parameters (TcSE ROIN-119131-11).)
This requirement shall consider the existing requirement AHU-HR-REQ-102963-Mode Balancing - Media Level Matching For Audio Outputs. It is furthermore an additional option to compensate different behavior of consumer electronics.

3.7.3 Sequence Diagrams

3.7.3.1 BTP-SD-REQ-030709/A-Mute Phone (TcSE ROIN-149429-1)

Scenarios

Normal Usage

The user selects <Mute / UnMute current call> via the HMI.

Constraints

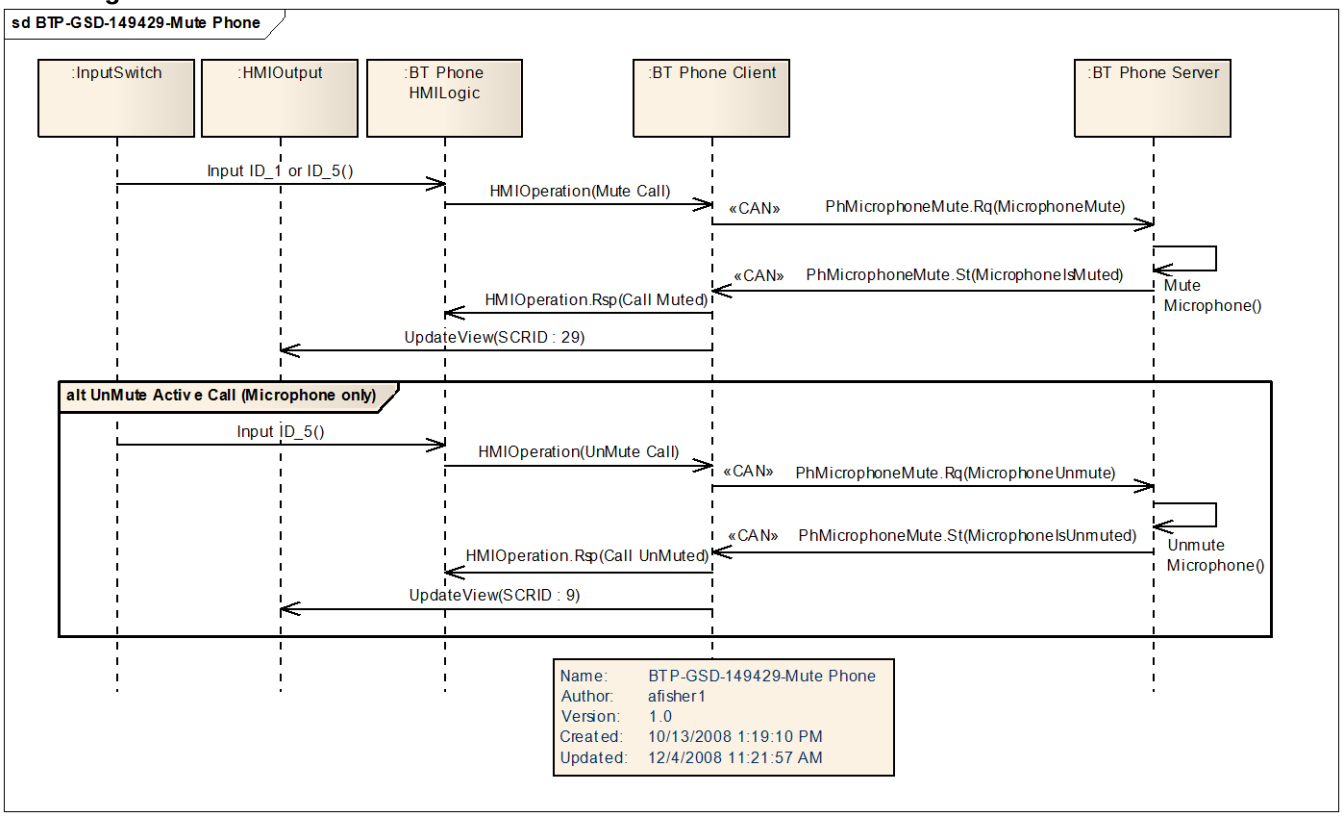
Pre-condition

A Bluetooth phone is connected to the vehicle interface. Vehicle power is On. User is in an active phone call.

Post-condition

The user is in an active phone call, and the phone is muted or unmuted depending upon user action.

Sequence Diagram



3.7.3.2 BTP-SD-REQ-030705/A-End Call (TcSE ROIN-149457-3)

Scenarios

Normal Usage

The user selects <End Call> via the HMI.

Constraints

Pre-condition

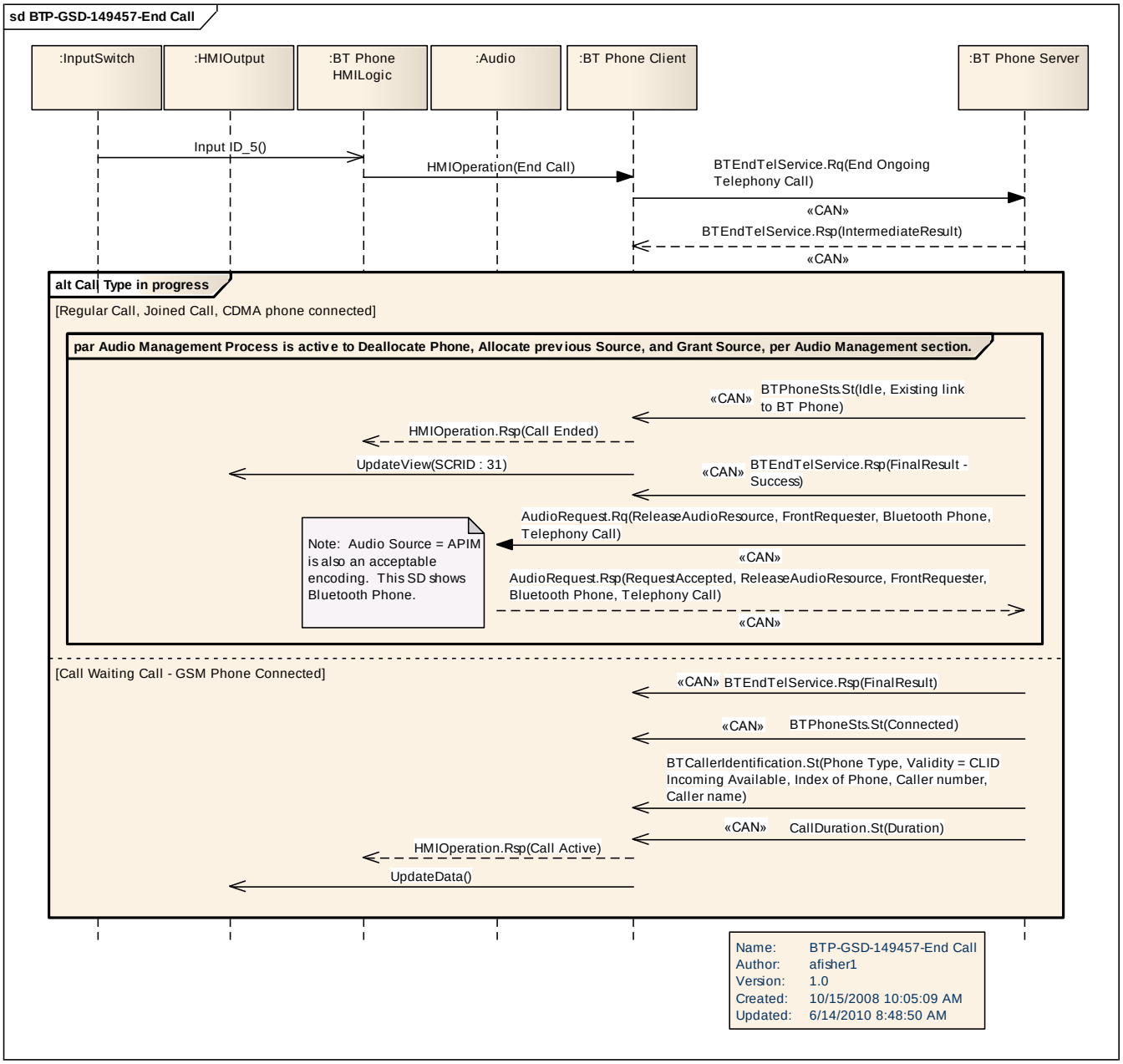
A Bluetooth phone is connected to the vehicle interface. Vehicle power is On. User is in an active phone call.

Post-condition

If active call is a regular one party call, a joined call, or a CDMA call waiting call, the active call is ended.

If active call is a call waiting call with a GSM phone connected, the current active call is ended, and the second call currently on hold is made the active call.

Sequence Diagram



3.7.3.3 BTP-SD-REQ-030711/A-Go to Privacy Mode (TcSE ROIN-149464-1)

Scenarios

Normal Usage

The user selects <Enter Privacy mode> via the HMI.

Constraints

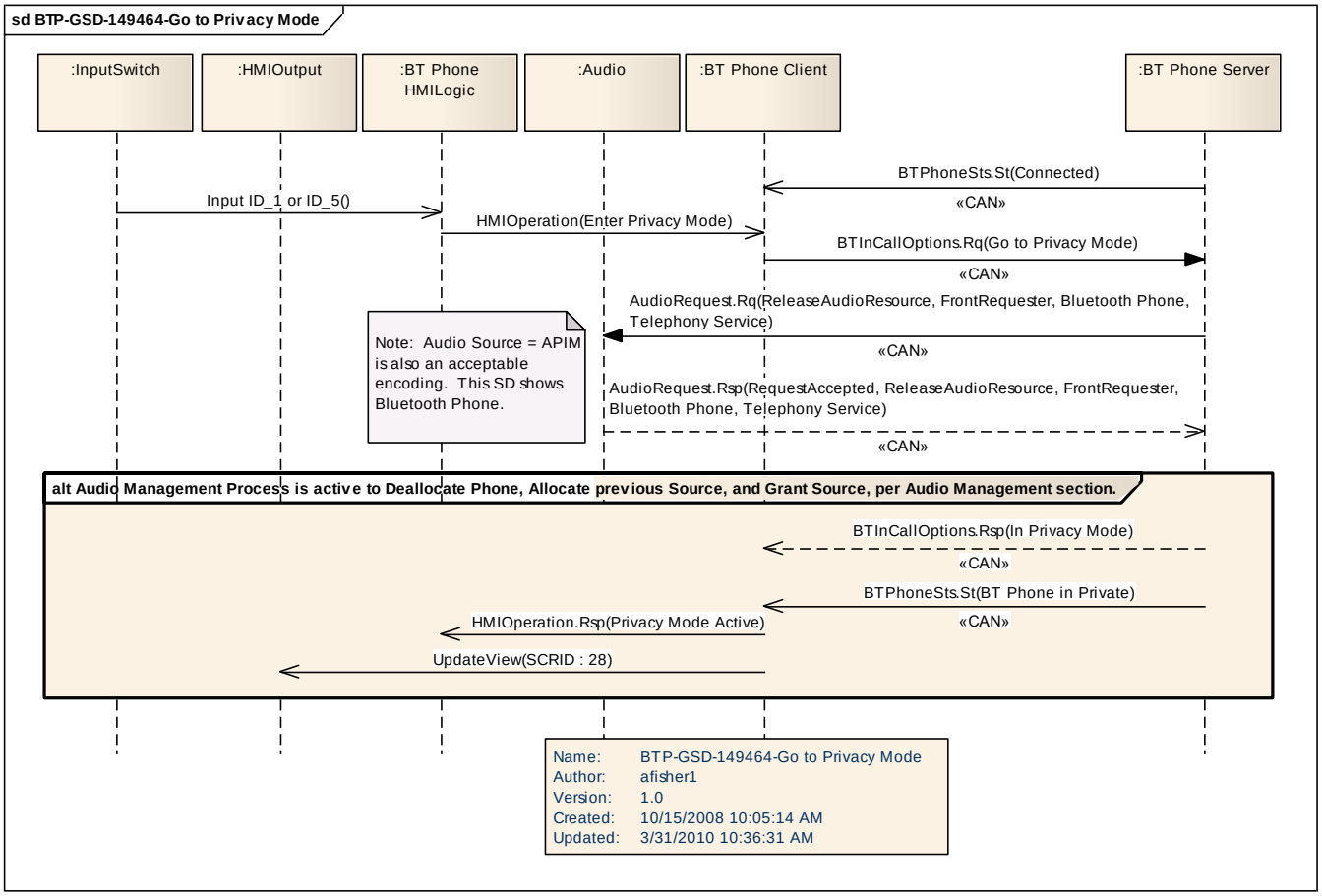
Pre-condition

A Bluetooth phone is connected to the vehicle interface. Vehicle power is On. User is in an active phone call, and is in hands free mode.

Post-condition

The user is in an active phone call, and the phone is placed in privacy mode The previous audio source is made active on the vehicle audio system.

Sequence Diagram



3.7.3.4 BTP-SD-REQ-030713/A-Go to Hands Free Mode (TcSE ROIN-150117-1)

Scenarios

Normal Usage

The user selects <Enter Hands free mode> via the HMI.

Constraints

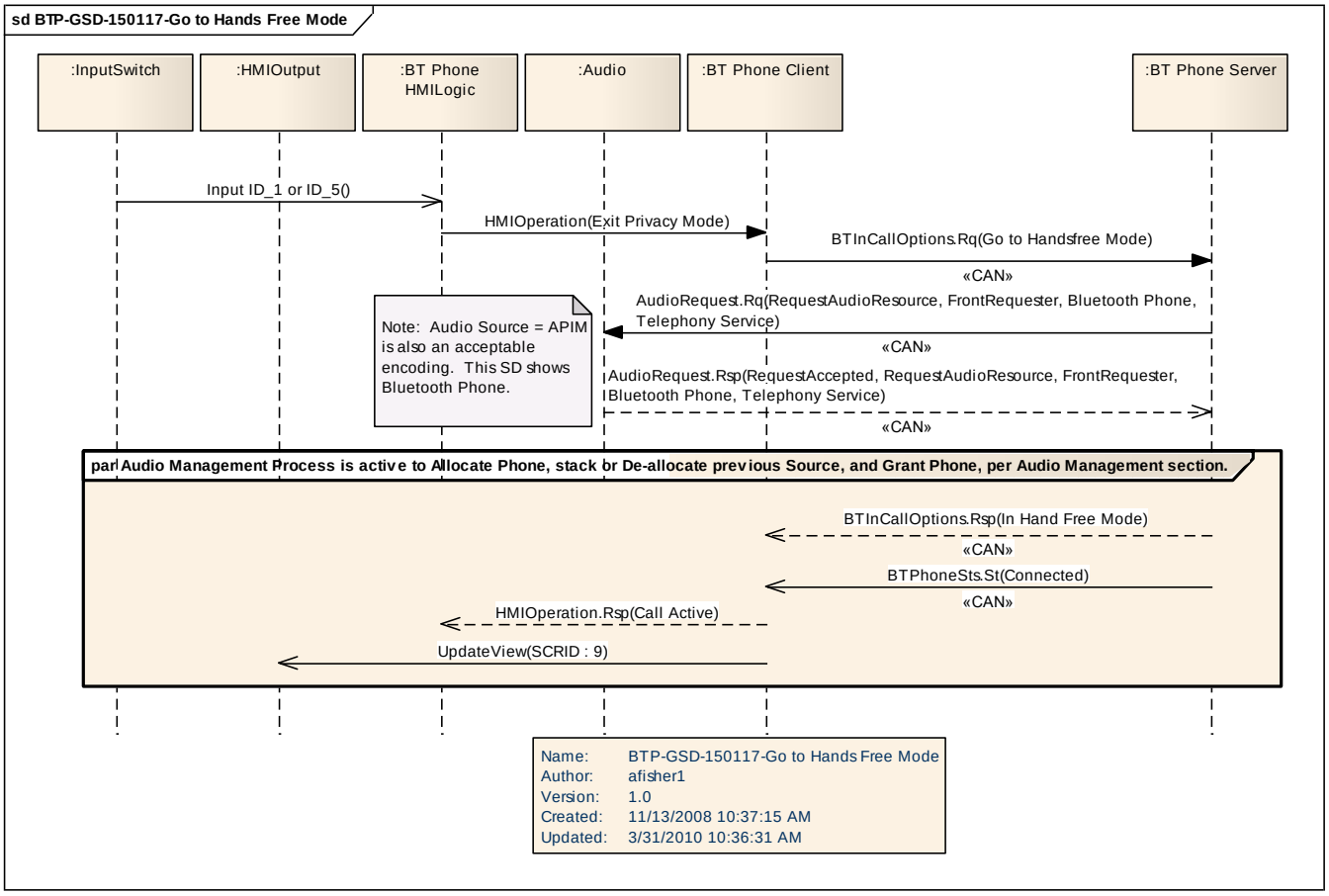
Pre-condition

A Bluetooth phone is connected to the vehicle interface. Vehicle power is On. User is in an active phone call, and is in privacy mode.

Post-condition

The user is in an active phone call, and the phone is placed in hands free mode Phone is made active on the vehicle audio system.

Sequence Diagram



3.7.3.5 BTP-SD-REQ-030715/A-Call Waiting Call (TcSE ROIN-149471-2)

Scenarios

Normal Usage

The user is currently in an active call. HMI indicates {Calling waiting call, caller id, and accept/reject}. User selects <Accept / Reject> via HMI.

Constraints

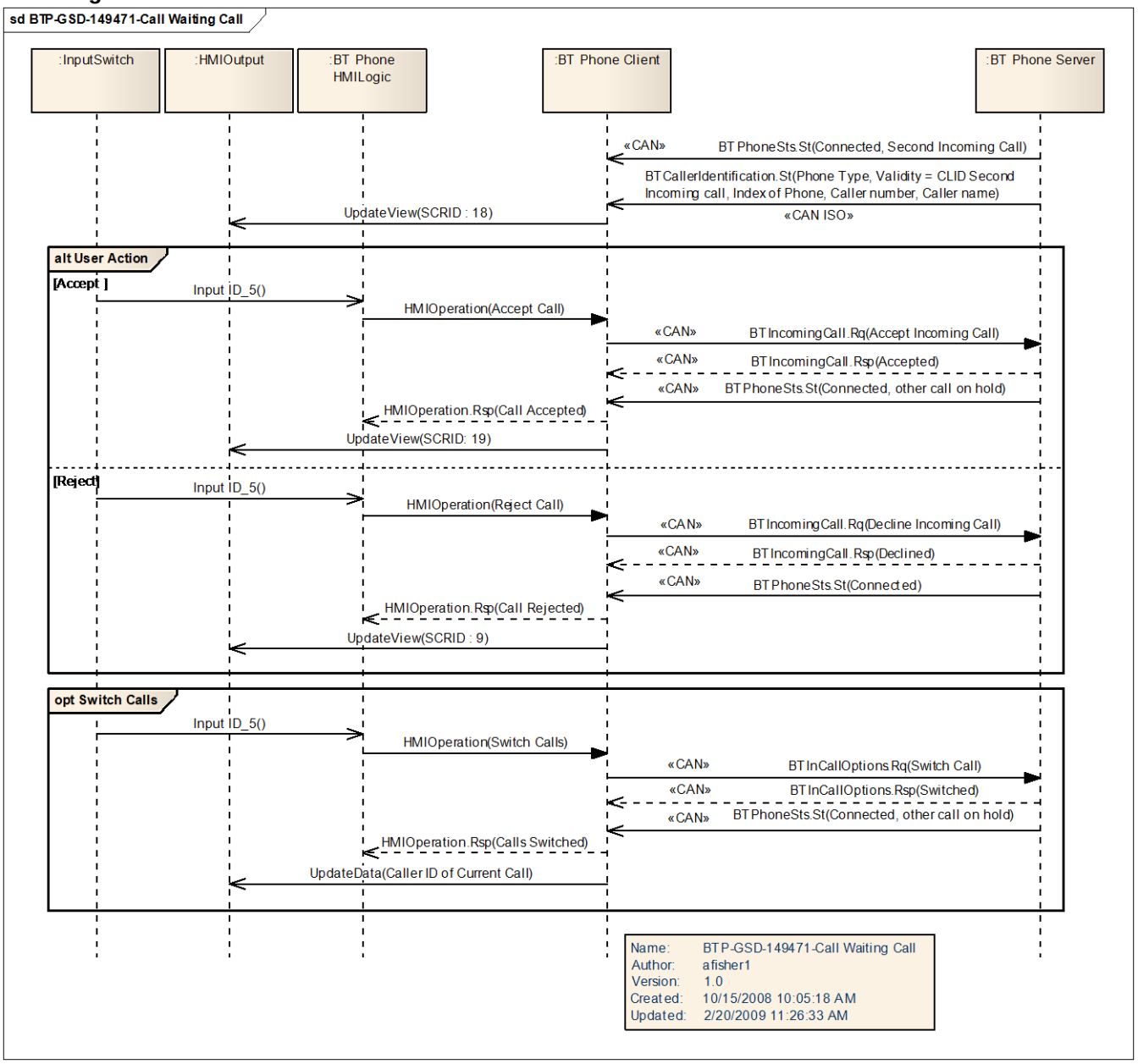
Pre-condition

A Bluetooth phone is connected to the vehicle interface. Vehicle power is On. User is in an active phone call. Another incoming call is received.

Post-condition

The user accepts or rejects second call, and continues in phone call. If second call is accepted, the first call is placed on hold.

Sequence Diagram



3.7.3.6 BTP-SD-REQ-030717/A-Join Calls (TcSE ROIN-149478-3)

Scenarios

Normal Usage

The user selects <join calls> via the HMI. Both active calls are joined into one active call.

Constraints

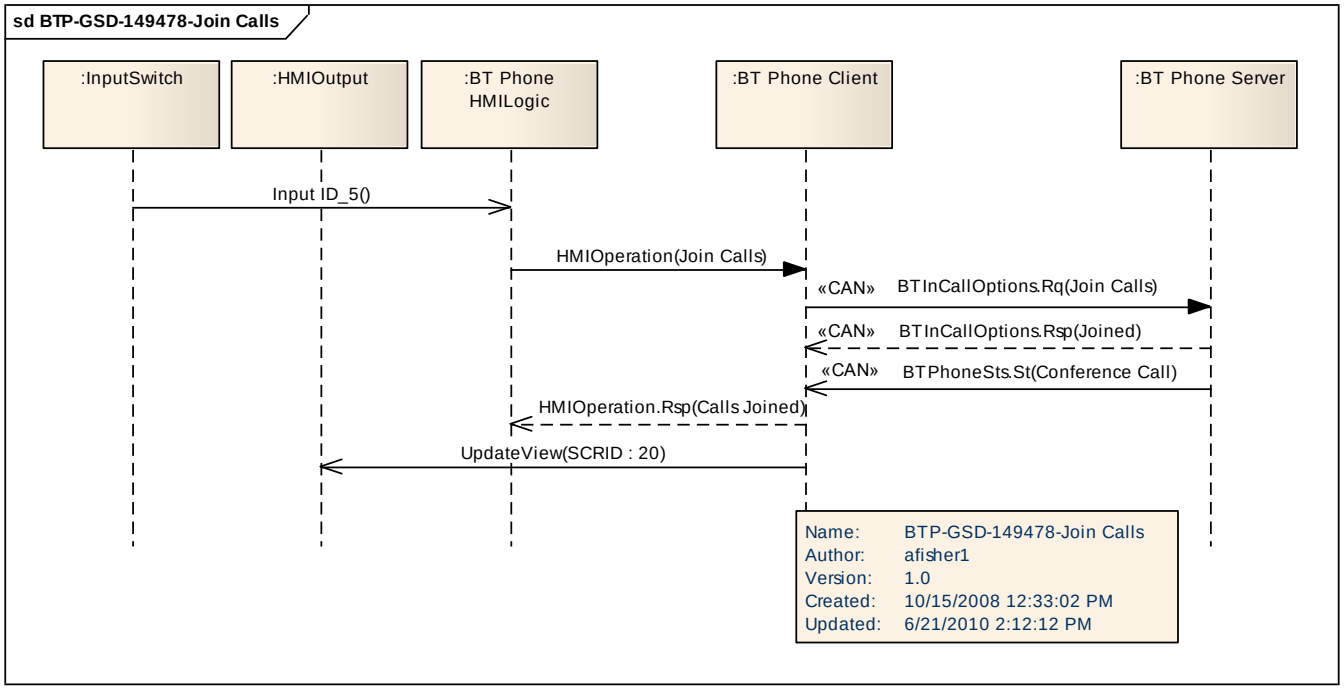
Pre-condition

A Bluetooth phone is connected to the vehicle interface. Vehicle power is On. User is in an active ~~handsfree~~ phone call with another call on hold.

Post-condition

The currently two active phone calls are joined into one active call.

Sequence Diagram



3.8 BTP-FUN-REQ-033817/A-Phonebook and Call History Download, Browse and Management (TcSE ROIN-294317-1)

3.8.1 Use Cases

3.8.1.1 BTP-UC-REQ-033818/C-Phonebook Download (TcSE ROIN-290886-2)

Actors	In-Vehicle Infotainment System and Connected Phone
Pre-conditions	Connected phone supports ability to download the phonebook Infotainment system must be on. In-Vehicle Infotainment System
Scenario Description	The mobile phone has been paired and a phonebook download has been initiated by the In-Vehicle Infotainment System. Once completed, the In-Vehicle Infotainment System will have the ability to display the following type of information from the phone's phonebook: First and / or Last Name Cell Phone Number Work / Office Number Home Number Photo Address *Note: If this is the first time that the phonebook download has been initiated between the In-Vehicle Infotainment System and the connected phone or if this function has been manually triggered by the Customer, he / she will more than likely waiting for this operation to be completed.
Post-conditions	The In-Vehicle Infotainment System has requested a download of the connected phone's phonebook. The In-Vehicle Infotainment System has stored the connected phone's phonebook to its' internal memory.

	The In-Vehicle Infotainment System makes the connected phone's phonebook available for use and display via the In-Vehicle Infotainment System G-HMI.
List of Exception Use Cases	E1 – The connected device is disconnected during the phonebook download. E2 – First time phonebook download access notification. E3 – Phonebook is empty
Interfaces	G-HMI, V-HMI

3.8.1.2 BTP-UC-REQ-033819/A-The connected device is disconnected during the phonebook download (TcSE ROIN-290887-1)

Linked Elements
BTP-UC-REQ-033818/C-Phonebook Download (TcSE ROIN-290886-2)

Actors	In-Vehicle Infotainment System and Connected Phone
Pre-conditions	Same as original
Scenario Description	The In-Vehicle Infotainment System has opted to download the phonebook and the devices are disconnected.
Post-conditions	The In-Vehicle Infotainment System alerts the user that the download was not complete (*Note: The alert can also include a notice that another attempt will be made upon the next connection).
List of Exception Use Cases	N/A
Interfaces	G-HMI, V-HMI

3.8.1.3 BTP-UC-REQ-033820/A-First Time Phonebook Download Access Notification (TcSE ROIN-290888-1)

Linked Elements
BTP-UC-REQ-033818/C-Phonebook Download (TcSE ROIN-290886-2)

Actors	In-Vehicle Infotainment System and Connected Phone
Pre-conditions	Same as original
Scenario Description	The In-Vehicle Infotainment System has opted to download the phonebook for the first time.
Post-conditions	The In-Vehicle Infotainment System alerts the customer that they may need to provide the In-Vehicle Infotainment System with access to the Phonebook via the connected mobile phone.
List of Exception Use Cases	N/A
Interfaces	G-HMI, V-HMI

3.8.1.4 BTP-UC-REQ-033821/A-Call History Download (TcSE ROIN-290889-1)

Actors	In-Vehicle Infotainment System and Connected Phone
Pre-conditions	Connected Phone supports ability to download the call history Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s).
Scenario Description	The mobile phone has been paired and a call history download has been initiated by the In-Vehicle Infotainment System. *Note: If this is the first time that the call history download has been initiated between the In-Vehicle Infotainment System and the connected phone or if this function has been manually triggered by the Customer, he / she will more than likely waiting for this operation to be completed. The type of information that the In-Vehicle Infotainment System can display from the Call History should be:

	Incoming Call Outgoing Call Missed Call All calls
Post-conditions	The In-Vehicle Infotainment System has requested a download of the connected phone's Call History. The In-Vehicle Infotainment System has stored the connected phone's Call History to its' internal memory. The In-Vehicle Infotainment System makes the connected phone's Call History available for use.
List of Exception Use Cases	E1 – Call History download not successful. E2 – Call history (empty).
Interfaces	G-HMI V-HMI

3.8.1.5 BTP-UC-REQ-033822/A-Call History Download Not Successful (TcSE ROIN-290890-1)

Linked Elements
BTP-UC-REQ-033821/A-Call History Download (TcSE ROIN-290889-1)

Actors	In-Vehicle Infotainment System and Connected Phone
Pre-conditions	Same as original use case
Scenario Description	The In-Vehicle Infotainment System has requested the connected phone's call history, but was not successful in obtaining it.
Post-conditions	The In-Vehicle Infotainment System has the ability to display an error message to the customer when they opt to access the call history.
List of Exception Use Cases	N/A
Interfaces	G-HMI V-HMI

3.8.1.6 BTP-UC-REQ-033823/A-Call History (Empty) (TcSE ROIN-290891-1)

Linked Elements
BTP-UC-REQ-033821/A-Call History Download (TcSE ROIN-290889-1)
BTP-FUR-REQ-153579/A-Requirements for Handling of Phonebook and Call History Feature in VUI/GUI

Actors	In-Vehicle Infotainment System and Connected Phone
Pre-conditions	Same as original use case
Scenario Description	The In-Vehicle Infotainment System has requested the connected phone's call history, but the call history was empty.
Post-conditions	The In-Vehicle Infotainment System has the ability to display an notification message to the customer when they opt to access the call history.
List of Exception Use Cases	N/A
Interfaces	G-HMI V-HMI

3.8.1.7 BTP-UC-REQ-033824/A-User Opts to Turn Phonebook / Call History Download Off (TcSE ROIN-290892-1)

Actors	In-Vehicle Infotainment System and Connected Phone
Pre-conditions	Connected Phone supports ability to download the call history and phonebook. Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s).

Scenario Description	The user does not want to update their phonebook / call history automatically.
Post-conditions	The In-Vehicle Infotainment System turns off the automatic update of phonebook and call history.
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.8.1.8 BTP-UC-REQ-033825/A-User Opts to Access Phonebook Features w/o Phonebook Available (TcSE ROIN-290893-1)

Actors	In-Vehicle Infotainment System and Connected Phone
Pre-conditions	Connected Phone supports ability to download the call history and phonebook. Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s).
Scenario Description	The customer has requested a phonebook feature, but a phonebook is not stored within the In-Vehicle Infotainment System.
Post-conditions	The customer is notified that the phonebook is not available.
List of Exception Use Cases	N/A
Interfaces	G-HMI V-HMI Vehicle System Interface

3.8.1.9 BTP-UC-REQ-033826/A-Phonebook Downloaded from Connected Not Completely Available via In-Vehicle Infotainment System (TcSE ROIN-290894-1)

Actors	In-Vehicle Infotainment System and Connected Phone
Pre-conditions	Connected Phone supports ability to download the call history and phonebook. Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s).
Scenario Description	The In-Vehicle Infotainment System has initiated a phonebook download, but the In-Vehicle Infotainment System could not store the complete phonebook.
Post-conditions	The customer is notified that the complete phonebook is not available.
List of Exception Use Cases	N/A
Interfaces	G-HMI V-HMI

3.8.1.10 BTP-UC-REQ-033827/A-Phonebook Browsing (TcSE ROIN-290895-1)

Actors	In-Vehicle Infotainment System and Connected Phone
Pre-conditions	Connected Phone supports ability to download the call history and phonebook. Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s). Phonebook is available within In-Vehicle Infotainment System.
Scenario Description	The customer has accessed the phonebook section of the In-Vehicle Infotainment System.
Post-conditions	The customer has the option to scroll, jump from letter to letter, select specific contacts via the In-Vehicle Infotainment System.
List of Exception Use Cases	N/A

Interfaces	G-HMI

3.8.1.11 BTP-UC-REQ-033828/A-Phonebook Sorting (TcSE ROIN-290896-1)

Actors	In-Vehicle Infotainment System and Connected Phone
Pre-conditions	Connected Phone supports ability to download the call history and phonebook. Infotainment system must be on. Bluetooth must be on in In-Vehicle Infotainment System and mobile device(s). Phonebook is available within In-Vehicle Infotainment System. Phonebook must be available within the In-Vehicle Infotainment System.
Scenario Description	The customer wants to choose the sorting order of their phonebook (i.e. Last name/First Name or First Name / Last Name)
Post-conditions	The phonebook will be sorted in the order selected by the customer.
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.8.1.12 BTP-UC-REQ-153575/A-Phonebook is empty

Linked Elements
BTP-FUR-REQ-153579/A-Requirements for Handling of Phonebook and Call History Feature in VUI/GUI

Actors	In-Vehicle Infotainment System and Connected Phone
Pre-conditions	Same as original use case
Scenario Description	The In-Vehicle Infotainment System has requested the connected phone's phonebook, but the phonebook is emtpy. The customer opted to enter the phonebook or to initiate an outgoing call to a contact name.
Post-conditions	The In-Vehicle Infotainment System has the ability to display a notification message or play a voice prompt to the customer when they opt to use the phonebook feature.
List of Exception Use Cases	N/A
Interfaces	G-HMI V-HMI

3.8.2 Requirements

3.8.2.1 BTP-FUR-REQ-033829/B-Phonebook Download Availability (TcSE ROIN-295075-1)

In-Vehicle Infotainment System shall provide the user with the option to download their AG's phonebook automatically and/or manually, when the connected device is supporting this feature.

In-Vehicle Infotainment System shall provide some indication to the user when this task has been successfully completed when initiated for the first time or when manually initiated.

3.8.2.2 BTP-FUR-REQ-033830/A-Phonebook Accessibility (TcSE ROIN-295076-1)

A user's phonebook shall only be accessible when the user's AG is connected.

3.8.2.3 BTP-FUR-REQ-033831/A-Phonebook Menu Option (TcSE ROIN-295077-1)

The user shall be able to initiate a call to any contact while in the phonebook menu.

3.8.2.4 BTP-FUR-REQ-033832/A-AG Deletion - Phonebook Retention (TcSE ROIN-295078-1)

If the user deletes their AG from In-Vehicle Infotainment System the associated contacts associated with that AG shall be deleted as well.

3.8.2.5 BTP-FUR-REQ-033833/B-PBAP Requirements and Characteristics (TcSE ROIN-295079-1)

The In-Vehicle Infotainment System shall request phonebook contacts from the following directories in following order:

- telecom\pb
- SIM1\telecom\pb

The In-Vehicle Infotainment System shall request the following vCard characteristics via Phonebook Access Profile:

-version
-FN
-N
-Photo
-ADR
-TEL
-EMAIL
-X-IRMC-CALL-DATETIME

*Note: to speed up the phonebook download process the photo of a contact may be downloaded separately and on demand whenever the details of a contact need to be displayed to the user. This might alleviate storage problems and download performance for large phonebooks.

3.8.2.6 BTP-FUR-REQ-033834/B-Auto Phonebook Download (TcSE ROIN-295080-1)

If supported by the AG, the In-Vehicle Infotainment System shall automatically download the phonebook upon the first connection of an PSE/AG. The default for this setting shall be set to Automatically Download. If the user opts to download their phonebook automatically, the In-Vehicle Infotainment System shall download the phonebook and the vCARD listing as described in PBAP Requirements and Characteristics or via AT Commands per the Phonebook Download Strategy upon each HFP connection.

3.8.2.7 BTP-FUR-REQ-033835/A-Phonebook Updating (TcSE ROIN-295081-1)

When auto phonebook download is enabled the In-Vehicle Infotainment System shall download and updated the phonebook, while allowing the customer to have immediate access to the phonebook that was made available during the AG's prior connection. Once the download is complete, In-Vehicle Infotainment System shall update the available phonebook by adding/removing data based on the new download. THE IN-VEHICLE INFOTAINMENT SYSTEM shall record and retain the date and time of the last phonebook download or update.

3.8.2.8 BTP-FUR-REQ-033836/A-Auto Phonebook Download Options (TcSE ROIN-295082-1)

The user shall have the option to enable / disable Auto Phonebook Download.

3.8.2.9 BTP-FUR-REQ-033837/A-Phonebook Download Error (TcSE ROIN-295083-1)

If the user has Automatic Phonebook download set to on and upon a download the AG reports an error during the phonebook download procedure, then In-Vehicle Infotainment System shall maintain the previously stored phonebook.

3.8.2.10 BTP-FUR-REQ-033838/B-Phonebook Download Strategy (TcSE ROIN-295084-1)

In-Vehicle Infotainment System shall query the connected AG to determine its phonebook download capabilities. In-Vehicle Infotainment System shall look for the following phonebook download profiles / strategies:

-Phonebook Access Profile 1.0
-Phonebook transfer via AT Commands

In-Vehicle Infotainment System shall use the following priorities to the default phonebook download strategies:

-Phonebook Access Profile 1.0
-Phonebook transfer via AT Commands

3.8.2.11 BTP-FUR-REQ-033839/A-PBAP Access Failure (TcSE ROIN-295085-1)

The In-Vehicle Infotainment system shall alert the user that they may have to provide the In-Vehicle Infotainment System access to the phone's phonebook if PBAP is detected within the connected device, but access is denied or response to request for access is ignored.

3.8.2.12 BTP-FUR-REQ-033841/D-Contact Characteristics / Data (TcSE ROIN-295087-1)

The phone application shall provide the following information to the user regarding their contacts:

-First and Last Name
-Telephone Number(s)
-Telephone Number Type: Home, Work, Cell, and Other
-Address (Home and Business); If Home is not available, In-Vehicle Infotainment System shall download the 'Other' address category.
-Photo

A valid contact shall include at a minimum:

-Name (First and/or Last)
And
-Phone Number (Home, Work, Cell and/or Other)
Or
Address

In the event that the In-Vehicle Infotainment System receives contacts with special characters within the phonebook's phone number sections (i.e. Home, Work, Cell, etc.), In-Vehicle Infotainment System shall ignore those characters. Special characters shall be defined as any character that does not include the following:

0
1
2
3
4
5
6
7
8
9
*
#
+

1) Some contacts might have multiple phone numbers associated with them. The IVIS shall consider numbers that differ from each other only by characters not included on the list above as if they were the same, and shall only present to the user one of them.

2) Some contacts might exist multiple times in the phonebook. In the case that they do not differ from each other in terms of name the In-Vehicle Infotainment System shall only present to the user one of them.

For example, if the customer has Jane Doe more than once the In-Vehicle Infotainment System shall only display one entry for Jane Doe. For doing this comparison the full name should be compared, without comparing First Name or Last Name separately.

Example:
“Jane” “Doe” will match to “Jane Doe”, but not to “Doe Jane”.

3) The In-Vehicle Infotainment System shall combine entries when a contact with the same name is received.
For example, if Jane Doe is received within more than one vCard the In-Vehicle Infotainment System shall combine all of the phone numbers within a single entry.
When the same number is transmitted with different categories, the first number shall be kept without any preference of category. Only an exact number match shall be merged.

Note: Please consider also BTP-FUR-REQ-033846/B-Phonebook Display Requirements

3.8.2.13 BTP-FUR-REQ-033842/A-Photo Compression and Resizing (TcSE ROIN-295088-1)

In-Vehicle Infotainment System shall compress the received / uploaded photo to a maximum of 200Kb per image. In-Vehicle Infotainment System shall resize the image, based on the requirements defined within the HMI Specification(s).

3.8.2.14 BTP-FUR-REQ-033843/A-Phonebook Delete (TcSE ROIN-295089-1)

This feature shall only be available when the connected AG has a phonebook associated with it.

It will allow a user to delete their entire phonebook from In-Vehicle Infotainment System. After a user has deleted their phonebook, all contact information associated with that particular AG shall be removed from The In-Vehicle Infotainment System.

The user will have to re-download their phonebook if they wanted to access the phonebook features via In-Vehicle Infotainment System.

If the user deletes their phonebook, In-Vehicle Infotainment System shall insure that all reference to contacts within the deleted phonebook are also removed (i.e. call history, text messages, etc.)

Deleting the phonebook shall also turn off Automatic Phonebook Download if that feature was previously set to 'ON'. The In-Vehicle Infotainment System shall provide the user with a notification that the phonebook was successfully deleted.

3.8.2.15 BTP-FUR-REQ-033844/A-Phonebook Speak It (TcSE ROIN-295090-1)

This feature shall only be available when the connected AG has a phonebook associated with it. It will allow a user to select a phonebook entry for In-Vehicle Infotainment System to TTS. This will provide the user with the opportunity to hear how In-Vehicle Infotainment System interprets a particular phonebook entry. When this option is selected the phone application shall generate a Voice prompt that TTS's the first and/or last name of the chosen phonebook entry over the dedicated mono channel.

3.8.2.16 BTP-FUR-REQ-033845/B-Phonebook Storage Management (TcSE ROIN-295091-1)

The user's phonebook shall guarantee a minimum of 6000 contacts per phone. The user’s phonebook shall also be limited to a maximum of 10.000 contacts per phone, and to a maximum of 8 phone numbers and 1 email address per contact.

3.8.2.17 BTP-FUR-REQ-033846/B-Phonebook Display Requirements (TcSE ROIN-295092-2)

The In-Vehicle Infotainment System shall have the ability to present the downloaded phonebook to the customer. This shall be in a form defined by HMI specification. The phonebook list shall be sorted in alphabetical order. The customer shall have

the option of choosing the sort order by First Name or by Last Name (*note: VR will need to accommodate the sort order), (refer to BTP-FUR-REQ-093327-Phonebook Sorting by Market).

The In-Vehicle Infotainment System shall not display duplicate phonebook entries when received by the connected PSE/AG. For example, if the customer has Jane Doe more than once, with the same phone number information, the In-Vehicle Infotainment System shall only display one entry for Jane Doe.

The In-Vehicle Infotainment System shall combine entries when a contact with the same name is received. For example, if Jane Doe is received within more than one vCard and different phone number information is available, the In-Vehicle Infotainment System shall combine all of the phone numbers within a single entry.

If the in-vehicle infotainment system does not have the ability to display characters provided by the connected device, the in-vehicle infotainment system shall not display those characters. The in-vehicle infotainment system shall sort the contact based on the first character that we can parse and display correctly.

3.8.2.18 BTP-FUR-REQ-033847/C-Call History Requirements (TcSE ROIN-295093-1)

This feature shall only be available when AG is connected to the HFP port.

The Call History will be AG specific, and the Call History data made available shall only be associated with the connected AG.

Call History shall be downloaded as part of the automatic / manual phonebook download routine. The order of call history download and phonebook download shall be such that call history entries are downloaded first followed by the phonebook In-Vehicle Infotainment System shall download up to 25 outgoing, 25 incoming, and 25 missed calls from the AG.

A new call history is downloaded each time the AG's phonebook is automatically downloaded, which will overwrite the copy previously stored.

The call history shall be updated as new phone call activity occurs while connected to In-Vehicle Infotainment System. However the 25 number limit is the maximum storage capacity for each category. If new calls are placed that fill the call history, the details of the least recently place call shall be dropped from In-Vehicle Infotainment System's call history.
The In-Vehicle Infotainment System shall request the call history from the following directories:
-telecom\ich
-telecom\och
-telecom\mch

Telecom\ich shall be downloaded first. The In-Vehicle Infotainment System shall only request a maximum of 25 entries per directory.

The In-Vehicle Infotainment System shall request the following vCard characteristics via Phonebook Access Profile:

-version
-FN
-N
-TEL
-X-IRMC-CALL-DATETIME

3.8.2.19 BTP-FUR-REQ-033848/A-Call History Display Requirements (TcSE ROIN-295094-1)

The call history shall be sorted by timestamp..

The combined group shall be the default group when a user enters Call History.

There should be an indication available to the user to indicate which calls are from outgoing, incoming, and missed categories.

The user shall also have the option to sort the combined list by category (i.e. outgoing, incoming, etc.).

The user shall be able to initiate a call to any entry displayed within the call history categories.

3.8.2.20 BTP-FUR-REQ-033849/A-Call History Principles (TcSE ROIN-295095-1)

New call history entries are always added on the top of the list. If the call history is full and a new entry is added, then the last one shall be removed from the list.

If the user chooses to delete his/her phonebook or delete his/her paired device, the call history shall also be deleted.

If two call events of the same type are from or to the same phone number, and are sequential to each other, then only the latest call from that number shall be stored and displayed.

If two calls are duplicates of each other, but are not sequential in received order, then both shall be retained.

If a call history entry is ever downloaded from the AG or received while the phone is connected to In-Vehicle Infotainment System without a phone number (i.e., it was dialed from the handset or was an incoming call from an unknown number), that particular entry(ies) shall not be recorded in the call history.

In-Vehicle Infotainment System shall use the entries reported in all of the directories to populate the displayed call history.

3.8.2.21 BTP-FUR-REQ-033850/B-Phonebook/Call History Download Errors and Status Definitions (TcSE ROIN-304252-1)

The In-Vehicle Infotainment System shall be able to determine if the connected server has denied the In-Vehicle Infotainment System access to the Phonebook Access Profile or if the server has not responded per the requirements within the phonebook access profile.

When the In-Vehicle Infotainment System requests to connect to the Phonebook Access Profile of the connected AG / PSE the In-Vehicle Infotainment System shall determine that the AG / PSE has not granted access to Phonebook Access Profile when either of the following the scenarios takes place:

1. The connected AG / PSE does not respond to the connect request within 30 seconds.
2. The connected AG / PSE responds with a response code other than Success

When the In-Vehicle Infotainment System requests to retrieve the call history of the connected AG / PSE the In-Vehicle Infotainment System shall determine that the AG / PSE has experienced an internal error when the following scenario takes place

1. The connected PSE does not respond to more than 1 of the following Get requests (within 15 seconds) from the In-Vehicle Infotainment System:
    a. –telecom\ich
    b. –telecom\och
    c. –telecom\mch

When the In-Vehicle Infotainment System requests to retrieve the phonebook of the connected AG / PSE the In-Vehicle Infotainment System shall determine that the AG / PSE has experienced an internal error when either of the following scenarios takes place

1. The connected PSE does not respond to the following Get request from the in-vehicle infotainment system within 30 seconds:
    a. -telecom\pb

2. The connected PSE responds to Get –telecom\pb, and provides more than 1 vCARD with at least one phone number, but the in-vehicle infotainment system is not able to parse any of the received vCARDs.

Contacts / Recent Calls Download in Progress Definition:

The In-Vehicle Infotainment System shall define that a “Contacts / Recent Calls Download is in Progress” in the following condition(s):

1. The In-Vehicle Infotainment System has received at least one vCard but not the final vCard during the current connection from the connected PSE.

The In-Vehicle Infotainment System shall consider Contacts / Recent Calls Download complete once the final vCard has been received. *Note: This includes the final vCard received due to memory constraints.

Contacts Too Large for Internal Memory:

The In-Vehicle Infotainment System shall define that the contacts are too large for its internal memory when In-Vehicle Infotainment System has downloaded and parsed vCards that were not stored within internal memory due to the internal memory being full.

3.8.2.22 BTP-FUR-REQ-093327/B-Phonebook Sorting by Market

The sorting order will be specified separately for GUI (Graphical User Interface) and
VUI (Voice User Interface). If the Voice Engine is capable of recognizing both order directions in parallel, a configuration for VIU is not necessary.

The sorting order “FirstName LastName” is defined via value 1
The sorting order “LastName FirstName” is defined via value 2

North America:

Code	WERS Country Code	Country Code Vehicle Order	Country Name	GUI	VUI
CAN	WANAC	CA	CANADA	1	1
MEX	WANAD	MX	MEXICO	1	1
USA	WANAB	US	UNITED STATES OF AMERICA	1	1
BHS	WSIAB	BF	BAHAMAS	1	1
BRD	WSIAC	BB	BARBADOS	1	1
BLZ	WSCAB	BH	BELIZE	1	1
CRI	WSCAC	CS	COSTA RICA	1	1
CUB	WSICA	CU	CUBA	1	1
DMA	WSIAE	DO	DOMINACA	1	1
DOM	WSIAF	DR	DOMINICAN REPUBLIC	1	1
SLV	WSCAD	ES	EL SALVADOR	1	1
GRD	WSIAG	GJ	GRENADA	1	1
GTM	WSCAE	GT	GUATEMALA	1	1
HTI	WSIAI	HA	HAITI	1	1
HND	WSCAF	HO	HONDURAS	1	1
JAM	WSIAJ	JM	JAMAICA	1	1
NIC	WSCAG	NU	NICARAGUA	1	1
PAN	WSCAH	PM	PANAMA	1	1
KNA	WSIAL	SC	SAINT KITS & NEVIS	1	1
LCA	WSIAM	ST	SAINT LUCIA	1	1

VCT	WSIAN	VC	SAINT VINCENT & THE GRENEDINES	1	1
TTO	WSIAR	TD	TRINIDAD & TOBAGO	1	1

South America:

Code	WERS Country Code	Country Code Vehicle Order	Country Name	GUI	VUI
ARG	WASAB	AR	ARGENTINA	1	1
BOL	WSSAC	BL	BOLIVIA	1	1
BRA	WASAC	BR	BRAZIL	1	1
CHL	WSSAE	CI	CHILE	1	1
COL	WSSAF	CO	COLOMBIA	1	1
ECU	WSSAH	EC	ECUADOR	1	1
FLK	WSSAI	FK	FALKLAND ISLANDS	1	1
GUY	WSSAK	GY	GUYANA	1	1
PRY	WSSAL	PA	PARAGUAY	1	1
PER	WSSAM	PE	PERU	1	1
SUR	WSSAN	NS	SURINAME	1	1
URY	WSSAP	UY	URUGUAY	1	1
VEN	WASAD	VE	VENEZUELA	1	1

APA:

Code	WERS Country Code	Country Code Vehicle Order	Country Name	GUI	VUI
BWA	WSABC	BC	BOTSWANA	1	1
CHN	WSPAD	CH	CHINA	2	2
HKG	WSPAH	HK	HONG KONG	2	2
IND	WSPAI	IN	INDIA	1	1
IDN	WSPAJ	ID	INDONESIA	1	1
JPN	WSPAL	JA	JAPAN	2	2
PRK	WSPCH	KN	KOREA DEM PEOPLE REPUB OF NORTH	2	2
KOR	WSPAW	KS	KOREA, REPUBLIC OF (SOUTH)	2	2

MYS		MY	MALAYSIA	1	1
NPL	WSPBR	NP	NEPAL	1	1
PHL	WSPAR	RP	PHILIPPINES	1	1
ZAF	WSAAT	SF	SOUTH AFRICA	1	1
SWZ	WSABG	WS	SWAZILAND	1	1
TWN	WAPAD	TW	TAIWAN	1	1
THA	WSPAY	TH	THAILAND	1	1
VNM	WSPA5	VM	VIETNAM	2	2

Australia:

Code	WERS Country Code	Country Code Vehicle Order	Country Name	GUI	VUI
AUS	WAPAB	AS	AUSTRALIA	1	1
NZL	WAPAC	NZ	NEW ZEALAND	1	1
AIA	WSIAY	AV	ANGUILLA	1	1
ATG	WSIAA	AC	ANTIGUA & BARBUDA	1	1
FJI	WSPAG	FJ	FIJI	1	1
PNG	WSPAQ	PP	PAPUA NEW GUINEA	1	1
KIR	WSPCR	KR	KIRIBATI	1	1
MHL	WSPCD	RM	MARSHALL ISLANDS	1	1
PLW	WAPAH	PS	PALAU	1	1
SLB	WSPAV	BP	SOLOMON ISLANDS	1	1
ASM	WATAF	AQ	AMERICAN SAMOA	1	1
TON	WSPAZ	TN	TONGA	1	1
TUV	WAPAJ	TV	TUVALU	1	1
VUT	WAPAE	NH	VANUATU	1	1
FSM	WAPAG	FM	MICRONESIA	1	1

Europe:

Code	WERS Country Code	Country Code Vehicle Order	Country Name	GUI	VUI
ALB	WSEAY	AL	ALBANIA	2	1
DZA	WSABB	AG	ALGERIA	2	1
AND	WSEAB	AN	ANDORRA	2	1
ARM	WSPA7	AM	ARMENIA	2	1
AUT	WAEAX	AU	AUSTRIA	2	1
AZE	WSPBK	AJ	AZERBAIJAN	2	1
BLR	WSPA6	BO	BELARUS	2	1
BEL	WAEBX	BE	BELGIUM	2	1
BIH	WSEAX	BK	BOSNIA	2	1

			HERZEGOVINA		
BGR	WSEAP	BU	BULGARIA	2	1
HRV	WSEAS	HR	CROATIA	2	1
CYP	WSPAE	CY	CYPRUS	2	1
CZE	WSEAT	EZ	CZECH REPUBLIC	2	1
DNK	WAEDK	DA	DENMARK	2	1
EGY	WSAAE	EG	EGYPT	2	1
EST	WSPBA	EN	ESTONIA	2	1
FRO	WSEAE	FO	FAROE ISLANDS	2	1
FIN	WAESF	FI	FINLAND	2	1
FRA	WAEFX	FR	FRANCE	2	1
FXX			FRENCH METROPOLITAN	2	1
GEO	WSPBF	GG	GEORGIA	2	1
DEU	WAEDX	GM	GERMANY	2	1
GIB	WSEAF	GI	GIBRALTAR	2	1
GRC	WSEAG	GR	GREECE	2	1
GRL	WAENG	GL	GREENLAND	2	1
JUN	WSEAH	HU	HUNGARY	2	1
ISL	WSEAI	IC	ICELAND	2	1
IRL	WAEIR	EI	IRELAND	2	1
ITA	WAEIX	IT	ITALY	2	1
KAZ	WSPBH	KZ	KAZAKSHTAN	2	1
KGZ	WSPBP	KG	KYRGYZSTAN	2	1
LVA	WSPBB	LG	LATVIA	2	1
LBY	WSACF	LY	LIBYA	2	1
LIE	WSEAV	LS	LIECHTENSTEIN	2	1
LIT	WSPBC	LH	LITHUANIA	2	1
LUX	WSEAJ	LU	LUXEMBOURG	2	1
MKD	WSEAW	MK	MACEDONIA	2	1
MLT	WSEAK	MT	MALTA	2	1
MDA	WSPBN	MD	MOLDOVA	2	1
MCO	WAEIZ	MN	MONACO	2	1
MAR	WSABA	MO	MOROCCO	2	1
NLD	WAENL	NL	NETHERLANDS	2	1
NOR	WAENX	NO	NORWAY	2	1
POL	WSEAL	PL	POLAND	2	1
PRT	WAEPX	PO	PORTUGAL	2	1
ROM	WSEAM	RO	ROMANIA	2	1
RUS	WSPA2	RS	RUSSIAN FEDERATION	2	1
SMR	WAEI2	SM	SAN MARINO	2	1
	WSEAZ	SR	SERBIA	2	1
SVK	WSEAU	LO	SLOVAKIA	2	1
SVN	WSEAR	SI	SLOVENIA	2	1
ESP	WAEEX	SP	SPAIN	2	1
SJM		SV	SVALBARD & JAN MAYEN	2	1
SWE	WAESX	SW	SWEDEN	2	1
CHE	WAECH	SZ	SWITZERLAND	2	1

TJK	WSPBM	TI	TAJISKISTAN	2	1
TUN	WSAAW	TS	TUNISIA	2	1
TUR	WSPA1	TU	TURKEY	2	1
TKM	WSPBL	TX	TURKMENISTAN	2	1
UKR	WSPBE	UP	UKRAINE	2	1
GBR	WAEGB	UK	UNITED KINGDOM	2	1
UZB	WSPBJ	UZ	UZBEKISTAN	2	1
VAT	WAEIY	VT	VATICAN CITY	2	1

RoW (Rest of World)

Code	WERS Country Code	Country Code Vehicle Order	Country Name	GUI	VUI
BTN	WSPBQ	BT	BHUTAN	1	1
BDI	WSADA	BY	BURUNDI	1	1
CAF	WSADL	CT	CENTRAL AFRICAN REPUBLIC	1	1
TCD	WSADM	CD	CHAD	1	1
CXR		KT	CHRISTMAS ISLAND	1	1
CCK		CK	COCOS (KEELING) ISLAND	1	1
COM	WSABD	CN	COMOROS ISLAND	1	1
COK	WSPCB	CW	COOK ISLANDS	1	1
AFG	WSPBG	AF	AFGHANISTAN	1	1
AGO	WSAA7	AO	ANGOLA	1	1
ABW	WSSAB	AA	ARUBA	1	1
BHR	WSAAA	BA	BAHRAIN	1	1
BGD	WSPAB	BG	BANGLADESH	1	1
BEN	WSACJ	BN	BENIN	1	1
BMU	WSIAD	BD	BERMUDA	1	1
BRN	WSPAC	BX	BRUNEI	1	1
BFA	WSADB	UV	BURKINA FASO	1	1
KHM	WSPCA	CB	CAMBODIA	1	1
CMR	WSAAC	CM	CAMEROON	1	1
CPV	WSAAD	CV	CAPE VERDE	1	1
CYM	WSIAT	CJ	CAYMAN ISLANDS	1	1
COG	WSAAZ	CG	DEMOCRATIC REPUBLIC OF CONGO	1	1
CIV	WSAAH	IV	COTE D'IVOIRE (IVORY COAST)	1	1
DJI	WSADC	DJ	DJIBOUTI	1	1
TMP	WSADY		EAST TIMOR	1	1
GNQ	WSADN	EK	EQUATORIAL GUINEA	1	1
ERI	WSADP	ER	ERITREA	1	1
ETH	WSAAF	ET	ETHIOPIA	1	1
GAB	WSACE	GB	GABON	1	1
GMB	WSADD	GA	GAMBIA	1	1
GHA	WSACA	GH	GHANA	1	1
GUM	WATAB	GQ	GUAM	1	1
GIN	WSAAG	GV	GUINEA (REPUBLIC)	1	1

GNB	WSADQ	PU	GUINEA-BISSAU	1	1
HMD			HEARD & MCDONALD ISLANDS	1	1
IRN	WSADJ	IR	IRAN	1	1
IRQ	WSADV	IZ	IRAQ	1	1
ISR	WSPAK	IS	ISRAEL	1	1
JOR	WSAA3	JO	JORDAN	1	1
KEN	WSAAI	KE	KENYA	1	1
KWT	WSAAJ	KU	KUWAIT	1	1
LAO	WSPCC	LA	LAO PEOPLE DEM REPUBLIC (Laos)	1	1
LBN	WSAA8	LE	LEBANON	1	1
LBR	WSACB	LI	LIBERIA	1	1
MAC	WSPBT	MC	MACAU	1	1
MDG	WSACC	MA	MADAGASCAR	1	1
MWI	WSAAK	MI	MALAWI	1	1
MDV	WSPBS	MV	MALDIVES	1	1
MLI	WSADR	ML	MALI	1	1
MTQ	WSIAK	MB	MARTINIQUE	1	1
MRT	WSADS	MR	MAURITANIA	1	1
MUS	WSAAL	MP	MAURITIUS	1	1
MNG	WSPA8	MG	MONGOLIA	1	1
MSR	WSIAU	MH	MONTSERRAT	1	1
MOZ	WSAAN	MZ	MOZAMBIQUE	1	1
MMR	WSPA9	BM	MYANMAR (BURMA)	1	1
NRU	WSPAM	NR	NAURU	1	1
ANT	WSIA1	NT	NETHERLANDS ANTILLIES	1	1
NER	WSADU	NG	NIGER	1	1
NGA	WSAAP	NI	NIGERIA	1	1
NIU		NE	NIUE	1	1
NFK	WSPCE	NF	NORFOLK ISLANDS	1	1
MNP	WATAC	CQ	NORTHERN MARIANA ISLES (SAIPAN)	1	1
OMN	WSAA5	MU	OMAN	1	1
PAK	WSPAP	PK	PAKISTAN	1	1
PCN		PC	PITCAIRN	1	1
PRI	WATAE	RQ	PUERTO RICO	1	1
QAT	WSAAQ	QA	QATAR	1	1
REU	WSAAR	RE	REUNION	1	1
RWA	WSADE	RW	RWANDA	1	1
SHN	WSACK	SH	SAINT HELENA	1	1
STP	WSADF	TP	SAO TOME & PRINCIP	1	1
SAU	WSAA4	SA	SAUDI ARABIA	1	1
SEN	WSAAS	SG	SENEGAL	1	1
SYC	WSPAT	SE	SEYCHELLES	1	1
SLE	WSADG	SL	SIERRA LEONE	1	1
SGP	WSPAU	SN	SINGAPORE	1	1
SOM	WSACD	SO	SOMALIA	1	1
LKA	WSPAX	CE	SRI LANKA	1	1
SDN	WSAAU	SU	SUDAN	1	1
SYR	WSAA9	SY	SYRAN ARAB REPUBLIC (Syria)	1	1

TZA	WSAAV	TZ	TANZANIA	1	1
TGO	WSADK	TO	TOGO	1	1
TKL	WAPAL	TL	TOKELAU	1	1
TCA	WSICB	TK	TURKS & CAICOS ISLANDS	1	1
UGA	WSAAX	UG	UGANDA	1	1
ARE	WSAAY	TC	UNITED ARAB EMIRIATES	1	1
VGE	WSIAS	VI	VIRGIN ISLANDS (BRITISH)	1	1
VIR	WATAD	VQ	VIRGIN ISLANDS (USA)	1	1
WLF	WAPAK	WF	WALLIS & FUTUNA ISLANDS	1	1
YEM	WSAA6	YM	YEMEN	1	1
ZMB	WSAA1	ZA	ZAMBIA	1	1
ZWE	WSAA2	ZI	ZIMBABWE	1	1
???	WAFAB	US	Government Service Admin / Direct E&G	1	1
???	WSAAH	IV	Ivory Coast	1	1
???	WAFAC	US	Military Personnel	1	1
???	WSPAN	NC	New Caledonia	1	1
???	WSIAP	FP	Tahiti (French Polynesia)	1	1

3.8.2.23 BTP-FUR-REQ-153579/A-Requirements for Handling of Phonebook and Call History Feature in VUI/GUI

Any VUI/GUI that intends to support the phonebook / call history functionality shall clearly define its behavior for the following error conditions and special cases.

Short	Condition	Notes	See also…
PHB1	Connected device supports phonebook/ call history download, phonebook / call history is present and downloaded	All features are available to the user.	BTP-FUR-REQ-033829-Phonebook Download Availability, and related phonebook requirements after that. BTP-UC-REQ-033852-Outgoing Call to Phonebook Contact
PHB2a	Connected device supports phonebook download, phonebook is empty.	User shall be notified, when trying to access contact information, that the phonebook is empty.	BTP-FUR-REQ-033829-Phonebook Download Availability, and related phonebook requirements after that. BTP-UC-REQ-153575-Phonebook is empty
PHB2b	Connected device supports phonebook / call history download, call history is empty.	User shall be notified, when trying to access call history information that there are no entries	BTP-UC-REQ-033823-Call History (Empty)
PHB3a	Phonebook/call history features are being setup. No phonebook/call history for the connected device is present yet.	User shall be notified, when trying to use the feature, that the feature is not ready yet.	BTP-FUR-REQ-033850-Phonebook/Call History Download Errors and Status Definitions
PHB3b	Phonebook/call history are being updated.	User has still access to the data which where downloaded	BTP-FUR-REQ-033835-Phonebook Updating

		before starting the update.	
PHB4	Connected device does not support phonebook/call history features	User shall be informed when trying to use the feature that the phonebook feature is not available with this device.	Updated: BTP-FUR-REQ-033829 Phonebook Download Availability
PHB5	Access to phonebook/call history feature not granted from connected device	User shall be informed when trying to use the feature that the phonebook feature is not available because access was not granted from the connected device. Optionally the user might be guided on how to try to fix this problem.	BTP-FUR-REQ-033839/A-PBAP Access Failure
PHB6	Phonebook feature disabled – no phonebook/call history is present and auto download is set to off	User shall be informed when trying to use the feature that the phonebook feature has been disabled. Optionally the user might be guided on how to re-enable the feature.	BTP-FUR-REQ-033834-Auto Phonebook Download and BTP-FUR-REQ-033836/A-Auto Phonebook Download Options
PHB7	Phonebook/call history features are not available because of a failure, and no phonebook is present	User shall be informed when trying to use the feature that the phonebook feature experienced a failure. Optionally the user might be guided on how to try again to download the phonebook from the connected device.	BTP-FUR-REQ-033837-Phonebook Download Error

3.8.3 Sequence Diagrams

3.8.3.1 BTP-SD-REQ-030721/B-Browse Phone (TcSE ROIN-149541-1)

Scenarios

Normal Usage

If an additional interface is able to show the phonebook/call history, then it also shall be possible to initiate an outgoing call.

Constraints

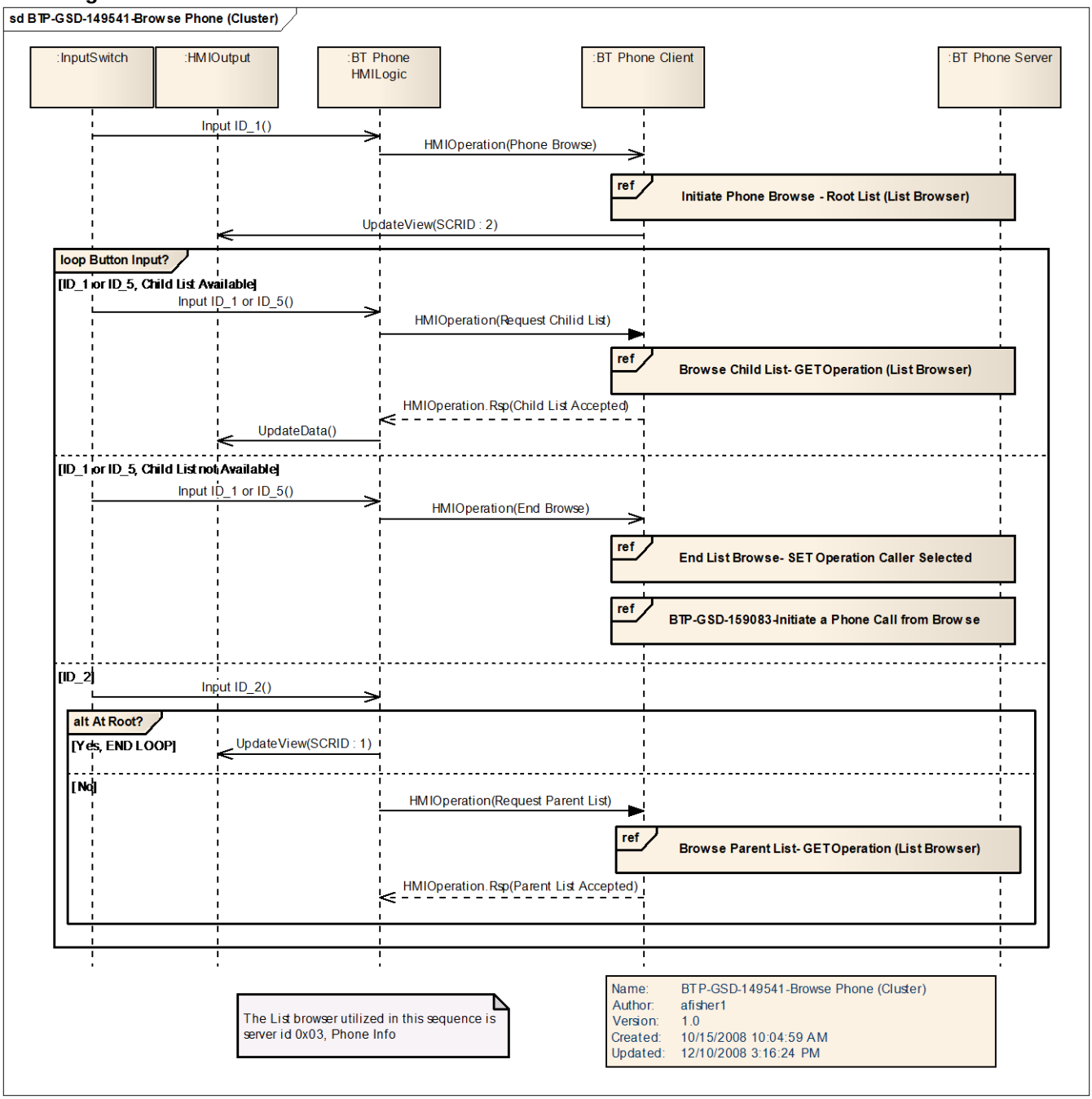
Pre-condition

Vehicle is On. BT Phone is connected. User is on the Phone home screen.

Post-condition

The user <exits browse> via HMI.

Sequence Diagram



3.9 BTP-FUN-REQ-041734/B-Messaging (TcSE ROIN-294445-2)

3.9.1 Use Cases

3.9.1.1 BTP-UC-REQ-041735/A-Messaging Synchronization (TcSE ROIN-290968-1)

Actors	Mobile Phone
Pre-conditions	Mobile phone supports ability to transfer text messages Mobile phone is paired and connected
Scenario	The mobile phone is connected to the In-Vehicle Infotainment System, and has the

Description	ability to transfer the text messages stored within internal memory. The In-Vehicle Infotainment System recognizes this capability and requests to synchronize specific text messages so that the customer can access them via the In-Vehicle Infotainment System G-HMI.
Post-conditions	The mobile phone and the In-Vehicle Infotainment System remain connected for phone features. The In-Vehicle Infotainment System "downloads" the specified text messages (i.e. Unread, Read, Sent, etc.). The customer has the option to access the text messages via the G-HMI available within the In-Vehicle Infotainment System.
List of Exception Use Cases	E1- Messages cannot be synchronized and customer cannot be notified of new messages. E2 – First Time Notification
Interfaces	G-HMI V-HMI Vehicle System Interface

3.9.1.2 BTP-UC-REQ-033743/A-Messages Cannot be Synchronized and Customer Cannot be Notified of New Messages (TcSE ROIN-290839-1)

Linked Elements
BTP-UC-REQ-033752/A-Pairing a phone with other phone(s) paired via SSP – Discoverable Mode (TcSE ROIN-290845-1)
BTP-UC-REQ-033753/A-Pairing a phone with no other phone paired via SSP – Discovery Mode (TcSE ROIN-290846-2)
BTP-UC-REQ-033754/A-Pairing a phone with phone paired via SSP – Discovery Mode (TcSE ROIN-290847-2)
BTP-UC-REQ-033755/A-Pairing a phone with no other phone paired via non-SSP – Discoverable Mode (TcSE ROIN-290848-1)
BTP-UC-REQ-033760/A-Pairing a phone with no other phone paired via non-SSP – Discovery Mode (TcSE ROIN-290852-1)
BTP-UC-REQ-033761/A-Pairing a phone with phone paired via non SSP – Discovery Mode (TcSE ROIN-290853-1)
BTP-UC-REQ-041735/A-Messaging Synchronization (TcSE ROIN-290968-1)
BTP-UC-REQ-033735/B-Pairing a phone with no other phone paired via SSP – Discoverable Mode (TcSE ROIN-290831-2)
BTP-UC-REQ-033759/B-Pairing a phone with other phone(s) paired via non SSP – Discoverable Mode (TcSE ROIN-290851-2)
BTP-UC-REQ-033762/B-Pairing a phone with other device(s) connected (TcSE ROIN-290854-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as normal use case
Scenario Description	In-Vehicle Infotainment System In-Vehicle Infotainment System Messages can't be synced or new messages can't be indicated (i.e. MAP)
Post-conditions	Text Messaging feature is not accessible to the customer
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.9.1.3 BTP-UC-REQ-041736/A-First Time Notification (TcSE ROIN-290969-1)

Linked Elements
BTP-UC-REQ-041735/A-Messaging Synchronization (TcSE ROIN-290968-1)

Actors	In-Vehicle Infotainment System and Connected Phone
Pre-conditions	Same as original
Scenario Description	The In-Vehicle Infotainment System has opted to download synchronize the messages for the first time.
Post-conditions	The In-Vehicle Infotainment System alerts the customer that they may need to provide the In-Vehicle Infotainment System with access to the messages via the connected mobile phone.
List of Exception Use Cases	N/A
Interfaces	G-HMI V-HMI

3.9.1.4 BTP-UC-REQ-041737/A-Messaging New Message Notification (TcSE ROIN-290970-1)

Actors	Mobile Phone
Pre-conditions	Mobile phone supports ability to transfer text messages Mobile phone is paired and connected
Scenario Description	The mobile phone is connected to the In-Vehicle Infotainment System, and has the ability to transfer the text messages stored within it. The connected mobile phone receives a new message, and notifies the In-Vehicle Infotainment System that a new message is received.
Post-conditions	The In-Vehicle Infotainment System has the ability to display to the Customer key characteristics of the newly received message. For example, Sender, Date / Time, type of message, etc. The In-Vehicle Infotainment System provides the Customer with the option of retrieving the newly received message via the In-Vehicle Infotainment System
List of Exception Use Cases	E1- Customer cannot be notified of new message.
Interfaces	G-HMI V-HMI Vehicle System Interface

3.9.1.5 BTP-UC-REQ-033744/A-Customer Cannot be Notified of New Messages (TcSE ROIN-290840-1)

Linked Elements

BTP-UC-REQ-033752/A-Pairing a phone with other phone(s) paired via SSP – Discoverable Mode (TcSE ROIN-290845-1)
BTP-UC-REQ-033753/A-Pairing a phone with no other phone paired via SSP – Discovery Mode (TcSE ROIN-290846-2)
BTP-UC-REQ-033754/A-Pairing a phone with phone paired via SSP – Discovery Mode (TcSE ROIN-290847-2)
BTP-UC-REQ-033755/A-Pairing a phone with no other phone paired via non-SSP – Discoverable Mode (TcSE ROIN-290848-1)
BTP-UC-REQ-033760/A-Pairing a phone with no other phone paired via non-SSP – Discovery Mode (TcSE ROIN-290852-1)
BTP-UC-REQ-033761/A-Pairing a phone with phone paired via non SSP – Discovery Mode (TcSE ROIN-290853-1)
BTP-UC-REQ-041737/A-Messaging New Message Notification (TcSE ROIN-290970-1)
BTP-UC-REQ-033735/B-Pairing a phone with no other phone paired via SSP – Discoverable Mode (TcSE ROIN-290831-2)
BTP-UC-REQ-033759/B-Pairing a phone with other phone(s) paired via non SSP – Discoverable Mode (TcSE ROIN-290851-2)
BTP-UC-REQ-033762/B-Pairing a phone with other device(s) connected (TcSE ROIN-290854-1)

Actors	Customer Mobile Phone
Pre-conditions	Same as normal use case
Scenario Description	In-Vehicle Infotainment System In-Vehicle Infotainment System New messages can't be indicated (i.e. MNS)
Post-conditions	Potentially, User is notified that an error has occurred.
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.9.1.6 BTP-UC-REQ-041738/A-Messaging New Message 'Download' (TcSE ROIN-290971-1)

Actors	Mobile Phone
Pre-conditions	Mobile phone supports ability to transfer text messages Mobile phone is paired and connected The mobile phone has indicated that a new message has been received
Scenario Description	The customer has indicated that they want to download the unread message to access it via the G-HMI available via the In-Vehicle Infotainment System
Post-conditions	The In-Vehicle Infotainment System accessed the newly received text message. The In-Vehicle Infotainment System provides the newly received message per the

	G-HMI and V-HMI they chose via the In-Vehicle Infotainment System. The message is marked as read on the In-Vehicle Infotainment System and connected mobile phone.
List of Exception Use Cases	E1- The In-Vehicle Infotainment System was not able to download the messages.
Interfaces	G-HMI V-HMI Vehicle System Interface

3.9.1.7 BTP-UC-REQ-041739/A-The In-Vehicle Infotainment System was not able to download the messages (TcSE ROIN-290972-1)

Linked Elements
BTP-UC-REQ-041738/A-Messaging New Message 'Download' (TcSE ROIN-290971-1)

Actors	Mobile Phone
Pre-conditions	Same as original use case
Scenario Description	The customer has indicated that they want to download the unread message to access it via the G-HMI available via the In-Vehicle Infotainment System, but the action has failed.
Post-conditions	The In-Vehicle Infotainment System alerts the customer that there was an error with downloading the messages.
List of Exception Use Cases	N/A
Interfaces	G-HMI V-HMI Vehicle System Interface

3.9.1.8 BTP-UC-REQ-041740/A-Messaging Message Status Updated (TcSE ROIN-290973-1)

Actors	Mobile Phone
Pre-conditions	Mobile phone supports ability to transfer text messages Mobile phone is paired and connected
Scenario Description	While the In-Vehicle Infotainment System is connected to the mobile phone, a message status has changed. These changes can range from unread to read, read to deleted, etc. As a result, the customer expects for that status to be consistent across the connected devices.
Post-conditions	The In-Vehicle Infotainment System and/or mobile is updated to reflect the new status of the selected message(s). *For those items that have been deleted or removed, the In-Vehicle Infotainment System will not display them.
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.9.1.9 BTP-UC-REQ-041741/A-Messaging Call Sender (TcSE ROIN-290974-1)

Actors	Mobile Phone
Pre-conditions	Mobile phone supports ability to transfer text messages Mobile phone has the ability to provide the sender information. Mobile phone is paired and connected
Scenario	While the In-Vehicle Infotainment System is connected to the mobile phone, and the

Description	Customer indicates that they intend to place a call to the sender of a specific message
Post-conditions	See Outgoing Call Section
List of Exception Use Cases	E1 – Sender of message is not a phone number. See Outgoing Call Section
Interfaces	See Outgoing Call Section

3.9.1.10 BTP-UC-REQ-041742/A-Sender of Message is not a Phone number (TcSE ROIN-290975-1)

Linked Elements
BTP-UC-REQ-041741/A-Messaging Call Sender (TcSE ROIN-290974-1)

Actors	Mobile Phone
Pre-conditions	Same as original use case
Scenario Description	The In-Vehicle Infotainment System has received a message from a sender without a phone number (i.e. e-mail address, etc.)
Post-conditions	The option to call the sender via the In-Vehicle Infotainment System is not available (G-HMI / V-HMI).
List of Exception Use Cases	N/A
Interfaces	G-HMI V-HMI Vehicle System Interface

3.9.1.11 BTP-UC-REQ-041743/C-Messaging Reply to Sender (TcSE ROIN-290976-1)

Actors	Mobile Phone
Pre-conditions	Mobile phone supports text messaging and supports ability to send messages. Mobile phone has the ability to provide the sender information. Mobile phone is paired and connected. Message inbox is not empty.
Scenario Description	While the In-Vehicle Infotainment System is connected to the mobile phone, the Customer indicates that they intend to reply to the sender of a specific message.
Post-conditions	The desired message is delivered to the connected mobile phone with the intent of delivery to the intended recipient.
List of Exception Use Cases	E1 – Sending a message failed.
Interfaces	G-HMI V-HMI

3.9.1.12 BTP-UC-REQ-041744/C-Sending a Message Failed (TcSE ROIN-290977-1)

Linked Elements
BTP-UC-REQ-041745/A-Messaging Sending (TcSE ROIN-290978-1)
BTP-UC-REQ-041743/C-Messaging Reply to Sender (TcSE ROIN-290976-1)

Actors	Mobile Phone
Pre-conditions	Same as original
Scenario Description	The customer has opted to reply to a message and the action has failed.
Post-conditions	The In-Vehicle Infotainment System displays an error message to the customer
List of Exception Use Cases	N/A
Interfaces	G-HMI

	V-HMI

3.9.1.13 BTP-UC-REQ-041745/A-Messaging Sending (TcSE ROIN-290978-1)

Actors	Mobile Phone
Pre-conditions	Mobile phone supports ability to transfer text messages Mobile phone is paired and connected
Scenario Description	While the In-Vehicle Infotainment System is connected to the mobile phone, and the Customer indicates that they intend to send a message to someone.
Post-conditions	The desired message is delivered to the connected mobile phone with the intent of delivery to the intended recipient.
List of Exception Use Cases	E1 – Sending a message failed.
Interfaces	G-HMI V-HMI

3.9.1.14 BTP-UC-REQ-041746/A-Accessing Messages (via V-HMI) (TcSE ROIN-290979-2)

Actors	Mobile Phone
Pre-conditions	Mobile phone supports ability to transfer text messages Mobile phone is paired and connected Text messages are available from the connected phone within the In-Vehicle Infotainment System. In-Vehicle Infotainment System VUI supports ability to select a message(s) from a contact.
Scenario Description	The customer has indicated that they want to access a text message via the V-HMI option within the In-Vehicle Infotainment System. (Ex. Read the last text message (s) from John Doe)
Post-conditions	The In-Vehicle Infotainment System reads the last text messages from the requested contact.
List of Exception Use Cases	E1 – No messages available from the Selected contact.
Interfaces	G-HMI V-HMI

3.9.1.15 BTP-UC-REQ-041747/A-No Messages Available from the Selected Contact (TcSE ROIN-290980-1)

Linked Elements
BTP-UC-REQ-041746/A-Accessing Messages (via V-HMI) (TcSE ROIN-290979-2)

Actors	Mobile Phone
Pre-conditions	Same as original
Scenario Description	The customer has indicated that they want to access a text message via the V-HMI option within the In-Vehicle Infotainment System. (Ex. Read the last text message (s) from John Doe), but the In-Vehicle Infotainment System does not have text messages from that contact
Post-conditions	The In-Vehicle Infotainment System alerts the customer that there are no messages from the selected contact.
List of Exception Use Cases	N/A
Interfaces	G-HMI V-HMI

3.9.1.16 BTP-UC-REQ-041748/A-Accessing Messages (via G-HMI) (TcSE ROIN-290981-1)

Actors	Mobile Phone
Pre-conditions	Mobile phone supports ability to transfer text messages Mobile phone is paired and connected Text messages are available from the connected phone within the In-Vehicle Infotainment System
Scenario Description	The customer has indicated that they want to access a text message via In-Vehicle Infotainment System
Post-conditions	The In-Vehicle Infotainment System displays the requested message
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.9.1.17 BTP-UC-REQ-041749/A-Accessing Messages (TTS) (TcSE ROIN-290982-1)

Actors	Mobile Phone
Pre-conditions	Mobile phone supports ability to transfer text messages Mobile phone is paired and connected Text messages are available from the connected phone within the In-Vehicle Infotainment System
Scenario Description	The customer has indicated that they want to access a text message via the TTS option within In-Vehicle Infotainment System
Post-conditions	The In-Vehicle Infotainment System reads the requested contact.
List of Exception Use Cases	N/A
Interfaces	G-HMI V-HMI Vehicle System Interface

3.9.2 Requirements

3.9.2.1 BTP-FUR-REQ-041750/A-Retrieving the Message Listing (Upon Connection) (TcSE ROIN-295115-2)

Upon connecting to an AG that supports text messaging via Bluetooth, the In-Vehicle Infotainment System shall request the message listing of the last 10 unread messages received by the connected MSE. This request shall take place after the MSE has established a MNS connection. To address scenarios when the MSE does not establish an MNS connection to the in-vehicle infotainment system, see the Message Notification Not Established.

3.9.2.2 BTP-FUR-REQ-041751/A-Retrieving the Message Listing (Upon Entry Into Text Messaging Application) (TcSE ROIN-295116-2)

Upon the customer successfully accessing the text message menu via the GUI/ VUI, the In-Vehicle Infotainment System shall request the message listing of the last 50 text messages (read / unread) received by the connected MSE. The In-Vehicle Infotainment System shall provide the details of the message listing per the requirements within "Message Listing Display Requirements" of this document and in the format defined by ~~**<insert HMI specification here>**~~ **H28b Text Messaging Specification** within 2 seconds of the customer entering the text messaging menu. While the In-Vehicle Infotainment System is waiting to display the text message listing, the In-Vehicle Infotainment System shall display a graphic / message as defined by ~~**<insert HMI specification here>.**~~ **H28b Text Messaging Specification.**

3.9.2.3 BTP-FUR-REQ-041752/A-Message Listing Parameters (TcSE ROIN-295117-1)

Within the message listing request, the In-Vehicle Infotainment System shall request the following parameters:

- Subject (future use)
- DateTime
- Sender_name
- Sender_Addressing
- Replyto_addressing (future use)
- Recipient_name (future use)
- Recipient_addressing (future_use)
- Type
- Reception_Status
- Size
- Text
- Read
- Sent
- Protected (future use)
- Priority (future use)

3.9.2.4 BTP-FUR-REQ-041753/A-Message Listing Display Requirements (TcSE ROIN-295118-2)

The in-vehicle infotainment system shall use the information provided by the MSE via the message listing to present the following information within a message list via the UI as defined within the ~~<insert HMI specification(s) title here>~~ **H28b Text Messaging Specification**:

Sender of the message
Date / Time of the message
Read / Unread status

When presenting the message listing via the UI, the in-vehicle infotainment system shall present a reference number for each message beginning with number 1 as defined within the **H28b Text Messaging Specification** ~~<insert HMI specification(s) title here>~~. This will assist the customer in identifying the order in which messages were received. The messages shall be presented in chronological order, with the most recent messages presented first, thus having a reference number of 1.

The user will have the option of selecting any of the messages displayed, and they shall be directed the viewing pane of that individual message (as described within the View (Specific Message) section of this specification).

The IVIS shall always display the most recent 50 messages (when available). In the event that a new message is received and the IVIS already has received a message listing with 50 messages, the new message will be displayed and the oldest message shall no longer be available.
If the IVIS has been alerted that a specific message(s) has been deleted within the MSE, the IVIS shall no longer display the deleted message(s) within the message listing and update the reference number(s) accordingly.

3.9.2.5 BTP-FUR-REQ-041754/A-Message Listing Retention (TcSE ROIN-295119-1)

The message listing shall be retained throughout the current Message Access Service connection.

Once the connection is terminated, the IVIS shall not persist the message listing.

*Note: See deleted message requirements within the Message Listing Display Requirements of this document.

3.9.2.6 BTP-FUR-REQ-041755/A-Message Listing Request Failed (TcSE ROIN-295120-2)

In the event the MSE fails to respond (including error or abort) to the request to provide the message listing after 30 seconds, the in-vehicle infotainment system shall attempt to retrieve the message listing again. After 30 seconds, if the second attempt fails upon entry into a text messaging option via any provided user interface, the in-vehicle infotainment system shall alert the customer it was not able to retrieve messages from the connected MSE as described within **H28b Text Messaging Specification**~~<insert hmi spec here>~~.

3.9.2.7 BTP-FUR-REQ-041756/A-Setting Message Notification to ON (TcSE ROIN-295121-1)

Upon connecting to a MSE that indicates support for Message Notification, the in-vehicle infotainment shall set message notification to 'ON'.

3.9.2.8 BTP-FUR-REQ-041757/A-Setting Message Notification 'On' Failure (TcSE ROIN-295122-1)

If the IVIS has attempted to set message notification to 'ON', but the MAS Server of the MSE did not respond within 30 seconds or the MNS Client of the MSE does not request to connect the Message Notification Service within 30 seconds of receipt of the MAS Server response, the IVIS shall attempt to set message notification to 'ON' again. If the second attempt fails, based on the criteria within this section the IVIS shall provide a notice to the customer that it will not be able to provide the customer with new messages received while connected to the current MSE.

3.9.2.9 BTP-FUR-REQ-041758/A-Receipt of a New Message Event (TcSE ROIN-295123-2)

During a connection, the MNS Client of the MSE may alert the in-vehicle infotainment system that it has received a new message(s). Upon notification of a new message event from the connected MSE, the in-vehicle infotainment system shall request a message listing for the unread messages only. The message listing request shall include the same parameters and guidelines within the GREQ-295117 ~~"Retrieving~~ Message Listing Parameters (Functional)~~"~~ section of this document.

3.9.2.10 BTP-FUR-REQ-041759/A-Text Message Notification (End User) (TcSE ROIN-295124-2)

Notifications of new incoming text messages shall be consistent with the settings contained within the phone application. Regardless of the setting within the phone application, the new message envelope icon shall be displayed in the event of a new message notification. ~~See Alerts Section.~~ The new message icon shall be removed once the user has chosen to read or listen to all of their new messages. More information regarding these notifications are included within the Incoming Message Alerts section of this document.

3.9.2.11 BTP-FUR-REQ-041760/B-UI Notification (TcSE ROIN-295125-2)

When a new message is received, the user shall be notified within 2 seconds that they have received a new unread message. This notification shall include the following sender's information:

Name (if available from contact list); if not the phone number or e-mail address shall be displayed.

*Note: If the sender is an e-mail address and that e-mail address is stored within the phonebook, then In-Vehicle Infotainment System shall display the name of that contact.

The notification shall also include the following options via the GUI and Voice:

-Listen (TTS)
-Ignore
-View (if driver restrictions are not enabled)

For a more detailed description of the behavior of these options, follow the requirements included within HMI specification.

3.9.2.12 BTP-FUR-REQ-041761/B-Audible Notification (TcSE ROIN-295126-2)

When a new message is received, the user shall be notified by the alert defined within BTP-FUR-REQ-041775-Audible Alerts and within the HMI Text Messaging Specification.

Note: Please also consider BTP-FUR-REQ-033871- Do Not Disturb.

3.9.2.13 BTP-FUR-REQ-041762/A-Unread to Read Notification (TcSE ROIN-295127-1)

The receipt of a new message shall not prompt the In-Vehicle Infotainment System to update the status of that message as read on the MSE. The In-Vehicle Infotainment System shall only update the status of an unread message to read if the user has opted to perform any of the following actions:

- View the message
- Listen to the message

The In-Vehicle Infotainment System shall provide the MSE this notification within 2 seconds of performing either of the actions listed above.

3.9.2.14 BTP-FUR-REQ-041763/A-Downloading Messages Received from an Unsolicited Message Listing Retrieval (TcSE ROIN-295128-2)

Upon an initial connection, the IVIS shall request a message listing as defined within the GREQ-295117 ~~"Retrieving~~ Message Listing Parameters (Functional)~~"~~ section of this document. This request shall take place within 5 seconds of a successful connection. The IVIS shall not automatically download any of the messages included within this message listing response until the user accesses the text messaging UI. Upon accessing the text messaging UI, the IVIS shall download all of the messages currently presented to the customer via the UI as well as the next set available to the customer if they opt to scroll to the next page, message, etc.

For example, if the user enters the text messaging UI via the GUI, and there are 5 text message listings available for the user to choose from, the IVIS shall download all 5 of those text messages plus next 5 text messages available on the next page. This will insure that the message will be available to the user when they choose to access it. If the user opts to scroll to the next page, set of messages, next message, etc. the IVIS shall download the next set of messages available on the following "page".

3.9.2.15 BTP-FUR-REQ-041764/A-Downloading Messages Received as a result of a New Message Event (TcSE ROIN-295129-1)

The IVIS shall automatically download a message received as a result of a new message event, as defined in the "Receipt of a New Message Event" section of this document. This will insure that the message is available to the customer when and/or if they choose to access it. The message download shall take place within 2 seconds of a new message event.

3.9.2.16 BTP-FUR-REQ-041765/A-Downloaded Message Retention (TcSE ROIN-295130-1)

Downloaded messages shall be retained until one of the following conditions are met:

- a disconnect of the current Message Access Service connection
- MSE has indicated that the message has been deleted.

Once the connection is terminated, the IVIS shall not persist the downloaded messages.

3.9.2.17 BTP-FUR-REQ-041766/A-Unsolicited Message Notification of a Message Status Change (TcSE ROIN-295131-1)

During a connection, the MSE may alert The In-Vehicle Infotainment System that the status of a message has changed. Upon receipt of this notification, The In-Vehicle Infotainment System shall update the status of the referenced message if it was one of the messages previously downloaded. In event that the message notification is related to a deleted message, The In-Vehicle Infotainment System shall remove the message from the text messaging list within 2 seconds.

3.9.2.18 BTP-FUR-REQ-041767/B-Listen HMI (TcSE ROIN-295132-1)

If the user chooses to 'Listen' to a text message, then In-Vehicle Infotainment System shall TTS the message. The In-Vehicle Infotainment System shall TTS a maximum of 2000 characters. If the contents of a message exceed this limit, the IVIS shall notify the customer that they will have to review the remainder of the message on their handset when it is safe to do so.

In-Vehicle Infotainment System shall reference a language based Text-To-Speech library to interpret common words, emoticons, names, etc. For example, LOL is "Laughing out Loud", etc.
At the conclusion of the Text-To-Speech session, the user shall have the following options:

- Reply
- Next Message

- Previous Message
- Call the sender of the message shall only include or be matched to a phone number for this option to be enabled.

3.9.2.19 BTP-FUR-REQ-041768/A-Ignore (TcSE ROIN-295133-1)

If the user chooses to 'Ignore' an incoming message notification, then In-Vehicle Infotainment System shall return to the previous function / source. The downloaded messages shall remain 'Unread' and the envelope icon shall still be present.

3.9.2.20 BTP-FUR-REQ-041769/B-View (TcSE ROIN-295134-2)

If the user chooses 'View', In-Vehicle Infotainment System shall display the specific text message so that the user can read the message. This feature is subject to driver distraction rules. This display shall also include the following items:

-Name (if available from phonebook); if not the phone number or e-mail address shall be displayed.

-The date and time associated with the message.
The date and time shall be displayed based on the format set within the Global Clock Specification.

While viewing a text message the user shall have the following options with text content displayed or a message stating there is no text content when text data is not available:

-Listen (TTS) (to message content or getting the information that there is no text data)
-Reply
-Call (the sender of the message if a phone number is available)

The In-Vehicle Infotainment Systems shall display the 2000 characters of a received text message. If the contents of a message exceed this limit, the IVIS shall notify the customer that they will have to review the remainder of the message on their handset when it is safe to do so.

3.9.2.21 BTP-FUR-REQ-041770/C-Reply (TcSE ROIN-295135-3)

The option to reply to a message shall be present or enabled only when the connected device is supporting this feature, and the received message contains either a sender number or email to reply to. If both email and number are present, the IVIS shall send the reply to the number.

For display purposes only the IVIS might show the sender's name from the message, if available.
If that is not available then the IVIS might try to match the sender number or email to an entry in the phonebook information.

If the user chooses 'Reply' via GUI or VUI In-Vehicle Infotainment System shall provide the user with the canned message options described in requirement GREQ-295135 of this specification and the HMI specification.

*Note: The reply function shall not be available when connecting to an iOS device.

3.9.2.22 BTP-FUR-REQ-041771/B-Call (TcSE ROIN-295136-2)

This option to Call shall be present or enabled only when the received message contains a sender number.

If the user chooses 'Call' In-Vehicle Infotainment System shall place a call to the sender number included in the message.

For display purposes only the IVIS might show the sender's name from the message, if available.
If that is not available then the IVIS might try to match the sender number or email to an entry in the phonebook information.

3.9.2.23 BTP-FUR-REQ-041774/A-Insert Message Alert Options (TcSE ROIN-295139-2)

The user shall have the option of selecting one of two incoming message notifications.
They are:

- An Audible Alert (as defined within **H28b Text Messaging Specification~~<insert hmi specification here>)~~**
- Envelope Icon Alert (i.e. no pop-up notification of a newly received message)

Regardless of Incoming Message Alert settings, In-Vehicle Infotainment System shall always display the new message Envelope Icon once a new message(s) are received.

3.9.2.24 BTP-FUR-REQ-041775/A-Audible Alerts (TcSE ROIN-295140-1)

The user shall have a total of 1 audible alert to choose from for an incoming message notification. This audible alert shall be pre-recorded and stored on In-Vehicle Infotainment System.

3.9.2.25 BTP-FUR-REQ-041776/A-Envelope Icon Only (TcSE ROIN-295141-2)

When this setting is enabled, In-Vehicle Infotainment System shall not display a pop-up notification once a new message(e) has been received, nor shall it play an audible alert. In-Vehicle Infotainment System shall only display the Envelope Icon to alert the user that they have received a new message(s). This is the messaging alert to be used when the user has set Do Not Disturb on as described within ~~Handsfree Phone Requirements~~ the phone section of the SPSS.

3.9.2.26 BTP-FUR-REQ-041777/B-Canned Messages Requirements (TcSE ROIN-295142-1)

There shall be a maximum of 15 canned messages available to the user for sending and/or replying to a text message.

3.9.2.27 BTP-FUR-REQ-041778/A-Canned Message Selection Options (TcSE ROIN-295143-1)

The user shall be able to choose one of the canned messages via GUI or Voice. The user shall be able to:

Choose a canned message via numerical list selection (i.e. text message number 1, etc.).

If the user selects a canned message via Voice, they shall be required to confirm or cancel the message selection prior to In-Vehicle Infotainment System actually sending the message.

3.9.2.28 BTP-FUR-REQ-041779/B-Canned Text Message List (TcSE ROIN-295145-1)

The canned text messages shall be defined in the HMI specification to cover regional aspects. The following messages are only for reference, and not mandatory.

I'll call you back in a few minutes.
I just left. I'll be there soon.
Can you give me a call?
I'm on my way.
I'm running a few minutes late.
I'm ahead of schedule, so I'll be there early.
I'm outside.
I'll call you when I get there.
OK
Yes
No
Thanks
Stuck in traffic.
Call me later.
LOL

3.9.2.29 BTP-FUR-REQ-041780/A-Sending Text Messages (TcSE ROIN-295146-2)

The In-Vehicle Infotainment System shall use the following application parameters when sending any message:

Parameter	Setting

Transparent	Off
Retry	On
Charset	UTF-8 or Native (based on device and suppliers experience with devices within the industry) Supplier shall provide Ford Motor Company with details regarding the use of both of these options.

~~In the event that the connected MSE fails to respond within 30 seconds or provides a response code of 'Error', the In-Vehicle Infotainment System shall provide an indication that sending a message has failed as described in **<HMI spec>**. This notification shall be displayed within 2 seconds of a failed indication.~~

3.9.2.30 BTP-FUR-REQ-041782/A-Message Access Error States (TcSE ROIN-304253-1)

The in-vehicle infotainment system shall be able to determine if the connected server has denied the in-vehicle infotainment system access to the Message Access Profile, if the server has not responded per the requirements within the message access profile, or the server has failed to establish a message notification service with it.

3.9.2.31 BTP-FUR-REQ-041783/A-Message Access Not Granted (TcSE ROIN-304254-1)

When the in-vehicle infotainment system requests to connect to the Message Access Profile of the connected AG / MSE the in-vehicle infotainment system shall determine that the AG / MSE has not granted access to Message Access Profile when either of the following scenarios takes place:

1. The connected AG / MSE does not respond to the connect request within 15 seconds.
2. The connected AG / MSE responds with a response code other than Success

3.9.2.32 BTP-FUR-REQ-041784/A-Message Notification Not Established (TcSE ROIN-304255-1)

When the in-vehicle infotainment system establishes a Message Access Server connection it shall determine that the MSE has experienced an internal message notification error under the following scenario(s):

1. The MSE supports Message Notification as reported via SDP and does not establish a Message Notification Service (MNS) within 30 seconds of the in-vehicle infotainment system establishing a connection to the Message Access Server.

When the above occurs, the in-vehicle infotainment system shall attempt to force the MSE to establish a MNS connection by disconnecting and reconnecting MAS.

In the event of a MAS reconnect the in-vehicle infotainment system shall retrieve the message listing of the last 10 received messages. *Note: In this case, the in-vehicle infotainment system shall not wait for the MSE to establish a MNS connection.

If the MSE fails to establish MNS within 30 seconds again, the in-vehicle infotainment system shall consider that the connected MSE has experienced a "Text Message Notification Failure"

The in-vehicle infotainment system shall poll the connected MSE every 60 seconds to request a message listing for 10 unread messages. Upon receipt of a message listing with new messages, the in-vehicle shall present the newly received messages to the customer. The supplier is responsible for determining the appropriate method to insure that the customer is not alerted to previously polled / duplicate unread messages. *Note: Timestamp is one method that could be used. The

*Note: If the MNS connection is unexpectedly disconnected during a connection, the in-vehicle infotainment system shall begin polling the MSE as described above.

**Note: The in-vehicle infotainment system shall not poll an iOS device, as they do not provide unread messages via message listing requests.

3.9.2.33 BTP-FUR-REQ-041785/B-Message Download Failed (TcSE ROIN-304256-1)

When the In-Vehicle Infotainment System establishes a Message Access Server connection it shall determine that the MSE has experienced an internal message download error under one of the following scenario(s):

1. The In-Vehicle Infotainment System is not able to get the message listing
2. The In-Vehicle Infotainment System is not able to download any of the listed messages.
3. The In-Vehicle Infotainment System is not able to parse any of the requested messages within the inbox.

In that error case the customer shall be notified with a meaningful error message according HMI specification.

3.9.2.34 BTP-FUR-REQ-041786/B-Sending Message Failed (TcSE ROIN-304257-1)

When the In-Vehicle Infotainment System establishes a Message Access Server connection it shall determine that the MSE has experienced an internal send message error under one of the following scenario(s):

1. Failure of the MSE to respond within 10 seconds to any of the set path requests.
2. The MSE responds with error to any of the outbox set path requests.
3. The MSE responds with a result code of error to the in-vehicle infotainment system's request to send the message
4. The MSE fails to respond to the in-vehicle infotainment system's request to send the message within 10 seconds.

The In-Vehicle Infotainment System shall alert the customer of the failure within 2 seconds of a failed indication.

3.9.2.35 BTP-FUR-REQ-041787/A-Message Exceptions (TcSE ROIN-304258-1)

When the in-vehicle infotainment systems receives a vCARD without an entry within the TEL field it shall use the FN and/or N field of the vCard to determine the sender of a text message. These fields may be populated with a name or a number.

If the MSE reports an error in sending a message due to the service unavailable, the in-vehicle infotainment system shall alert the user that the MSE does not have a network signal, and that the MSE will continue to try to send the message.

3.9.2.36 BTP-FUR-REQ-133777/B-Text Messaging Availability

The text messaging feature shall only be announced to the customer via VUI or GUI when a device is paired and the connected device is supporting that feature.

In that case the In-Vehicle Infotainment System shall provide the user with the option to enable or disable the text messaging feature manually.
If disabled the In-Vehicle Infotainment System shall not establish a connection to any MAS instance of the connected HFP device.
If this setting gets set to disabled, the In-Vehicle Infotainment System shall close the Bluetooth messaging connections via unregistering for notifications and closing the connection(s) to the connected device's MAS instances.
If this setting gets set to enabled, the In-Vehicle Infotainment System shall immediately try to establish a map connection to register for messaging notifications and download of messages as described in BTP-FUR-REQ-041758/A-Receipt of a New Message Event and BTP-FUR-REQ-041750/A-Retrieving the Message Listing (Upon Connection).
The alert option which was set before disabling the feature shall be valid again.

3.9.2.37 BTP-FUR-REQ-146186/A-Requirements for Handling of Messaging Feature in VUI/GUI

Any VUI/GUI that intends to support the messaging functionality shall clearly define its behavior for the following error conditions and special cases.

Short	Condition	Notes	See also…
MSG1	Connected device supports all messaging features, connection is successful and initialization of feature has completed	All features are available to the user.	Messaging requirements under BTP-FUN-REQ-041734-Messaging
MSG2	Messaging connection not	When trying to use this	BTP-FUR-REQ-041784-

	finalized yet	feature, the user shall be informed that the feature is not ready yet.	Message Notification Not Established
MSG3	Connected device does not support messaging	When trying to use this feature, the user shall be informed when trying to use the feature that the messaging feature is not available with this device. The help prompts and the HMI should not show this feature.	BTP-FUR-REQ-133777-Text Messaging Availability
MSG4	Replying to messages not available for connected device (iOS devices OR empty inbox)	User shall not be led to believe that replies are available.	BTP-FUR-REQ-041770-Reply
MSG5	Access to messaging feature not granted from connected device	When trying to use this feature, the user shall be informed when trying to use the feature that the messaging feature is not available because access was not granted from the connected device. Optionally the user might be guided on how to try to fix this problem.	BTP-FUR-REQ-041783-Message Access Not Granted BTP-FUR-REQ-041784-Message Notification Not Established
MSG6	Messaging disabled	When trying to use this feature, the user shall be informed when trying to use the feature that the messaging feature has been disabled. Optionally the user might be guided on how to re-enable the feature.	BTP-FUR-REQ-133777-Text Messaging Availability

3.9.3 Sequence Diagrams

3.9.3.1 BTP-SD-REQ-030702/A-Incoming Text Message- Listen (TcSE ROIN-149436-3)

Scenarios

Normal Usage

The user receives an incoming text message, and selects <listen> via the HMI.

Constraints

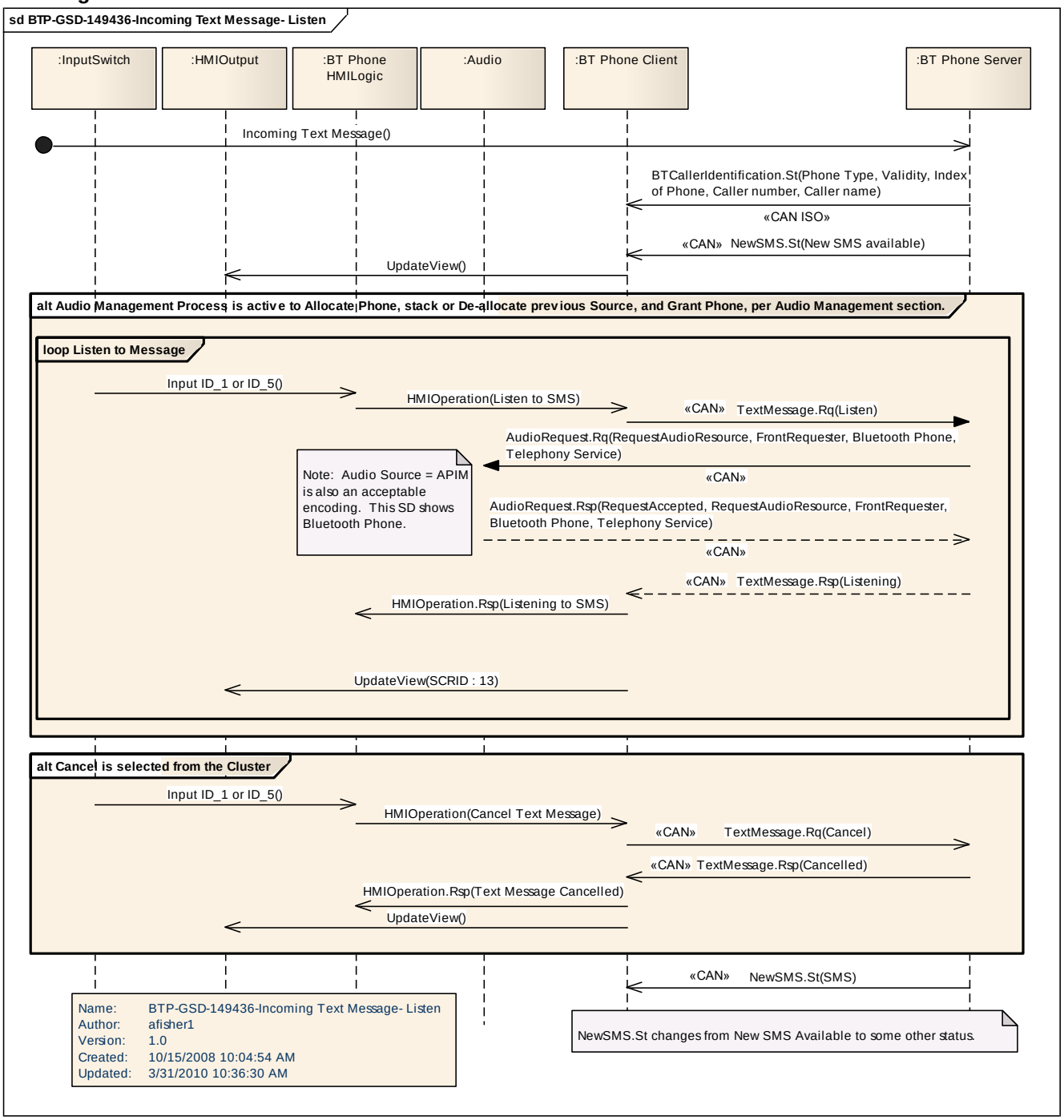
Pre-condition

A Bluetooth phone is connected to the vehicle interface. Vehicle power is On.

Post-condition

The text message {is read} via the HMI, and the user is presented with the option <to repeat the message> via the HMI.

Sequence Diagram



3.9.3.2 BTP-SD-REQ-030703/A-Incoming Text Message- Ignore (TcSE ROIN-149443-3)

Scenarios

Normal Usage

The user receives an incoming email message, selects <ignore the message> via the HMI.

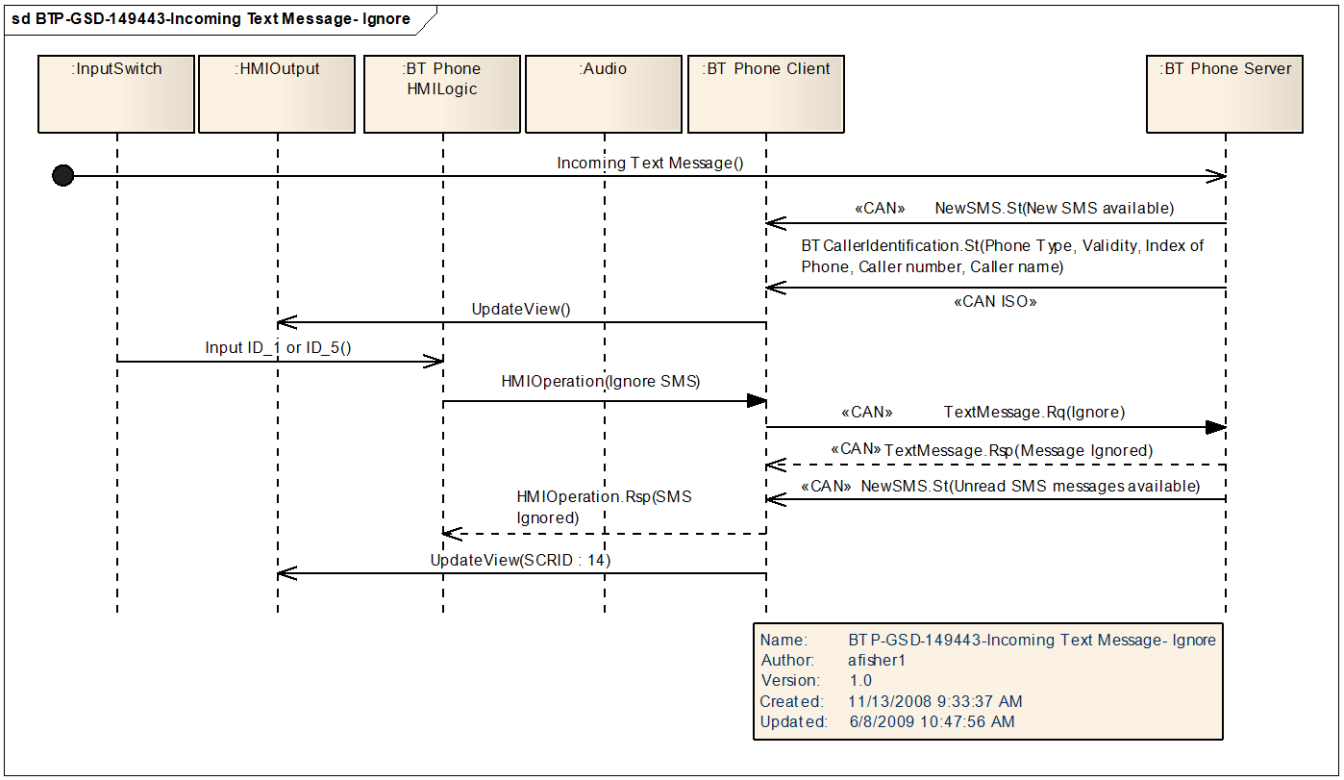
Constraints

Pre-condition

A Bluetooth phone is connected to the vehicle interface. Vehicle power is On.

Post-condition
The text message is ignored, and HMI indicates {previous screen that user was on prior to the incoming text message}.

Sequence Diagram



3.9.3.3 BTP-SD-REQ-030697/A-Initiate a Phone Call from Text Message (TcSE ROIN-149517-2)

Scenarios

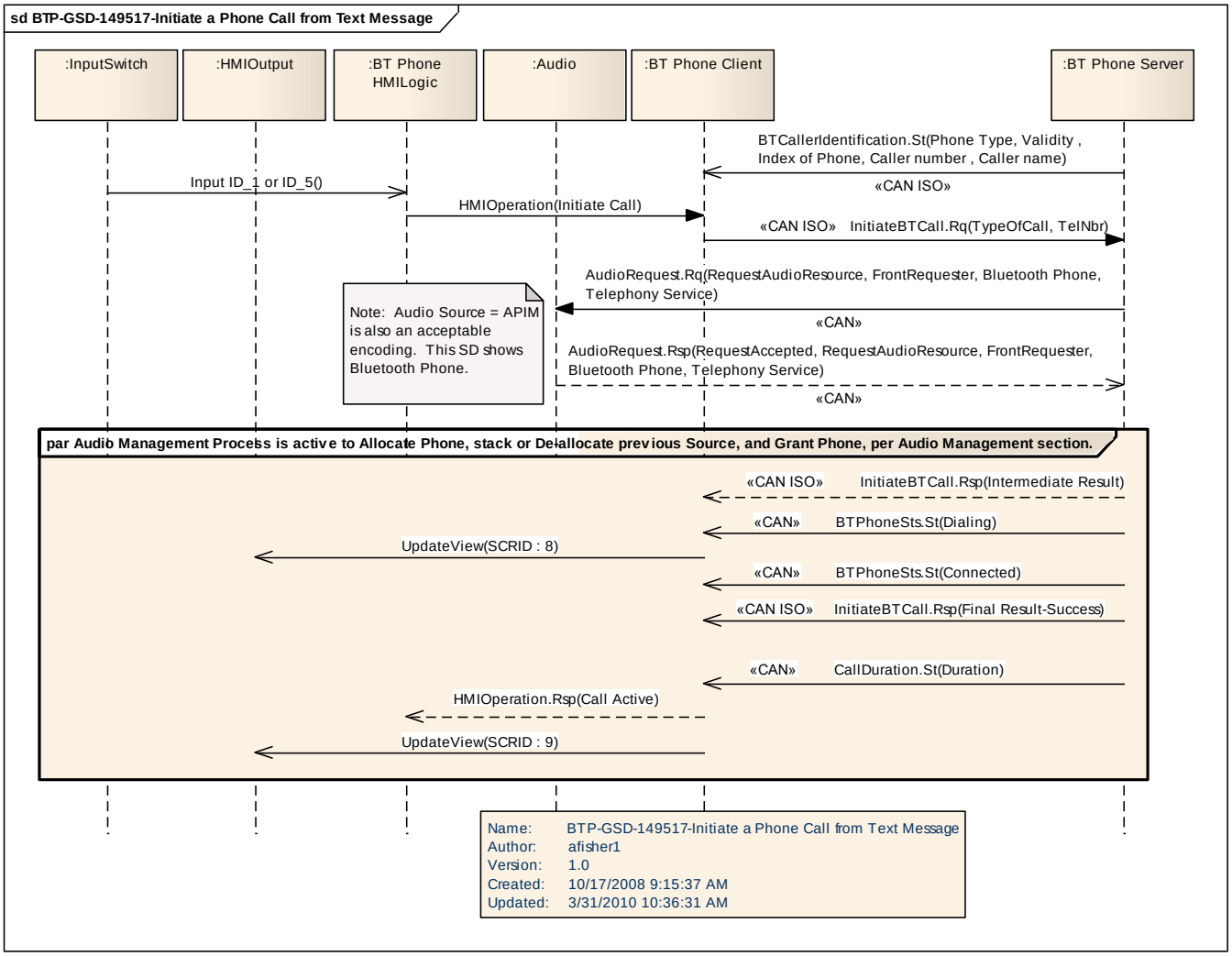
Normal Usage
User <initiates a BT Phone call via the Cluster display> via the HMI.

Constraints

Pre-condition
The user is currently accessing a new email message via the cluster, or is in phone browse mode.

Post-condition
The user is connected to the requested Caller Id and an active phone call is in progress.

Sequence Diagram



3.10 BTP-FUN-REQ-033867/A-Do Not Disturb (TcSE ROIN-294323-1)

3.10.1 Use Cases

3.10.1.1 BTP-UC-REQ-033868/A-Do Not Disturb Active– Incoming Call (TcSE ROIN-290918-1)

Actors	Connected Phone
Pre-conditions	Mobile phone is connected
Scenario Description	The Customer has opted to set Do Not Disturb to active / on, and has received an incoming call. As a result, the In-Vehicle Infotainment System does not alert the Customer to the incoming call and requests that the connected phone stop ringing.
Post-conditions	The incoming call is no longer alerting via the In-Vehicle Infotainment System and connected phone.
List of Exception Use Cases	E1 -Rejecting Call via In-Vehicle Infotainment System fails.
Interfaces	G-HMI

3.10.1.2 BTP-UC-REQ-033869/A-Rejecting Call via In-Vehicle Infotainment System fails (TcSE ROIN-290915-1)

Linked Elements
BTP-UC-REQ-033868/A-Do Not Disturb Active– Incoming Call (TcSE ROIN-290918-1)
BTP-UC-REQ-041853/A-Incoming Call Ringing (Reject from In-Vehicle Infotainment System) (TcSE ROIN-290914-1)

Actors	Connected Phone Customer
Pre-conditions	Same as original use case
Scenario Description	A mobile phone is connected to the In-Vehicle Infotainment System, and while it is connected an incoming call has been indicated by ringing / alerting. In this scenario, the Customer has opted to manually reject the call from the In-Vehicle Infotainment System, but the call is not rejected.
Post-conditions	The incoming call is no longer alerting via the In-Vehicle Infotainment System. The In-Vehicle Infotainment System returns to the prior state
List of Exception Use Cases	N/A
Interfaces	G-HMI SWC Vehicle System Interface

3.10.1.3 BTP-UC-REQ-033870/A-Do Not Disturb Active– Incoming Message (TcSE ROIN-290919-1)

Actors	Connected Phone
Pre-conditions	Mobile phone is connected and supports messaging
Scenario Description	The Customer has opted to set Do Not Disturb to active / on, and has received an incoming new message.
Post-conditions	The In-Vehicle Infotainment System does not interrupt the customer's infotainment experience or display a pop-up indicating a new message. (*Note: This is not to imply that a message icon cannot be displayed to indicate that a new message has been received)
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.10.2 Requirements

3.10.2.1 BTP-FUR-REQ-033871/B-Do Not Disturb (TcSE ROIN-295096-2)

This feature shall only be available when there is a connected AG. When set to on, this feature will prevent the user from being interrupted by incoming phone calls, and other SMS from the AG. While in this mode, In-Vehicle Infotainment System shall automatically reject any incoming calls received and shall only display the Envelope Icon to alert the user that they have received new message(s).
When the feature is set to off, the previous alert options for incoming calls and new messages shall be valid again.

3.10.2.2 BTP-FUR-REQ-033872/A-Do Not Disturb Retention Settings (TcSE ROIN-295097-1)

This feature will automatically be set to off upon an intentional disconnect from In-Vehicle Infotainment System.

If a disconnect is a result of a Link Loss, this setting shall be maintained upon next connection provided).

This setting shall never be retained across power cycles.

3.10.2.3 BTP-FUR-REQ-033873/A-Do Not Disturb Exceptions (TcSE ROIN-295098-1)

If the user is streaming audio from the connected AG, their audio experience will be briefly interrupted. In-Vehicle Infotainment System shall still send the reject command to the connected AG, and In-Vehicle Infotainment System shall return to streaming audio.

The user shall be able to place calls and send text messages while this mode is set to 'ON'. If the user is in an active call and they receive an incoming call waiting call, In-Vehicle Infotainment System shall not present the user with the Call Waiting Notification pop-up.

3.11 BTP-FUN-REQ-033874/A-Phone Disconnects (TcSE ROIN-294326-1)

3.11.1 Use Cases

3.11.1.1 BTP-UC-REQ-033875/A-Manual In-Vehicle Infotainment System Initiated Disconnect – No Active Call (TcSE ROIN-290949-1)

Actors	In-Vehicle Infotainment System and mobile phone
Pre-conditions	A mobile phone is connected to the In-Vehicle Infotainment System
Scenario Description	In this scenario, the In-Vehicle Infotainment System initiates a disconnect request to the connected phone. This request is the result of the Customer manually requesting to disconnect from the connected phone via the G-HMI available within the In-Vehicle Infotainment System.
Post-conditions	The In-Vehicle Infotainment System and the mobile phone is no longer connected.
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.11.1.2 BTP-UC-REQ-033876/A-Manual In-Vehicle Infotainment System Initiated Disconnect – Active Call(s) (TcSE ROIN-290950-1)

Actors	In-Vehicle Infotainment System and mobile phone
Pre-conditions	A mobile phone is connected to the In-Vehicle Infotainment System A phone call is active.
Scenario Description	In this scenario, the In-Vehicle Infotainment System initiates a disconnect request to the connected phone. This request is or the Customer has manually requesting to disconnect the connected phone.
Post-conditions	The In-Vehicle Infotainment System transfers the active call(s) to the handset (if call is not Handsfree, no transfer is needed) The In-Vehicle Infotainment System disconnects from the connected mobile phone. In-Vehicle Infotainment System
List of Exception Use Cases	E1 – The connected phone rejects the In-Vehicle Infotainment System's request to transfer audio to the connected phone.
Interfaces	G-HMI Vehicle System Interface

3.11.1.3 BTP-UC-REQ-033877/A-The connected phone rejects the In-Vehicle Infotainment System's request to transfer audio to the connected phone (TcSE ROIN-290951-1)

Linked Elements
BTP-UC-REQ-033876/A-Manual In-Vehicle Infotainment System Initiated Disconnect – Active Call(s) (TcSE ROIN-290950-1)
BTP-UC-REQ-041693/A-In-Vehicle Infotainment System Initiated Automatic Disconnect (Key Off / Driver Door Open) - Active Call(s) and Delayed Accessor (TcSE ROIN-290952-1)
BTP-UC-REQ-041698/A-In-Vehicle Infotainment System Initiated Automatic Disconnect (Key Off / No Driver Door Open) - Active Call(s) at the end of Del (TcSE ROIN-290957-1)
BTP-UC-REQ-041702/A-Mobile Phone Initiated Disconnect – Active Call(s) (TcSE ROIN-290961-1)
BTP-UC-REQ-041708/A-Disconnect Initiated by In-vehicle Infotainment System at Extended Play Mode Exit (Call Active) (TcSE ROIN-290967-1)

Actors	In-Vehicle Infotainment System and connected mobile phone
Pre-conditions	Same as original use case.
Scenario Description	In this scenario, the In-Vehicle Infotainment System initiates a disconnect request to the connected phone. This request is or the Customer has manually requesting to disconnect the connected phone, and the audio transfer to the connected phone has failed.
Post-conditions	The In-Vehicle Infotainment System disconnects from the connected mobile phone. The In-Vehicle Infotainment System and the mobile phone is no longer connected. The In-Vehicle Infotainment System alerts the user via G-HMI that audio may not be available on the handset.
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.11.1.4 BTP-UC-REQ-041693/A-In-Vehicle Infotainment System Initiated Automatic Disconnect (Key Off / Driver Door Open) - Active Call(s) and Delayed Accessor (TcSE ROIN-290952-1)

Actors	Mobile phone Customer
Pre-conditions	A mobile phone is connected to the In-Vehicle Infotainment System A phone call is active. Delay Accessory Timer is ongoing
Scenario Description	In this scenario the customer has turned the key position to 'key off' and opened the driver's door while a phone call is active on the connected mobile phone.
Post-conditions	The In-Vehicle Infotainment System transfers the active call(s) to the handset (if call is not Handsfree, no transfer is needed). The call audio is present on the mobile phone. The In-Vehicle Infotainment System disconnects from the connected mobile phone. The In-Vehicle Infotainment System and the mobile phone is no longer connected.
List of Exception Use Cases	E1 – The connected phone rejects the In-Vehicle Infotainment System's request to transfer audio to the connected phone.
Interfaces	G-HMI Vehicle System Interface

3.11.1.5 BTP-UC-REQ-041694/A-In-Vehicle Infotainment System Initiated Automatic Disconnect (Key Off / Driver Door Open) - No Active Call(s) and Delay Accesso (TcSE ROIN-290953-1)

Actors	Mobile phone Customer
Pre-conditions	A mobile phone is connected to the In-Vehicle Infotainment System No phone call is active. Delay Accessory Timer is ongoing
Scenario Description	In this scenario the customer has turned the key position to 'key off' and opened the driver's door while connected to a mobile phone.

Post-conditions	The In-Vehicle Infotainment System disconnects from the connected mobile phone. The In-Vehicle Infotainment System and the mobile phone is no longer connected.
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.11.1.6 BTP-UC-REQ-041695/A-Key Off / No Driver Door Open – No Active Call(s) and Delay AccessoryTimer is Ongoing (TcSE ROIN-290954-1)

Actors	Mobile phone Customer
Pre-conditions	A mobile phone is connected to the In-Vehicle Infotainment System No phone call is active.
Scenario Description	In this scenario the customer has turned the key position to 'key off' while connected to a mobile phone.
Post-conditions	The In-Vehicle Infotainment System remains connected to the mobile phone, and maintains the ability to execute all of the features / functions of the phone.
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.11.1.7 BTP-UC-REQ-041696/A-In-Vehicle Infotainment System Initiated Automatic Disconnect (Key Off / No Driver Door Open) - No Active Call(s) and Expiration (TcSE ROIN-290955-1)

Actors	Mobile phone Customer
Pre-conditions	A mobile phone is connected to the Infotainment System No phone call is active.
Scenario Description	In-Vehicle Infotainment System. Delayed accessory timer has expired.
Post-conditions	The In-Vehicle Infotainment System disconnects from the connected mobile phone. In-Vehicle Infotainment System
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.11.1.8 BTP-UC-REQ-041697/A-Mobile Phone Initiated Disconnect (Key Off / No Driver Door Open) - No Active Call(s) Delayed Accessory Timer Ongoing (TcSE ROIN-290956-1)

Actors	Mobile phone Customer
Pre-conditions	A mobile phone is connected to the In-Vehicle Infotainment System No phone call is active.
Scenario Description	In this scenario the customer has turned the key position to 'key off' while connected to a mobile phone. The mobile phone has initiated a disconnect to the In-Vehicle Infotainment System.
Post-conditions	The In-Vehicle Infotainment System remains functional and maintains the ability to execute all of the features / functions of the phone.
List of Exception Use Cases	N/A

Interfaces	G-HMI Vehicle System Interface

3.11.1.9 BTP-UC-REQ-041698/A-In-Vehicle Infotainment System Initiated Automatic Disconnect (Key Off / No Driver Door Open) - Active Call(s) at the end of Del (TcSE ROIN-290957-1)

Actors	Mobile phone Customer
Pre-conditions	A mobile phone is connected to the In-Vehicle Infotainment System Key set to Key Off Driver Door had not been opened Delayed Accessory timer has expired Phone call is active.
Scenario Description	In this scenario the customer has turned the key position to 'key off'. After the expiration of the Delayed Accessory timer the In-Vehicle Infotainment System is slated to shut down. At the expiration of the Delayed Accessory timer, a phone call is active. An Extended Phone Mode Timer is established by the In-Vehicle Infotainment System and the phone call is still active at the expiration of that timer.
Post-conditions	The In-Vehicle Infotainment System alerts the customer that the system will be shutting down The In-Vehicle Infotainment System transfers the phone audio to the connected mobile phone The In-Vehicle Infotainment System disconnects from the connected mobile phone The In-Vehicle Infotainment System shuts down. In-Vehicle Infotainment System
List of Exception Use Cases	E1 – The connected phone rejects the In-Vehicle Infotainment System's request to transfer the audio to the connected phone.
Interfaces	G-HMI Vehicle System Interface

3.11.1.10 BTP-UC-REQ-041699/A-In-Vehicle Infotainment System Initiated Automatic Disconnect (Key Off / No Driver Door Open) - Active Call(s) present at the en (TcSE ROIN-290958-2)

Actors	Mobile phone Customer
Pre-conditions	A mobile phone is connected to the In-Vehicle Infotainment System Key set to Key Off Driver Door had not been opened Delayed Accessory Timer has expired Phone call is ended Extended Phone Mode timer is ongoing.
Scenario Description	In this scenario the customer has turned the key position to 'key off'. After the expiration of the Delayed Accessory timer the In-Vehicle Infotainment System is slated to shut down. At the expiration of the Delayed Accessory timer, a phone call is active. An Extended Phone Mode Timer is established by the In-Vehicle Infotainment System and is ongoing. Prior to the expiration of the Extended Phone Mode, the active call is ended.
Post-conditions	~~The In-Vehicle Infotainment System alerts the customer that the system will be shutting down~~ The In-Vehicle Infotainment System disconnects from the connected mobile phone The In-Vehicle Infotainment System shuts down. In-Vehicle Infotainment System
List of Exception Use Cases	N/A
Interfaces	G-HMI

	Systems

3.11.1.11 BTP-UC-REQ-041700/A-Mobile Phone Initiated Disconnect (Key Off / No Driver Door Open) - Active Call(s) present at the end of the Delayed Accessory M (TcSE ROIN-290959-2)

Actors	Mobile phone Customer
Pre-conditions	A mobile phone is connected to the In-Vehicle Infotainment System Key set to Key Off Driver Door had not been opened Delayed Accessory Mode timer has expired Mobile Phone is disconnected. Extended Phone Mode timer is ongoing.
Scenario Description	In this scenario the customer has turned the key position to 'key off'. After the expiration of the Delayed Accessory timer the In-Vehicle Infotainment System is slated to shut down. At the expiration of the Delayed Accessory timer, a phone call is active. An Extended Phone Mode Timer is established by the In-Vehicle Infotainment System and is ongoing. Prior to the expiration of the Extended Phone Mode, the connected mobile phone is disconnected.
Post-conditions	~~The In-Vehicle Infotainment System alerts the customer that the system will be shutting down~~ The In-Vehicle Infotainment System disconnects from the connected mobile phone The In-Vehicle Infotainment System shuts down. In-Vehicle Infotainment System
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.11.1.12 BTP-UC-REQ-041701/A-Mobile Phone Initiated Disconnect – No Active Call(s) (TcSE ROIN-290960-1)

Actors	In-Vehicle Infotainment System and mobile phone
Pre-conditions	A mobile phone was connected to the In-Vehicle Infotainment System
Scenario Description	In this scenario, the mobile phone initiates a disconnect request to the connected phone.
Post-conditions	The In-Vehicle Infotainment System and the mobile phone is no longer connected. The In-Vehicle Infotainment System has the ability to alert the customer that the mobile phone initiated the disconnect.
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.11.1.13 BTP-UC-REQ-041702/A-Mobile Phone Initiated Disconnect – Active Call(s) (TcSE ROIN-290961-1)

Actors	In-Vehicle Infotainment System and mobile phone
Pre-conditions	A mobile phone is connected to the In-Vehicle Infotainment System
Scenario Description	In this scenario, the mobile phone initiates a disconnect request to the connected phone.
Post-conditions	The active call(s) is transferred to the handset. The In-Vehicle Infotainment System and the mobile phone is no longer connected. The In-Vehicle Infotainment System has the ability to alert the customer that the mobile phone initiated the disconnect.
List of Exception	E1 – The connected phone rejects the In-Vehicle Infotainment System's request to

Use Cases	transfer audio to the connected phone.
Interfaces	G-HMI Vehicle System Interface

3.11.1.14 BTP-UC-REQ-041703/B-Disconnect Initiated via Linkloss (No Door Open) (TcSE ROIN-290962-1)

Linked Elements
BTP-FUR-REQ-041713/C-Linkloss No Door Open Signal (TcSE ROIN-295101-1)

Actors	In-Vehicle Infotainment System and mobile phone
Pre-conditions	A Bluetooth device is connected to the In-Vehicle Infotainment System
Scenario Description	While connected, the In-Vehicle Infotainment System detects that the connected device has disconnected as a result of a Linkloss (i.e. the device has moved out of range or has experienced an internal error). Since a door has not opened, the In-Vehicle Infotainment System assumes that the device is still present within the vehicle and attempts to reconnect to the Bluetooth device for the specified timeframe.
Post-conditions	The In-Vehicle Infotainment System reconnects to the previously connected Bluetooth device that disconnected due to a Linkloss. The customer is not provided with a notification of the reconnection attempt.
List of Exception Use Cases	E1 – In-Vehicle Infotainment System not able to reconnect to Bluetooth device. E2 – In-Vehicle Infotainment System not able to maintain a connection to Bluetooth device.
Interfaces	G-HMI Vehicle System Interface

3.11.1.15 BTP-UC-REQ-041704/A-In-Vehicle Infotainment System not able to reconnect to mobile phone (TcSE ROIN-290963-1)

Linked Elements
BTP-UC-REQ-041706/A-Disconnect Initiated via Linkloss (Door Open / Closed / Open) (TcSE ROIN-290965-1)
BTP-UC-REQ-041703/B-Disconnect Initiated via Linkloss (No Door Open) (TcSE ROIN-290962-1)

Actors	In-Vehicle Infotainment System and mobile phone
Pre-conditions	Same as original use case
Scenario Description	The In-Vehicle Infotainment System has detected a Linkloss, and was not able to reconnect to the connected mobile device.
Post-conditions	The In-Vehicle Infotainment System alerts the customer that there was an error with the connected mobile, and that it cannot reconnect.
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.11.1.16 BTP-UC-REQ-041705/A-In-Vehicle Infotainment System not able to maintain a connection to mobile phone (TcSE ROIN-290964-1)

Linked Elements
BTP-UC-REQ-041706/A-Disconnect Initiated via Linkloss (Door Open / Closed / Open) (TcSE ROIN-290965-1)
BTP-UC-REQ-041703/B-Disconnect Initiated via Linkloss (No Door Open) (TcSE ROIN-290962-1)

Actors	In-Vehicle Infotainment System and mobile phone
Pre-conditions	Same as original use case

Scenario Description	The In-Vehicle Infotainment System has detected a Linkloss, and was not able to maintain a connection to the mobile device.
Post-conditions	The In-Vehicle Infotainment System alerts the customer that there was an error with the connected mobile, and that it cannot reconnect.
List of Exception Use Cases	N/A
Interfaces	G-HMI

3.11.1.17 BTP-UC-REQ-041706/A-Disconnect Initiated via Linkloss (Door Open / Closed / Open) (TcSE ROIN-290965-1)

Linked Elements
BTP-FUR-REQ-041713/C-Linkloss No Door Open Signal (TcSE ROIN-295101-1)

Actors	In-Vehicle Infotainment System and mobile phone
Pre-conditions	A mobile phone is connected to the In-Vehicle Infotainment System Ignition is set to Run.
Scenario Description	While connected, the In-Vehicle Infotainment System detects that the connected mobile has disconnected as a result of a Linkloss (i.e. the device has moved out of range or has experienced an internal error). The In-Vehicle Infotainment System also detects that a door has been opened, closed and then re-opened. Upon the re-opening of the door, the In-Vehicle Infotainment System assumes that the device has returned to the vehicle, and then attempts to reconnect to the mobile phone. When this occurs, the In-Vehicle Infotainment System does not notify the Customer of the reconnection attempts.
Post-conditions	The In-Vehicle Infotainment System reconnects to the previously connected mobile phone that disconnected due to a Linkloss.
List of Exception Use Cases	E1 – In-Vehicle Infotainment System not able to reconnect to mobile phone. E2 – In-Vehicle Infotainment System not able to maintain a connection to mobile phone.
Interfaces	G-HMI Vehicle System Interface

3.11.1.18 BTP-UC-REQ-041707/A-Disconnect Initiated by In-vehicle Infotainment System at Extended Play Mode Exit (No Call Active) (TcSE ROIN-290966-1)

Actors	In-Vehicle Infotainment System and mobile phone
Pre-conditions	A mobile phone is connected to the In-Vehicle Infotainment System Extended Play Mode is Active
Scenario Description	User exits extended play mode.
Post-conditions	The In-Vehicle Infotainment System disconnects from the connected mobile phone.
List of Exception Use Cases	N/A
Interfaces	G-HMI Vehicle System Interface

3.11.1.19 BTP-UC-REQ-041708/A-Disconnect Initiated by In-vehicle Infotainment System at Extended Play Mode Exit (Call Active) (TcSE ROIN-290967-1)

Actors	In-Vehicle Infotainment System and mobile phone
Pre-conditions	A mobile phone is connected to the In-Vehicle Infotainment System Extended Play Mode is Active Phone Call Active
Scenario	User exits extended play mode.

Description	
Post-conditions	The In-Vehicle Infotainment System transfers the active call to the mobile phone (if call is in privacy no action is necessary) In-Vehicle Infotainment System disconnects from the connected mobile phone.
List of Exception Use Cases	E1 - The connected phone rejects the In-Vehicle Infotainment System's request to transfer audio to the connected phone.
Interfaces	G-HMI Vehicle System Interface

3.11.2 Requirements

3.11.2.1 BTP-FUR-REQ-041709/A-Intended Disconnection (TcSE ROIN-295042-1)

The manual disconnection of a currently connected phone shall not automatically trigger the automatic connection sequence.

3.11.2.2 BTP-FUR-REQ-041710/A-Manual Disconnection (TcSE ROIN-295043-1)

The user shall have the option to disconnect a currently connected phone from In-Vehicle Infotainment System and/or the connected AG.

3.11.2.3 BTP-FUR-REQ-041711/A-Automatic Disconnection (TcSE ROIN-295044-1)

The In-Vehicle Infotainment System shall automatically disconnect from the connected Bluetooth device(s) as described in the latest version of the SPSS and associated Phone Disconnect Use Cases.

3.11.2.4 BTP-FUR-REQ-041712/B-Linkloss Door Open Signal (TcSE ROIN-295100-1)

If In-Vehicle Infotainment System detects that there is a Bluetooth Link Loss within 300 seconds of a Driver Door Open Signal, then In-Vehicle Infotainment System shall attempt to connect to the previously connected device upon receipt of another Door Open Signal. The In-Vehicle Infotainment System shall attempt to reconnect to the previously connected device for 180 seconds. If the In-Vehicle Infotainment System fails to re-connect to the previously connected device, then the HMI shall present the customer with a notification that Link Loss was not recovered and direct the customer to the list of available paired devices for manual connection.

If two devices were connected previously, each device shall be reconnected in order to recover previous state.

3.11.2.5 BTP-FUR-REQ-041713/C-Linkloss No Door Open Signal (TcSE ROIN-295101-1)

In-Vehicle Infotainment System shall within 1 sec reconnect to the previously connected phone in the event that the connection was lost due to Link Loss and no Door Open Signal has been received. Upon connection loss, In case the connected device was performing any Bluetooth functionality when the connection dropped the In-Vehicle Infotainment System shall notify user that their phone has been disconnected and that the In-Vehicle Infotainment System shall attempt to reconnect to the previously connected device for 180 seconds. The associated HMI specification is defining the status of “Bluetooth functionality” in detail.

If the In-Vehicle Infotainment System detect a link Loss and the connected device was not performing any Bluetooth Hands-free functionality during the loss, then the In-Vehicle Infotainment system shall attempt to re-connect for 180 seconds without informing the customer of the Link Loss unless the re-connect attempts failed. If In-Vehicle Infotainment System is not able to connect to the device within the specified time window, In-Vehicle Infotainment System shall inform user that the reconnection attempt failed. The In-Vehicle Infotainment system shall present the customer with an HMI notification that Link Loss was not recovered and direct the customer to the list of available paired devices for manual connection.

If two devices were connected previously –one for phone and one for media functionality - each device shall be reconnected in order to recover previous state.

3.11.2.6 BTP-FUR-REQ-041714/A-Repeated Linkloss (TcSE ROIN-295102-1)

To account for devices that continue to loose connection due to Link Loss (i.e. the device is experiencing a severe problem) In-Vehicle Infotainment System shall keep track of the number of disconnects and reconnects to a particular device due Link Loss within a key cycle. In the event that In-Vehicle Infotainment System recognizes that it has reconnected and lost connection to a device 5 times within 300 seconds, In-Vehicle Infotainment System shall inform the customer that In-Vehicle Infotainment System could not maintain a connection with the previously connected device.

3.11.2.7 BTP-FUR-REQ-041715/A-Unexpected RFCOMM/HFP Disconnect (TcSE ROIN-304261-1)

In the event that the in-vehicle infotainment system receives an unexpected RFCOMM / HFP only disconnect, the in-vehicle infotainment system shall attempt to reconnect HFP. If the reconnect attempt fails the in-vehicle infotainment system shall alert the user per the requirements (screen 84) within H28a SHMI Phone specification.

3.11.2.8 BTP-FUR-REQ-041716/A-Unexpected RFCOMM/MAP MAS Disconnect (TcSE ROIN-304262-1)

In the event that the in-vehicle infotainment system receives an unexpected RFCOMM / MAP MAS only disconnect, the in-vehicle infotainment system shall attempt to reconnect MAP. If the reconnect attempt fails the in-vehicle infotainment system shall alert the user per the requirements within H28b SHMI Text Message specification.

3.12 BTP-FUN-REQ-041722/A-Phone VR (TcSE ROIN-294332-1)

3.12.1 Use Cases

3.12.1.1 BTP-UC-REQ-041723/A-Activating the Phone's Voice Recognition (From Phone / In-Vehicle Infotainment System) (TcSE ROIN-290987-1)

Actors	Mobile Phone Customer
Pre-conditions	The mobile phone is connected. The mobile phone has voice recognition support accessible via the in-vehicle infotainment system
Scenario Description	The customer has indicated that they want to access the voice recognition features of the connected mobile phone.
Post-conditions	The current audio source is switched to phone. The customer has the opportunity to speak commands to the connected phone via the in-vehicle microphone. The customer has the opportunity to end the voice recognition session. The customer has the opportunity to 'barge-in' via options provided by the G-HMI.
List of Exception Use Cases	E1 - The connected mobile phone fails to enable the voice recognition feature. E2 - The connected mobile phone cancels the phone voice recognition feature. E3 - The customer cancels the phone voice recognition feature.
Interfaces	G-HMI V-HMI Vehicle System Interface

3.12.1.2 BTP-UC-REQ-041724/A-The connected mobile phone fails to enable the voice recognition feature (TcSE ROIN-290988-1)

Linked Elements
BTP-UC-REQ-041723/A-Activating the Phone's Voice Recognition (From Phone / In-Vehicle Infotainment System) (TcSE ROIN-290987-1)

Actors	Same as original use case.
Pre-conditions	Same as original use case.
Scenario	Enabling the phone voice recognition feature failed.

Description	
Post-conditions	The customer is alerted that action was not successful.
List of Exception Use Cases	N/A
Interfaces	G-HMI V-HMI Vehicle System Interface

3.12.1.3 BTP-UC-REQ-041725/A-The connected mobile phone cancels the phone voice recognition feature (TcSE ROIN-290989-1)

Linked Elements
BTP-UC-REQ-041723/A-Activating the Phone's Voice Recognition (From Phone / In-Vehicle Infotainment System) (TcSE ROIN-290987-1)

Actors	Same as original use case.
Pre-conditions	Same as original use case.
Scenario Description	The mobile phone cancels the phone voice recognition feature.
Post-conditions	The customer is alerted that the phone voice recognition feature has been cancelled.
List of Exception Use Cases	N/A
Interfaces	G-HMI V-HMI Vehicle System Interface

3.12.1.4 BTP-UC-REQ-041726/A-The customer cancels the phone voice recognition feature (TcSE ROIN-290990-1)

Linked Elements
BTP-UC-REQ-041723/A-Activating the Phone's Voice Recognition (From Phone / In-Vehicle Infotainment System) (TcSE ROIN-290987-1)

Actors	Same as original use case.
Pre-conditions	Same as original use case.
Scenario Description	The mobile phone cancels the phone voice recognition feature.
Post-conditions	The customer is alerted that the phone voice recognition feature has been cancelled.
List of Exception Use Cases	N/A
Interfaces	G-HMI V-HMI Vehicle System Interface

3.12.1.5 BTP-UC-REQ-041727/A-Customer Activates 'Barge-In' During Active Phone Voice Recognition (TcSE ROIN-290991-1)

Actors	Mobile Phone Customer
Pre-conditions	The in-vehicle infotainment system and connected mobile phone are in an active phone voice recognition session
Scenario Description	The customer has indicated that they want to 'barge-in' to speak a voice command.
Post-conditions	The in-vehicle infotainment system remains in its current state, and allows the customer to speak new voice commands.
List of Exception	N/A

Use Cases	
Interfaces	G-HMI V-HMI Vehicle System Interface

3.12.2 Requirements

3.12.2.1 BTP-FUR-REQ-041728/C-Phone Voice Recognition Activation (TcSE ROIN-295112-1)

In-Vehicle Infotainment System shall have the ability of activating the connected phone's voice recognition activation by supporting section 4.25 of the Handsfree Profile Specification v1.5. The user shall not be able to enable phone voice recognition while in a phone call.

The phone voice session shall be established as soon as the SCO channel is opened by the connected device. Only in that case the phone voice session shall be communicated to the customer.

If the SCO channel is not established 2 seconds after the connected device has send +BVRA=1 or accepted AT+BVRA=1, the In-Vehicle Infotainment System shall send AT+BVRA=0, and the phone voice session is not established successfully. HMI is responsible to communicate this scenario to the customer with a meaningful error message.

The In-Vehicle Infotainment System shall not allow the user to enable the phone's voice recognition feature unless the phone support a Voice Recognition mode designed for automotive usage that does not require to look at or touch the connected phone..

At the time of writing Apple/iOS devices (Siri Eyes-Free) and Android (Google Hands-Free Advanced) devices support such a mode.
In case the connected phone does not support an automotive specific mode, but still support voice recognition activation, then the In-Vehicle Infotainment System:

- Shall not allow the user to initiate or barge into a session from the car's commands.
- Shall allow the user to terminate the session from the car's commands.
- Shall communicate visually to the user that a session has started, and relay the audio for the session via the car speakers.

3.12.2.2 BTP-FUR-REQ-041729/D-Apple Siri Eyes-Free (TcSE ROIN-295113-2)

This section shall only be applied to devices that are identified as an Apple iOS device and which supports SIRI (via Device ID/PNP profile and AT+XAPL custom command).

The In-Vehicle Infotainment System shall also support the Apple Siri Eye's free voice recognition activation HFP AT commands as described within section 6 of the Bluetooth Accessory Design Guidelines for Apple Products r7.

Upon each connection of a Siri Eyes Free supported device, the In-Vehicle Infotainment System shall enable the Siri Eyes-Free mode.

The Siri voice session shall be established as soon as the SCO channel is opened by the connected iOS device. Only in that case the SIRI session shall be communicated to the customer.

If the SCO channel is not established 2 seconds after the connected device has sent +BVRA=1 or accepted AT+BVRA=1, the In-Vehicle Infotainment System shall send AT+BVRA=0, and the SIRI session is not established successfully.
HMI is responsible to communicate this scenario to the customer with a meaningful error message.

The In-Vehicle Infotainment System shall use the noise suppression algorithms associated with the in-vehicle infotainment's voice engine when Siri is active.

*Note: Echo Cancellation shall still be active.

The user shall not be able to enable Siri Eye's free while in a phone call.

The In-Vehicle Infotainment System shall also support the ability to 'Barge In' when a voice recognition session is active. The ability to 'Barge In' will provide the user with the opportunity to interrupt the connected device and issue a new voice command.

The In-Vehicle Infotainment System shall also support the ability cancel a voice recognition session. The ability to cancel will provide the user with the opportunity to interrupt the connected device and cancel the active session.

These options shall only be available if In-Vehicle Infotainment System is connected to a device and that device supports Siri Eyes Free as determined by its response as described within section 6.2.1.1 of the Bluetooth Accessory Design Guidelines for Apple Products r7.

The In-Vehicle Infotainment System shall have the ability to alert the user that Siri is supported, but not enabled by the connected device as described within section 6.2.1.1 of the Bluetooth Accessory Design Guidelines for Apple Products r7.

As a result of accessing the Siri Eyes Free solution via the in-vehicle infotainment system, the customer has the option of requesting that the connected iPhone play a specific track, album, etc. In that case the in-vehicle infotainment system shall play the media from the connected iPhone via A2DP or USB. The supplier shall be responsible for developing a solution to cover this scenario. The supplier shall be responsible for obtaining Ford Motor Company approval of the solution prior to implementation.

3.12.2.3 BTP-FUR-REQ-131053/A-Google Hands-Free Advanced

This section shall only be applied to devices that are identified as an Android device and which supports the Google Hands-Free Advanced mode (via AT+ANDROID=probe command).

The In-Vehicle Infotainment System shall also support the Google Hands-Free Advanced HFP AT commands as described within the Automotive-Integration-Guide—Google-Hands-Free-Features—1 03.

The AT+ANDROID=probe command sent by the IVIS might use encryption.

If the exchange of AT+ANDROID=probe commands is successful, then and only then the IVIS shall send the AT+ANDROID:handshake command. The parameters for this command shall be chosen to correctly identify the vehicle and platform.
"SCO audio delay", "A2DP audio delay" and "capabilities" shall be tuned to provide the best possible experience to the user in terms of audio quality and timing.
The IVIS shall claim support of "Voice dialog state display" and "Change audio source" capabilities.

The Google voice session shall be established as soon as the SCO channel is opened by the connected Android device. Only in that case the Google voice session shall be communicated to the customer.

If the SCO channel is not established 2 seconds after the connected device has send +BVRA=1 or accepted AT+BVRA=1, the In-Vehicle Infotainment System shall send AT+BVRA=0, and the Google voice session is not established successfully. HMI is responsible to communicate this scenario to the customer with a meaningful error message.

The In-Vehicle Infotainment System shall use the noise suppression algorithms associated with the in-vehicle infotainment's voice engine when Google voice session is active.

*Note: Echo Cancellation shall still be active.

The user shall not be able to enable Google voice session while in a phone call.

The In-Vehicle Infotainment System shall also support the ability to 'Barge In' when a voice recognition session is active. The ability to 'Barge In' will provide the user with the opportunity to interrupt the connected device and issue a new voice command.

The In-Vehicle Infotainment System shall also support the ability cancel a voice recognition session. The ability to cancel will provide the user with the opportunity to interrupt the connected device and cancel the active session.

The In-Vehicle Infotainment System shall use the value of the unsolicited +ANDROID=audiosource notifications to decide when to transition to Bluetooth stereo source after a Google voice session.

The HMI might use the value of the unsolicited +ANDROID=vds notifications to enhance the graphic appearance of a Google voice session.

As a result of using the Google Hands-Free Advanced solution via the in-vehicle infotainment system, the customer has the option of requesting that the connected phone play a specific track, album, etc. In that case the in-vehicle infotainment system shall play the media from the connected phone via A2DP or USB. The supplier shall be responsible for developing a solution to cover this scenario. The supplier shall be responsible for obtaining Ford Motor Company approval of the solution prior to implementation.

3.12.2.4 BTP-FUR-REQ-041730/C-Device ID Profile (TcSE ROIN-304263-1)

The In-Vehicle Infotainment System shall retain the following information using Device ID Profile from the connected device:

- Vendor ID
- Product ID
- Version
- Version ID Source

The In-Vehicle Infotainment System shall use the following values when reporting the above characteristics to a device:

Attribute	Value	
Specification ID	Current supported version of DID	
VendorID	0x1BC4	
ProductID	0x0003	
Version	Release	Version
	NA Job 1	0x0100
	ROW Job1	0x0101
PrimaryRecord	True	
VendorIDSource	0x0002	

The version shall be updated per each official release to production. All pre-released development versions shall begin with a ProductID of 99xx.

The In-Vehicle Infotainment System shall use the values defined in this requirement for all other ways to advertise its characteristics via Bluetooth.
For example, for the Apple specific XAPL command, the In-Vehicle Infotainment System shall send, for NA Job 1: AT+XAPL=1BC4-0003-0100,8

3.12.2.5 BTP-FUR-REQ-041731/A-Device Indentification (TcSE ROIN-304264-1)

The in-vehicle infotainment system shall identify a device as an Apple iOS device when the vendor identification of the connected device is reported as Apple.

3.12.2.6 BTP-FUR-REQ-041732/A-Configuration Requirements (TcSE ROIN-304265-1)

All timers included within this document as well as H28a, H28b and H28c shall be configurable.

All attributes of Device ID Profile shall be configurable.

3.12.2.7 BTP-FUR-REQ-041733/A-iPhone Connected via A2DP and USB (TcSE ROIN-304493-1)

The customer may opt to connect an iPhone to the in-vehicle infotainment system via A2DP and/or USB. In this scenario the customer could enter a state in which audio is from the connected iPhone is routed from the iPhone via a A2DP when the iPhone is sourced for USB and / or vice versa. The supplier shall be responsible for developing a solution that insures that the customer is sourced to the correct audio source in this scenario. The supplier shall be responsible for obtaining Ford Motor Company approval of the solution prior to implementation.

3.13 BTP-FUN-REQ-041858/A-Phone Blower Motor Reduction Strategy (TcSE ROIN-303956-1)

3.13.1 Requirements

3.13.1.1 BTP-REQ-032098/A-Blower Motor Reduction Activation / Deactivation (TcSE ROIN-297103-1)

The intent of this specification is to outline the scenarios that the phone application will request to reduce the climate controlled blower motor with the goal of reducing cabin noise. There are multiple scenarios that could apply for this function, but at this time, the primary focus is cabin quietness during a phone call.

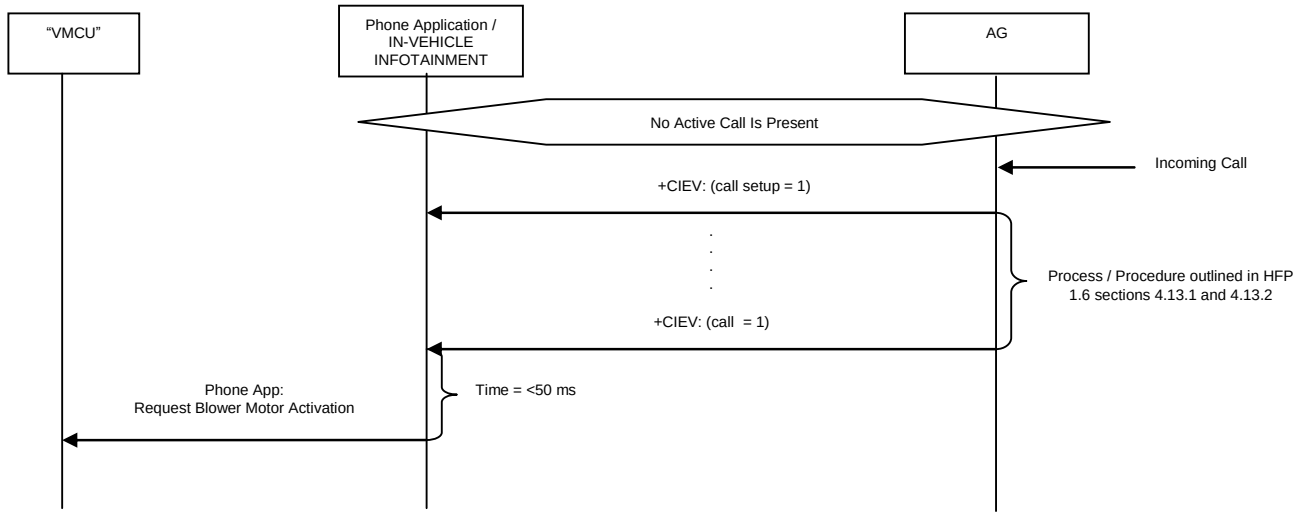
For purposes of determining when to request the Blower Motor Reduction Activation / Deactivation, the phone application shall determine the status of a call by monitoring the following:

- CIEV: Call Setup
- CIEV: Call
- Connection status of AG

Since all AG's must support CIEV indicators, these indicators have been chosen over CLCC indicators.

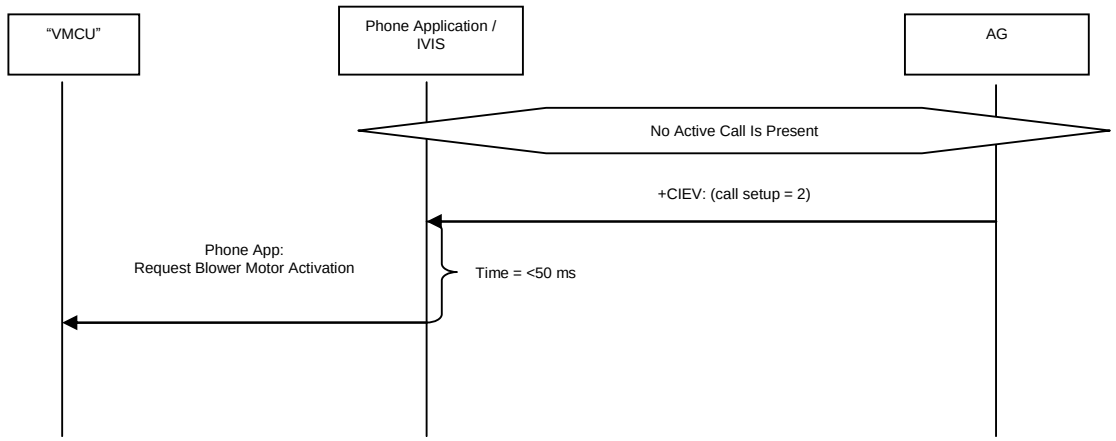
3.13.1.2 BTP-REQ-032099/A-Incoming Call (Setting Blower Motor Reduction Activation) (TcSE ROIN-297104-1)

In this scenario, the phone application shall request to reduce the blower motor after the phone call status has been updated to "call in progress". The request should not be made while the incoming phone call is alerting (or ringing).



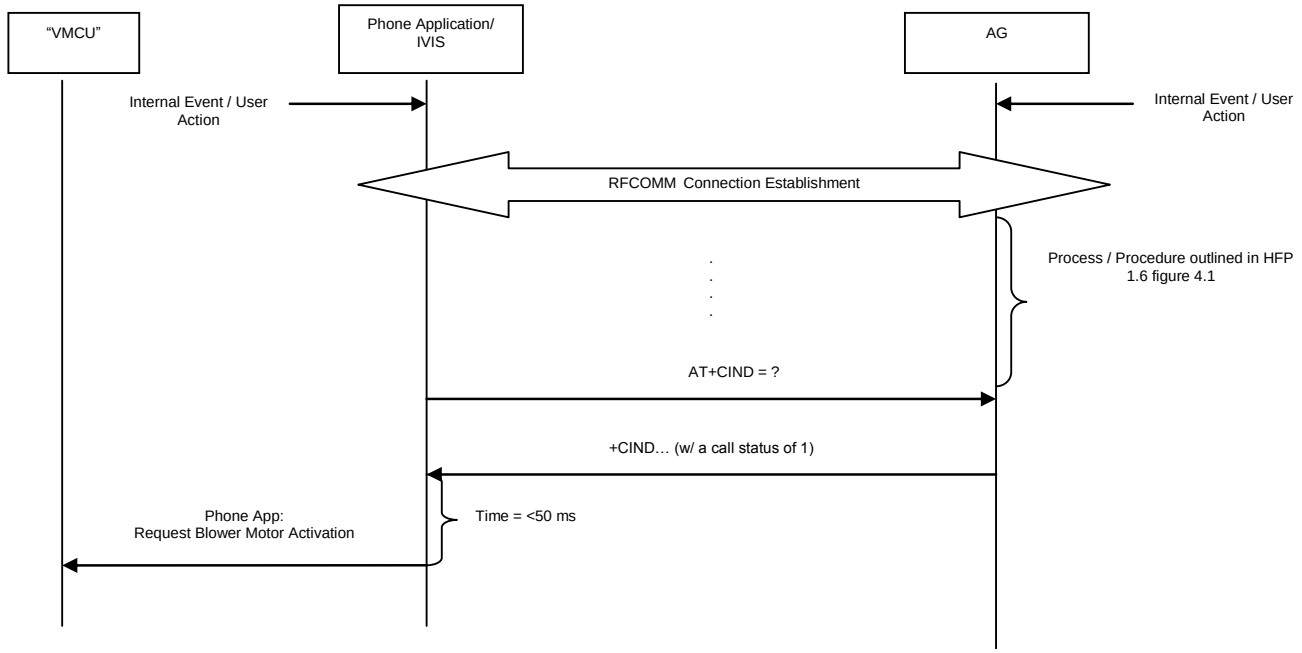
3.13.1.3 BTP-REQ-032100/A-Outgoing Call initiated from HF / AG (Setting Blower Motor Reduction Activation) (TcSE ROIN-297105-1)

In this scenario, the phone application shall request to reduce the blower motor after the phone call set up status has been updated to “outgoing call set up is ongoing”.



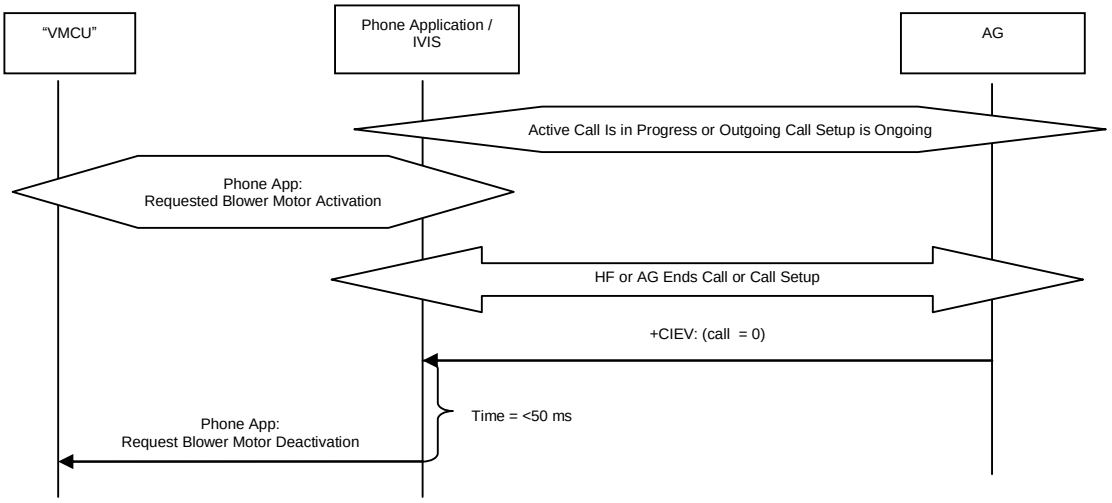
3.13.1.4 BTP-REQ-032101/A-Active Call at Time of Connection (Setting Blower Motor Reduction Activation) (TcSE ROIN-297106-1)

This scenario is meant to capture the use cases of an automatic AG connection upon resume as well as a manual connection request from the user. In this case, the phone application will follow the connection sequence outlined within the Handsfree Profile 1.5 specification. Upon notification of a “call in progress” via the AG’s CIND response, the phone application shall request to reduce the blower motor.



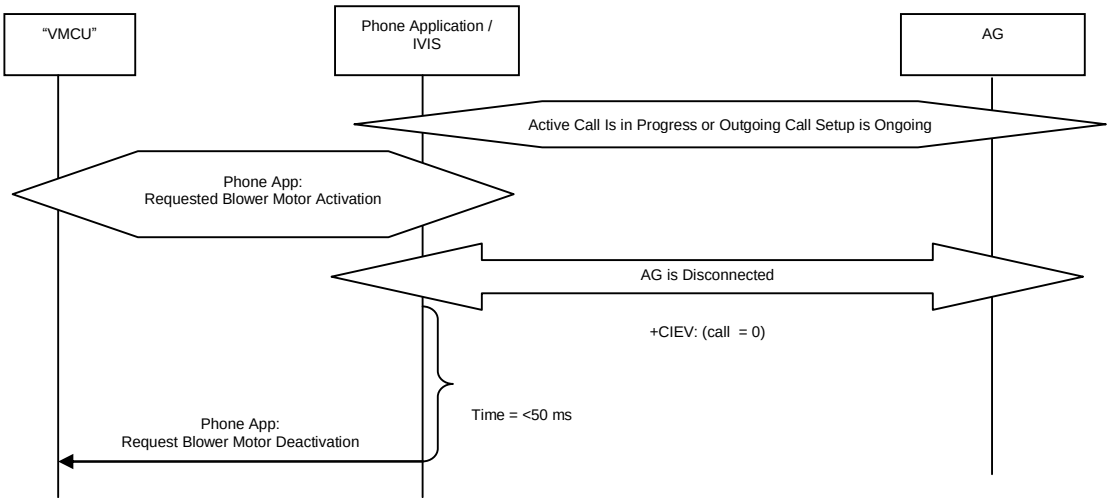
3.13.1.5 BTP-REQ-032102/A-End of a Call (Setting Blower Motor Reduction Deactivation) (TcSE ROIN-297107-1)

In this scenario, the phone application will request to deactivate the blower motor reduction due to conclusion of a phone call and/or outgoing call setup.



3.13.1.6 BTP-REQ-032103/A-AG Disconnect (Setting Blower Motor Reduction Deactivation) (TcSE ROIN-297108-1)

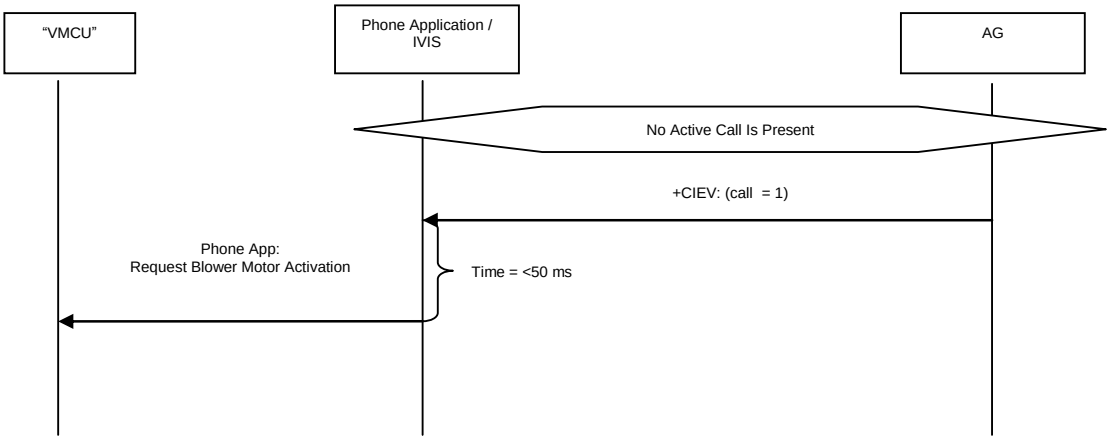
In this scenario the phone application will need to deactivate the blower motor reduction in the event of an intentional or random disconnect.



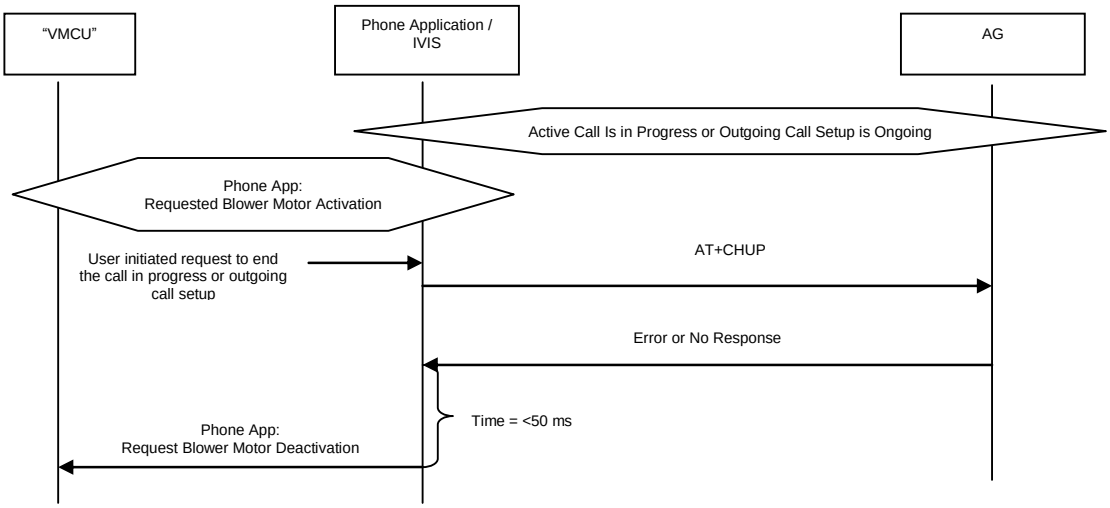
3.13.1.7 BTP-REQ-032104/A-Unspecified (per Handsfree Profile 1.5) Conditions Handling (TcSE ROIN-297109-1)

The phone application shall anticipate the following unspecified conditions and activate / deactivate the blower motor reduction.

1. An AG updates the phone application that an Ongoing Call is in process without any corresponding CIEV notifications. In this case, the phone application shall request to reduce the blower motor reduction. The phone application shall send this request within 50ms of receiving the ongoing call is in process notification.

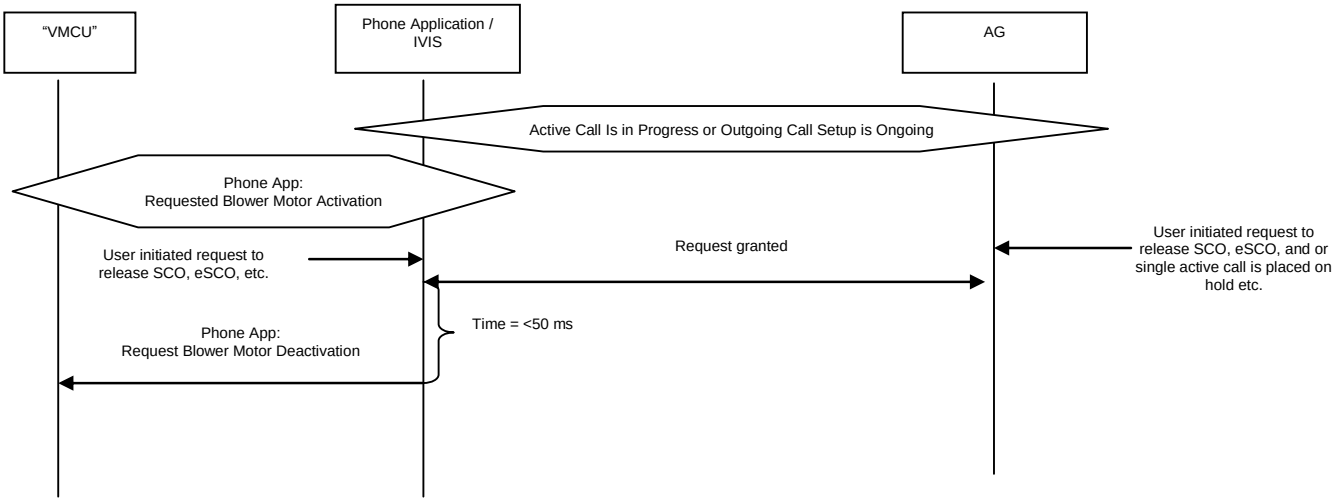


2. The user directs the phone application to end the ongoing call that is in process or the outgoing call setup, and phone application sends an AT+CHUP to the connected AG, but the AG fails to end the call. In this case, the phone application shall request to deactivate the blower motor reduction.



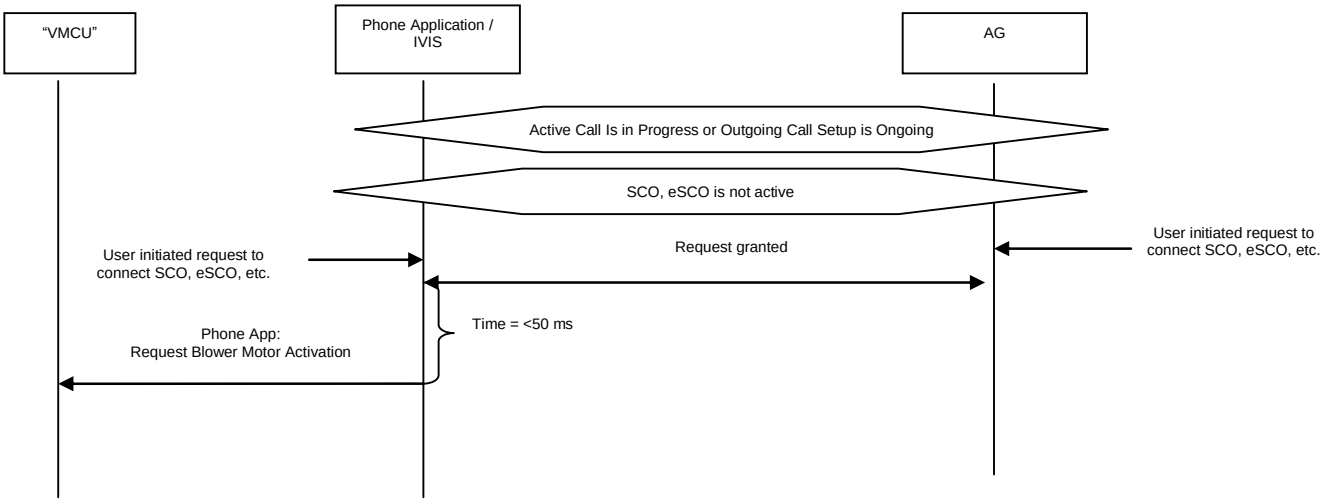
3.13.1.8 BTP-REQ-032105/A-Audio is placed into Privacy (i.e. SCO is Released) (TcSE ROIN-297110-1)

The phone application shall accommodate scenarios when an action has placed a call into privacy. In this scenario, the Blower Motor does not need to be reduced. (*Note: the phone application shall treat notifications of a single active call on hold from the connected AG in the manner as described within this section for purposes of activating / deactivating the blower motor.)



3.13.1.9 BTP-REQ-032106/A-Audio is placed into Handsfree from Privacy (i.e. SCO is Granted) (TcSE ROIN-297111-1)

The phone application shall accommodate scenarios when an action has placed a call into Handsfree from privacy. In this scenario, the Blower Motor does need to be reduced. (*Note: the phone application shall treat notifications of a single active retrieved from hold from the connected AG in the manner as described within this section for purposes of activating / deactivating the blower motor.)



3.13.1.10 BTP-REQ-032107/A-Additional Notes (TcSE ROIN-297112-1)

While in an active call, there are other scenarios in which the call set up value can change to "incoming call process ongoing" or "outgoing call set up is ongoing". They include an incoming call waiting notification and the initiation of a conference call respectively. These scenarios were purposely excluded from the scenarios above because the entry conditions for each of these scenarios include one of the processes outlined in prior sections.

3.14 BTP-FUN-REQ-047922/B-Bluetooth Core (TcSE ROIN-303964-1)

3.14.1 Requirements

3.14.1.1 BTP-REQ-047923/A-Definitions (TcSE ROIN-297117-1)

Term	Definition
IVIS	In-Vehicle Infotainment System
HCI	Host Controller Interface
SD	Storage Device
GUI	Guided User Interface

3.14.1.2 BTP-REQ-047924/B-Bluetooth Core Requirements (TcSE ROIN-297118-1)

The In-Vehicle Infotainment System shall support the following core specification:

Bluetooth 4.1

3.14.1.3 BTP-FUR-REQ-097661/A-In Vehicle Infotainment System Name

The In-Vehicle Infotainment System shall be named according to the HMI specification H83 such that each vehicle line has a unique In-Vehicle Infotainment System name assigned to it. The In-Vehicle Infotainment System name shall be broadcasted during discoverable modes and used to identify the system with connected devices during other operable modes.

3.14.1.4 BTP-REQ-047925/B-Bluetooth Profile Requirements (TcSE ROIN-297120-1)

The In-Vehicle Infotainment System shall support the following Profiles:

- Handsfree Profile 1.6
- Message Access Profile 1.0
- Phonebook Access Profile 1.0
- Advanced Audio Distribution Profile 1.2
- Audio / Video Remote Control Profile 1.5
- Device Identification Profile 1.3
- Generic Object Exchange Profile 2.0+

3.14.1.5 BTP-REQ-047926/C-Minimum Profile Specific Requirements (TcSE ROIN-297121-1)

Bluetooth Profile Support / Features	In-Vehicle System Support
Bluetooth Core 4.1 (SmartReady)	X
iAP Pairing	X
Handsfree Profile 1.6	X
Redial: BLDN	X
Call Waiting: CCWA	X
Call Release: CHLD 0	X
Call Release: CHLD 1	X
Call Toggle: CHLD 2	X
Join: CHLD 3	X
Caller ID: CLIP	X
DTMF	X

Remote Volume: VGM	X
Remote Volume: VGS	X
# Recognition: CNUM	X
Echo / Noise: NREC	X
Voice: BVRA	X
Wideband Speech	X
Phonebook Access Profile 1.0	X
Call History Download	X
Address Download	X
FN	X
N	X
Photo Download	X
Phone Numbers (multiple)	X
E-Mail Address	X
Phonebook via AT Commands	X
Phonebook via SyncML	N/A
Messaging via AT Commands	X
Message Access Profile 1.0	X
SMS	X
Message Notification	X
Get Message Listing	X
Send Message	X
Set Message Status	X
A2DP 1.2	X
SBC Codec	X
MP3 Codec	X
AVRCP 1.5	X
Play	X
Pause	X
Next Track	X
Previous Track	X
Stop	X
Shuffle	X
Off	X
All Tracks Shuffle	X
Group Shuffle	X
Repeat	X
Off	X
Single Track Repeat	X
All Track Repeat	X
Group Shuffle	x

Absolute Volume	X
Indexing	N/A
GetPlayStatus	X
GetElementAttributes	X
RegisterNotification	X
EVENT_PLAYBACK_STATUS_CHANGED	X
EVENT_TRACK_CHANGED	X
EVENT_TRACK_REACHED_END	X
EVENT_TRACK_REACHED_START	X
EVENT_PLAYBACK_POS_CHANGED	X
EVENT_PLAYER_APPLICATION_SETTING_CHANGED	X
iAP2 via Bluetooth	X
Personal Area Networking	N/A
Device ID Profile 1.3	X
AppLink	X

Additional information relative to profile support is included within the Phone, Messaging, and Pairing specifications. If a specific feature is not listed within this document, but support for the feature is implied through another specification it shall be assumed that the feature is required.

3.14.1.6 BTP-REQ-047927/C-HCI Logging (TcSE ROIN-297122-1)

The In-Vehicle Infotainment System shall provide the ability to write a .CFA file to a USB Flash drive. This .CFA file shall include all HCI traffic from the Bluetooth IC. The supplier shall provide a first installation file to enable Logging and a second installation file to disable this mode within the In-Vehicle Infotainment System. The installation file to enable the feature will also copy all HCI traffic already logged to the USB Flash Drive, once logging is enabled. Logging shall persist, even through power state changes, until it is disabled by the second installation file. The installation file to disable the feature will stop any current logging activity and also delete all HCI traffic already logged. A master reset shall disable the Logging and delete all HCI traffic already logged as well.

3.14.1.7 BTP-REQ-047928/B-Logging HCI Data upon Connection/Initialization (TcSE ROIN-297123-1)

Upon IVIS ON (Resume) the In-Vehicle Infotainment System, when HCI logging is enabled, shall begin logging Bluetooth communication or attempts of communication to any Bluetooth enable device.

3.14.1.8 BTP-REQ-047929/B-Logging the HCI Data after Connection to Phone (TcSE ROIN-297124-1)

Upon the IVIS successfully connecting to a phone in the pairing listing, when HCI logging is enabled, the IVIS shall begin creating a folder labeled with the appropriate Paired/Connected phone and begin logging communication traffic.

3.14.1.9 BTP-REQ-047930/A-HCI Logging Parameters (TcSE ROIN-297126-1)

Within the HCI logging, the In-Vehicle Infotainment System shall request the following parameters:

- Phone Name (TBD)
- Phone Manufacturer
- HCI Content
- ETC

3.14.1.10 BTP-REQ-047931/B-HCI Logging Requirements (TcSE ROIN-297127-1)

The In-Vehicle Infotainment System, when HCI logging is enabled, shall log HCI data into a type of storage device (memory, disc space, etc) in order to extract or send data to any type of serial port communications from IVIS (reference the HCI Serial Port Initialization section).

Logging the following information within a storage device shall have an organized format:

- IVIS Information
- Phone Information
- Date / Time of the Logging
- .cfa file

3.14.1.11 BTP-REQ-047932/A-HCI Logging Failed (TcSE ROIN-297128-1)

In the event the HCI fails to log (including error or abort) to the request to provide the HCI logging after 20 seconds, the in-vehicle infotainment system shall attempt to request HCI logging again. After 20 seconds, if the second attempt fails, the in-vehicle infotainment system shall have the ability to display a message on the GUI that it was not able to log HCI data.

3.14.1.12 BTP-REQ-047933/B-Writing HCI Data upon Suspend (TcSE ROIN-297130-2)

Upon IVIS OFF (Suspend) the In-Vehicle Infotainment System shall begin writing Bluetooth communication from storage device to serial port, if HCI logging is enabled.

Writing the following information within a serial port referenced in the HCI Writing Parameters section:

The IVIS shall flash the screen to tell that the data was written to serial port.

3.14.1.13 BTP-REQ-047934/B-HCI Writing upon Trigger Sequence (TcSE ROIN-297131-2)

The in-vehicle infotainment system shall write HCI data into any type of serial port communications from IVIS logging storage device upon a specified trigger command (steering wheel controls/combination of button presses/etc).

Writing the following information within a serial port referenced in HCI Writing Parameters section:

The IVIS shall flash the screen to tell that the data was written to serial port.

3.14.1.14 BTP-REQ-047935/B-HCI Writing upon Disconnection of Phone (TcSE ROIN-297132-2)

The In-Vehicle Infotainment System shall, if HCI logging is enabled, write HCI data into any type of serial port communications from IVIS logging storage device upon a Phone disconnection.

Writing the following information within a serial port referenced in HCI Writing Parameters section:
The IVIS shall flash the screen to tell that the data was written to serial port.

3.14.1.15 BTP-REQ-047936/A-HCI Writing Parameters (TcSE ROIN-297133-1)

Within the HCI writing, the In-Vehicle Infotainment System shall write the following folder structure:

- IVIS Information
    - Phone Name
        - HCI Logging Number
            - HCI Date/Time
                - HCI Content

3.14.1.16 BTP-REQ-047937/A-HCI Writing Requirements (TcSE ROIN-297134-2)

The in-vehicle infotainment system shall write HCI data into any type of serial port communications from IVIS logging storage device.

Writing the following information within a serial port shall have an organized format:

- IVIS Information (TBD)
- Phone Information
- Date / Time of the Logging

When writing, the in-vehicle infotainment system shall present a reference number for each writing session beginning with number 1. Depending on the maximum capacity we allow to be written to storage device, we will then begin to write data to a serial port connection. This will assist in identifying the order in which logging is written to this port. The writing shall be written in chronological order, with the most recent log presented first, thus having a reference number of 1 in the appropriate folder structure.

3.14.1.17 BTP-REQ-047938/A-HCI Writing Failed (TcSE ROIN-297136-2)

In the event the HCI fails to write (including error or abort) to the request to provide the HCI write function after 30 seconds, the in-vehicle infotainment system shall attempt to request HCI writing again.

3.14.1.18 BTP-REQ-047939/A-Developing Device Testing Requirements (TcSE ROIN-297137-2)

The supplier shall test a minimum of 300 different devices during the development of the In-Vehicle Infotainment System. These devices shall be selected by the supplier and approved by Ford Motor Company. These devices will be segregated into the following categories:

Platinum – 30 Devices
Gold – 70 Devices
Silver – 100 Devices
Bronze – 100 Devices

Platinum Devices shall be tested against every official release (that includes any Bluetooth related features) delivered to Ford Motor Company. At the time of delivery the supplier shall provide a test report containing the tested results. The supplier shall implement “work arounds” when technically possible to insure that all features supported by the In-Vehicle Infotainment System and the device interoperates per the defined use cases. Ford Motor Company has the right to update 10 of the Platinum devices at mutually agreed point in time with the supplier.

Gold Devices shall be tested against select releases delivered to Ford Motor Company. The targeted releases (which shall be chosen by Ford Motor Company) will be those that include most Bluetooth phone enabled functionality. At the time of release delivery, the supplier shall report a test report containing the tested results. The supplier shall implement “work arounds” when technically possible to insure that all features supported by the In-Vehicle Infotainment System and the device interoperates per the defined use cases.

Silver Devices shall be tested against select releases delivered to Ford Motor Company. The targeted releases (which shall be chosen by Ford Motor Company) will be those that include all Bluetooth phone enabled functionality. At the time of release delivery, the supplier shall report a test report containing the tested results. The supplier shall implement “work arounds” when technically possible to insure that all key features supported by the In-Vehicle Infotainment System and the device interoperates per the defined use cases. Examples of core features are: Connecting, Making / Receiving Calls, Ending Calls, Phonebook and Call History Downloading, New Text Messaging Notifications, Streaming Audio, basic command and control of audio. *Note: The final set of core features shall be defined by Ford.

Bronze Devices shall be tested against the last three official releases delivered to Ford Motor Company. At the time of release delivery, the supplier shall report a test report containing the tested results. The supplier shall resolve any interoperability issue identified that is the fault of the in-vehicle infotainment system. For example, if the fault is due to a specification implementation issue.

3.14.1.19 BTP-REQ-047940/A-Ongoing Interoperability Testing (TcSE ROIN-297138-2)

The supplier shall provide Ford Motor Company with interoperability test results for 35 devices monthly until 10 years after start of production of the In-Vehicle Infotainment System. The supplier shall choose the devices and they shall be chosen based on a methodology approved by Ford Motor Company. At any point during this time Ford Motor Company shall have the option of choosing the devices for a specific month or for all remaining months. The test results shall cover all of the use cases defined. The format of the results shall be defined by Ford Motor Company.

3.14.1.20 BTP-REQ-047941/A-Special Release Interoperability Testing (TcSE ROIN-297139-1)

There are key devices (including s/w upgrades) that are released into the market with a significant amount of anticipation. When these devices are identified the supplier shall provide Ford Motor Company interoperability results within 7 days of market release. Special Release Interoperability Testing will be limited to 10 devices annually until 10 years after start of production of the In-Vehicle Infotainment System. *Note: If 10 devices are not selected within one calendar year, the remaining devices can be carried over to the following years. The test results shall cover all of the use cases defined. The format of the results shall be defined by Ford Motor Company.

3.14.1.21 BTP-REQ-047942/A-Ongoing Update Schedule (TcSE ROIN-297140-1)

The supplier shall provide updates to the Bluetooth Core and Profiles twice a year until 10 years after start of production of the In-Vehicle Infotainment System. These updates shall be based on device testing against 100 devices (total 200 per year). These updates shall include bug fixes identified with current/past in-vehicle infotainment system releases, profile enhancements when necessary to improve interoperability, and device specific “work arounds” for the tested devices when technically possible to insure that all features supported by the In-Vehicle Infotainment System and the 100 devices interoperates per the defined use cases.

These updates shall be made available to Ford Motor Company, and the updates shall have the ability to be installed on devices within the field as well as new production vehicles. It shall not be required to update the entire platform to update the Bluetooth Core and Profiles.

Ford Motor Company shall of the option of choosing the 100 devices for these releases.

3.14.1.22 BTP-REQ-047943/A-Special Release Update Availability (TcSE ROIN-297141-1)

There are key devices (including s/w upgrades) that are released into the market with a significant amount of anticipation. When these devices are released, and it has been identified that there is a major interoperability issue with the device, the supplier shall make available (when technically possible) a Bluetooth Core / Profile update to resolve the specific issue(s). To limit risk, this device update may be limited to the specific device in question as identified through Device ID Profile (or other means if available). This update should be made available as soon as possible and outside of the update schedule outlined within the Ongoing Update Schedule section. These updates shall be limited to 10 per year until 10 years after start of production of the In-Vehicle Infotainment System.

3.14.1.23 BTP-FUR-REQ-114652/B-Bluetooth Text Logging and details

The In-Vehicle Infotainment System shall create text files that log the Bluetooth activity in the system.
The level of detail provided in the logs shall be by default such to allow the troubleshooting of Bluetooth issues without requiring extra text logs to be enabled and gathered.
Every line in the log shall contain a timestamp.
The text log files shall periodically flush old information and replace it with newer information, in order to avoid filling the In-Vehicle Infotainment System memory.
It shall be possible to retrieve the text log files from the system via a USB stick.

The text log shall at least contain the following information about the Bluetooth activity:

What	Example	Description

Connection/Disconnection of a profile	HFP connected with Device 70d4f2f08472 PBAP disconnected with Device 70d4f2f08472	Logging of connections and disconnections for each profile with each device.
HFP AT commands	HFP RX: "+BRSF:487" HFP TX: "AT+CHLD=?"	Hands Free Profile AT commands sent and received by the IVIS.
PBAP objects	telecom/pb.vcf download started from Device 70d4f2f08472 telecom/pb.vcf download ended from Device 70d4f2f08472 – 132 vCards were found <And similar lines for all other PBAP transactions>	List what phonebook is being downloaded, and how many vCards were found in it.
AVRCP commands and events	Sent AVRCP command 0x44 to device 70d4f2f08472 AVRCP command 0x44 response from device 70d4f2f08472 : Result = ACCEPTED Registered for EVENT_TRACK_CHANGED with device 70d4f2f08472 EVENT_PLAYER_APPLICATION_SETTING_CHANGED triggered from device 70d4f2f08472. New values are XXXX / YYYY	AVRCP commands sent to devices, command results. AVRCP events subscribed to, event notifications.
A2DP Data & status	A2DP is in streaming state A2DP data started coming in A2DP data stopped A2DP is not in streaming state	Status of A2DP link (streaming or not) and whether A2DP data is being sent from A2DP Source to Sink. The data stopped message should be printed only after the data started message, when data stops arriving for a certain amount of msec (500)
MAP objects	x-BT/MAP-msg-Listing from Device 70d4f2f08472 downloaded successfully – XX messages found MAP-EVENT-REPORT – New Message from Device 70d4f2f08472 <And similar lines for all other MAP transactions>	
SCO connections	SCO Turned ON with Device 70d4f2f08472 SCO Turned OFF with Device 70d4f2f08472	Status of SCO connections – creation and deletion of SCO connections

3.15 BTP-FUN-REQ-047944/A-Hands-Free Audio Performance (TcSE ROIN-303968-1)

3.15.1 Requirements

3.15.1.1 BTP-REQ-047945/A-Hands-free Purpose (TcSE ROIN-297142-1)

Acoustic echo cancellation and noise suppression (AEC/NS) aims to cancel echo and noise during hands-free phone conversations. AEC/NS monitors speaker, microphone, and digitized audio coming from the far end phone to perform the necessary signal modifications.

3.15.1.2 BTP-REQ-047946/A-Hands-free Terminology and Abbreviations (TcSE ROIN-297143-1)

Term	Description
AEC	Acoustic echo cancellation
AES	Acoustic echo suppression
AGC	Automatic gain control
BT	Bluetooth
ERLE	Echo return loss enhancement
ITU-T	ITU Telecommunications Standardization Sector
SNR	Signal-To-Noise Ratio
SLR	Sender Loudness Rating
VAD	Voice Activity Detector
VDA	German Quality Management System (QMS) based on ISO 9001 (*Verband des Automobilindustrie*) specifically for the Automotive industry. This standard is broken into Management and Products/Processes. For the purposes of this document, VDA will refer to the testing process for AEC/NS.

3.15.1.3 BTP-REQ-047947/A-Hands-free Goals (TcSE ROIN-297144-1)

The goals of this feature is to meet audio performance for communication both at the far end and near end of a phone call made using the in-vehicle BT hands-free system.

3.15.1.4 BTP-REQ-047948/A-Hands-free Non-Goals (TcSE ROIN-297145-1)

This feature does not intend to define voice recognition AEC/NS or other in-vehicle audio inputs outside of the scope of the BT hands-free system.

3.15.1.5 BTP-REQ-047949/A-Hands-free Performance - ITU-T P.1100 and ITU-T P.1110 (TcSE ROIN-297146-1)

The hands-free audio performance shall meet the requirements defined in ITU-T P.1100 (version 03/2011)and the ITU-T P.1110 wideband hands-free communication (version 12/2009) Narrowband hands-free communication in motor vehicles test specification.

3.15.1.6 BTP-REQ-047950/A-Hands-free Performance - Best-in-Class/Competitive Performance (TcSE ROIN-304502-1)

The hands-free audio system implemented for Ford Motor Company shall perform on par or above the competitors of the vehicle programs and/or vehicle segments on which the system is installed.

3.15.1.7 BTP-REQ-047951/B-Hands-free Performance - Configuration and Tuning (TcSE ROIN-304503-1)

The hands-free audio system implemented for Ford Motor Company shall be able to adapt and/or be able to be dynamically tuned with a software enabled tool in the vehicle to meet the performance needs of several sizes of vehicle cabins as well as vehicle NVH differences.

The supplier shall provide a potentially tunable calibration file for each vehicle cabin. This file shall adhere to requirements included within the withint he Ford Diagnostics Part 1 and Part 2 specifications.

3.15.1.8 BTP-REQ-047952/A-Hands-free Performance - System Performance in Presence of Vehicle Genereated Cockpit Derived Sounds (TcSE ROIN-304500-1)

The hands-free audio system shall have the ability to detect and peform with quality in the presence of vehicle generated cockpit generated sounds (e.g. rear collision warning, navigation prompts, increase / decrease phone call volume via in-vehicle infotainment system, etc.)

3.15.1.9 BTP-REQ-047953/B-Hands-free Performance - General System Requirement (TcSE ROIN-304501-1)

~~The supplier shall be responsible for identifitying the flat equalization, maximum audio delay, and all other parameters to each audio control module.~~
The supplier shall be responsible for tuning the parameters of the phone audio quality in correspondence with the AHU functionality and requirements.

3.15.1.10 BTP-REQ-047954/A-Hands-free Testing Requirements - ITU-T P.1100 and ITU-T p.1110 (TcSE ROIN-297148-1)

The handsfree audio performance shall adhere to the requirements included in section 11 of ITU-T P.1100 and section 11 of ITU-T P.1110.

3.15.1.11 BTP-REQ-047955/B-Hands-free Testing Requirements - Far End Audio Quality Testing - CETP-L-4065 Hands Free Phone System Performance Test Procedure (TcSE ROIN-304504-1)

The hands-free audio performance (including its AEC/NS algorithm, parameters, and signal chain) shall be tested using the ITU-T P.1100 Narrowband hands-free communication and the ITU-T P.1110 wideband hands-free communication in motor vehicles test specification., particularly using the CETP-L-4065 Hands Free Phone System Performance Test Procedure CETP released by Ford Motor Company.

The handsfree audio performance shall meet the following requirements for the N20 test condition:

1. NMOS Score 3.1 or higher
2. SMOS 2.6 or higher

3.15.1.12 BTP-REQ-047956/A-Hands-free Testing Requirements - Subjective Listening Testing (Average) (TcSE ROIN-304505-1)

The hands-free audio system shall be subject to a Ford Motor Company subjective listening test by the implementation leads at the supplier as well as the Ford Motor Company project leads. Each partipant within this test shall rate the audio performance from a score of 1 (Low Performance) to 10 (High Performance). The pass / fail criteria for the subjective listening test shall be based on the average score. The minimum average score is 8.

The rating should adhere to the following scale:

Vehicle and Attribute Customer Rating System								90% Customer Satisfaction Imperative		
VER	1	2	3	4	5	6	7	8	9	10
Evaluation of Attribute Performance	Not Acceptable		Poor		Borderline	Acceptable	Fair	Good	Very Good	Excellent
Customer Satisfaction	Very Dissatisfied				Somewhat Dissatisfied	Fairly Well Satisfied		Very Satisfied	Completely Satisfied	

Improvement desired by	All Customers	Average Customer	Critical Customer	Trained Observer	Not Perceptible

3.15.1.13 BTP-REQ-047957/B-Hands-free Testing Tools (TcSE ROIN-304506-1)

The supplier shall provide a CAB with the means of recording audio at the following points within the platform:

~~1. Microphone Input (pre-processed audio)~~
~~2. Input to the NREC~~
~~3. Output of the NREC~~
~~4. Input to the Bluetooth Codec~~
~~5. Output of the Bluetooth Codec~~
1. Raw Microphone Inputs
2. Processed Microphone Output to BT Phone
3. Raw Receive Input from BT Phone
4. Processed Receive Output to AHU\Loudspeaker

This tool shall store these files in .wav format on a USB based storage device. This tool shall begin recording to a USB based storage device when a phone call is active. The tool shall stop recording once the phone call is completed.
This tool shall store on the USB stick the configuration file and the tunable parameters of the phone audio quality library used in that specific vehicle

This tool shall also have the ability to ~~and~~ provide and log to a file the following system characteristics:

~~1. Signal – Noise – Ratio (SNR)~~
~~2. Automatic Gain Control (AGC)~~
~~3. Any and all internal audio parameters that are dynamic~~
1. The SYNC shall have the capabilities to log any logging information provided by the QNX library about the system parameters performance

This tool shall be enabled by installing the CAB via a USB based storage device.

3.16 BTP-FUN-REQ-047958/A-Bluetooth Diagnostics Strategies and Procedures (TcSE ROIN-304518-1)

*Note: The ability to enable / disable the Bluetooth Diagnostics Strategies and Procedures shall be configurable.

3.16.1 Requirements

3.16.1.1 BTP-FUR-REQ-047959/A-Event Logging Initialization - Event Logging (TcSE ROIN-304520-1)

Event logging is defined as gathering key characteristics of the IVIS phone application.
The data will be used to gather analytics regarding the IVIS and the associated device connected to it.
The data will also be used to investigate and troubleshoot potential error states in the IVIS.

3.16.1.2 BTP-FUR-REQ-047960/A-Event Logging Initialization - Logging Event Data upon Connection/Initialization (TcSE ROIN-304521-1)

Upon In-Vehicle Infotainment System ON (Resume), the IVIS shall begin creating a folder labeled with IVIS Current Software. The system will begin to log Events in the Phone Domain that relate to “Success” and “Failure” responses from phone, Bluetooth and system.

3.16.1.3 BTP-FUR-REQ-047961/A-Event Logging Initialization - Logging the Event Data after Connection to Phone (TcSE ROIN-304522-1)

Upon the IVIS ON (Resume), the IVIS shall begin creating a Device folder labeled within the appropriate Paired/Connected phone and begin logging events triggered by the phone application within IVIS.

*Note: If there isn’t a Phone Paired/Connected, IVIS will create a temporary folder with generic label until able to determine which label to be inserted/changed.

3.16.1.4 BTP-FUR-REQ-047962/A-Event Logging Initialization - Event Logging Parameters (TcSE ROIN-304523-1)

Within the Event logging, the In-Vehicle Infotainment System shall request the following parameters:

Device ID Information:

- Phone Name
- Phone Manufacturer
- Phone Carrier
- Phone Software Version
- Bluetooth Profiles Supported
- Bluetooth Address
- Primary/Non-Primary Status
- Number of Phonebook Contacts
- PBAP Access
- MAP Access
- ETC (Can add field)

3.16.1.5 BTP-REQ-047963/A-Event Logging Initialization - Event Category (TcSE ROIN-304524-1)

Within the Event logging, the In-Vehicle Infotainment System shall define an Event Category using the features below with criteria of “Success” or “Failure”:

		Pass Criteria	Fail Criteria
Connection	Pairing	Pairing was successful as defined in H28c.	Anytime pairing was not successful as defined in H28c.
	HFP Connection	When the post conditions are met for the use cases within BTP-GFUN-294311-1-Connecting a Paired Phone	When any of the conditions are met within: BTP-GREQ-295108-2-Advanced Error Correction (Functional) -
	A2DP Connection	When the post conditions are met for the use cases within BTP-GFUN-294314-1-Connecting a Paired Audio Device	a.The in-vehicle infotainment system has received some Bluetooth communication from the source, but receives a negative response from the Open (via AVDTP) request or does not receive a response to the Open Stream request within 10 seconds.

	MAP Connection	When the IVIS requests the message listings upon resume.	Any of the conditions are met within: BTP-GREQ-304254-1-Message Access Not Granted (Functional) - BTP-GREQ-304255-1-Message Notification Not Established (Functional) -
	Connecting Upon Resume	When the post conditions are met for the use cases within BTP-GFUN-294311-1-Connecting a Paired Phone	After the third unsuccessful auto connection attempt within section BTP-GREQ-295041-2-Automatic Connection (Functional) Only one unsuccessful event shall be recorded per detection.
	Disconnecting	Number of graceful disconnects	When any of the conditions are met within: BTP-GUC-290964-1-In-Vehicle Infotainment System not able to maintain a connection to mobile phone
Calling	Outgoing Call	Successful outgoing call	When any of the conditions are met within: BTP-GREQ-304248-1-Outgoing Call Failures (Functional) -
	Incoming Call	Successful incoming call	When any of the conditions are met within: BTP-GREQ-304250-1-Incoming Call Answer Failure (Functional) -
	Call Audio (SCO / eSCO)	N/A	When any of the conditions are met within: BTP-GREQ-304249-1-Active Call Audio Error Detection (Functional)
Phonebook / Call List	Phonebook Download	Upon phonebook download complete	When any of the conditions are met within: BTP-GREQ-304252-1-Phonebook/Call History Download Errors and Status Definitions (Functional)
Phone VR	Siri	Siri is requested via the methods via H28a	N/A

3.16.1.6 BTP-REQ-047964/A-Event Logging Initialization - Event Logging Requirements (TcSE ROIN-304525-1)

The in-vehicle infotainment system shall log Event data into a type of storage device (memory, disc space, etc) in order to extract or send data to any type of serial port communications from IVIS (reference Data Acquisition Log (DAlog) Serial Port Initialization requirements).

Each Event Category will have a counter for the overall IVIS and each device paired and previously paired to IVIS. It will keep track of how many success and fail occurrences. This number is to be written to the appropriate Event Logging File with the appropriate category aligned with the event (segregated by device as well as an overall sum) in order to be accessed/extracted. This data will be stored and available upon request.

3.16.1.7 BTP-REQ-047965/A-Event Logging Initialization - Event Category Success (TcSE ROIN-304526-1)

Event Category Success is defined as an Event Category with a “Success” Event. The Success counter is incremented in the file with the Event logging data and the category that aligns with the success.

3.16.1.8 BTP-REQ-047966/A-Event Logging Initialization - Event Category Failure (TcSE ROIN-304527-1)

Event Category Failure is defined as an Event Category with a "Failure" Event. The Failure counter is incremented in the file with the Event logging data and the category that aligns with the failure. There shall also be a Screenshot of the current screen associated with the Event Category Failure.

3.16.1.9 BTP-REQ-047967/A-Event Logging Initialization - Event Category Failure Screenshot (TcSE ROIN-304528-1)

Event Category Failure Screenshot is defined as a screenshot of the IVIS at the time of an Event Category Failure. The Event Category Failure Screenshot should reference the data and the category of the triggered failure. This screenshot will be stored and available upon request and can't exceed 10KB in size.

3.16.1.10 BTP-REQ-047968/A-Event Logging Initialization - Event Logging File (TcSE ROIN-304529-1)

The IVIS will create an Event Logging File with the extension .txt. This Event Logging File is compiled of the Event Category (referenced in BTP-GREQ-304524) with associated Event data (referenced in BTP-GREQ-304526 and BTP-GREQ-304527).

3.16.1.11 BTP-REQ-047969/A-Event Logging Initialization - Event Logging Failure (TcSE ROIN-304530-1)

If Event fails to log (including error or abort), the in-vehicle infotainment system shall log and create a separate folder than Phone SPSS. In the background, Event logging will continue to attempt to log events if possible.

3.16.1.12 BTP-FUR-REQ-047970/B-HCI Logging Initialization - Logging HCI Data upon Connection/Initialization (TcSE ROIN-304531-1)

Upon the IVIS successfully connecting to a phone in the pairing listing, the IVIS shall begin writing HCI data to memory of the associated Paired/Connected phone and begin logging communication traffic.

3.16.1.13 BTP-FUR-REQ-047971/B-HCI Logging Initialization - Logging the HCI Data after Connection to Phone (TcSE ROIN-304532-1)

Upon the IVIS successfully connecting to a phone in the pairing listing, the IVIS shall begin writing HCI data to memory of the associated Paired/Connected phone and begin logging communication traffic.

3.16.1.14 BTP-FUR-REQ-047972/B-HCI Logging Initialization - HCI Logging Buffer Mechanism (TcSE ROIN-304533-1)

HCI logging will continue to write HCI logs up to 100KB size in memory (configurable). As the data reaches its capacity, the data previously written is deleted in order to continuously write real-time data. The size of the buffer will be 100KB (configurable).

3.16.1.15 BTP-FUR-REQ-047973/A-HCI Logging Initialization - HCI Logging Requirements (TcSE ROIN-304534-1)

The in-vehicle infotainment system shall log HCI data into a type of storage device (memory, disc space, etc) in order to extract or send data to any type of serial port communications from IVIS (reference Data Acquisition Log (DAlog) Serial Port Initialization requirements).

3.16.1.16 BTP-REQ-047974/A-HCI Logging Initialization - HCI Logging File (TcSE ROIN-304535-1)

Within the HCI logging, the In-Vehicle Infotainment System shall request the following parameters to name the file appropriately:

- Phone Name
- Bluetooth Address
- Starting Time/Date Stamp

Bluetooth_Address_ Phone_Name_Starting_Time_Date_Stamp.cfa

3.16.1.17 BTP-REQ-047975/A-HCI Logging Initialization - Event Category Failure Trigger for HCI Writing (TcSE ROIN-304536-1)

Upon an Event Category Failure, this will trigger the IVIS to stop the buffer deletion (referenced in BTP-GREQ-304533). The Event Category Failure trigger will then increase the file size allotted to capture HCI data in order to capture all the communications traffic preceding the Event Category Failure and after (up to a maximum amount of 150KB).

3.16.1.18 BTP-REQ-047976/A-HCI Logging Initialization - HCI Logging Failure (TcSE ROIN-304537-1)

If HCI fails to log, (including error or abort), the in-vehicle infotainment system shall log and create a separate folder than Phone SPSS. In the background, HCI logging system will continue to attempt to log HCI if possible.

3.16.1.19 BTP-REQ-047977/A-DTM (Diagnostic Troubleshooting Message) Logging Initialization - DTM Logging (TcSE ROIN-304538-1)

Diagnostic Troubleshooting Message is defined as a message that is logged into storage device (memory, etc) in IVIS (reference Data Acquisition Log (DAlog) Serial Port Initialization requirements), created upon the following triggers:

- Event Category Failure
  - Covered in Phone SPSS and Phone HMI Specification (reference BTP-GREQ-304527)
  - Event Logging Failure
  - HCI Logging Failure

3.16.1.20 BTP-REQ-047978/A-DTM (Diagnostic Troubleshooting Message) Logging Initialization - DTM Logging File (TcSE ROIN-304539-1)

The DTM logging file is compiled with the following:

- Error Type: Event Category Failure
- Event Trigger: Event that triggered or preceded the Failure.
- Occurrence: Number of occurrences of same error type.
- Timestamp: Date/Time
- Event Screenshot: Event Category Failure Screenshot
- Error Description: Reason for error if it is provided by the implementation according to Phone SPSS and Phone HMI specification. (For Example: Mobile Phone rejected PBAP request).

The DTM logging file should be named:

DTM_Error Type_Time_Date_Stamp.txt

3.16.1.21 BTP-REQ-047979/A-DTM (Diagnostic Troubleshooting Message) Logging Initialization - DTM Logging Buffer Mechanism (TcSE ROIN-304540-1)

DTM logging will continue to write DTM log Files up to 800KB size in memory. As the data reaches its capacity, the previously written DTM's are deleted (from oldest time/date stamp first to newest time/date stamp last) in order to continuously write new DTM's. The size of the buffer will be 800KB.

3.16.1.22 BTP-REQ-047980/A-Data Acquisitoin Log (DAlog) Serial Port Initialization - DAlog (TcSE ROIN-304541-1)

A DALog is a file comprised of the data described in the following sections:

- Event Logging Initialization
- HCI Logging Initialization
- DTM Logging Initialization

This log can be extracted from the IVIS based on the requirements within section DAlog Writing.

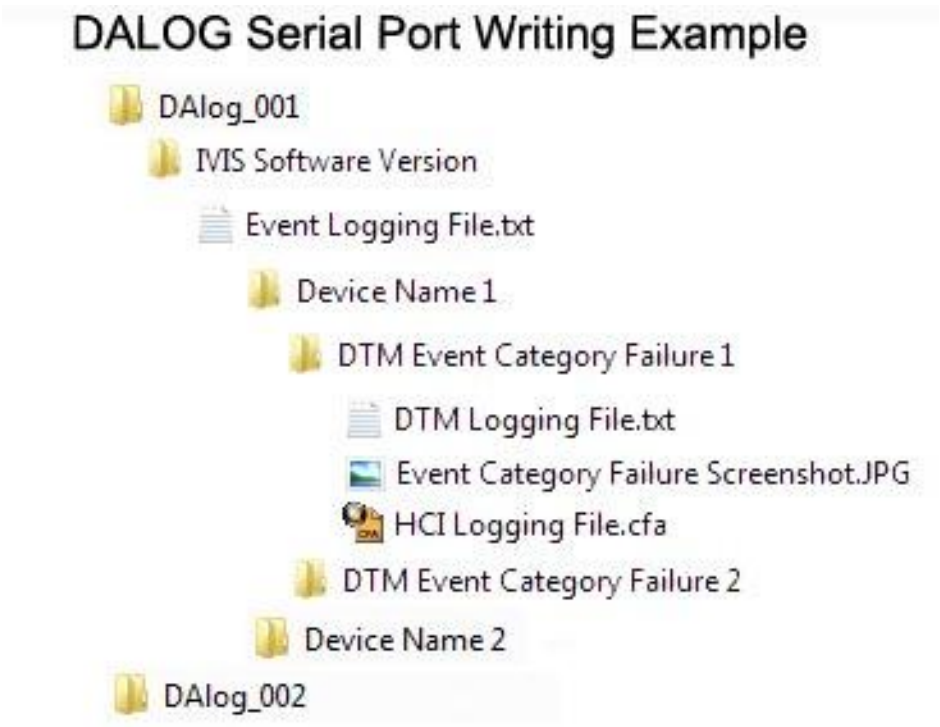
3.16.1.23 BTP-REQ-047981/A-Data Acquisitoin Log (DAlog) Serial Port Initialization - DAlog Writing - Writing DAlog Data (TcSE ROIN-304542-1)

The supplier shall provide a CAB to enable writing to a Universal Serial Bus (USB) storage device connected to the In-Vehicle Infotainment System upon insertion. The IVIS shall display a message (or flash screen) to tell that the data was written to USB.

The supplier shall provide a separate CAB to enable writing to a Universal Serial Bus (USB) storage device connected to the In-Vehicle Infotainment System upon IVIS OFF (Suspend).

3.16.1.24 BTP-REQ-047982/A-Data Acquisitoin Log (DAlog) Serial Port Initialization - DAlog Writing - DAlog Writing Requirements (TcSE ROIN-304543-1)

The In-Vehicle Infotainment System shall write the following folder structure:



3.16.1.25 BTP-REQ-047983/A-Data Acquisitoin Log (DAlog) Serial Port Initialization - DAlog Writing - DAlog Writing Requirements 2 (TcSE ROIN-304544-1)

Each DAlog saved to USB shall have a unique naming convention per USB storage device. The IVIS shall name the first DAlog 001, the second DAlog 002, the third DAlog003, etc.

3.16.1.26 BTP-REQ-047984/A-Bluetooth Stack Error Detection and Recovery (TcSE ROIN-304545-1)

The IVIS shall monitor key characteristics (to be defined below) within the Bluetooth stack to determine when the Bluetooth stack has entered an unstable state. Upon detecting that the Bluetooth stack has entered an unstable state the IVIS shall complete a soft reset of the Bluetooth stack in an attempt to get the stack to recover.

3.16.1.27 BTP-REQ-047985/A-Bluetooth Stack Error Detection and Recovery - Monitoring Characteristics (TcSE ROIN-304546-1)

After the IVIS has attempted its 5th unsolicited connection attempt as described in the Section BTP-GREQ-295041-2 AND is not connected to any other device via Bluetooth, the IVIS shall determine that the Bluetooth stack has entered an unstable state.

*Note: This could also mean that the device was not present, however to ensure that the IVIS is attempting any and all measures, this criteria shall be used.

3.16.1.28 BTP-REQ-047986/A-Bluetooth Stack Error Detection and Recovery - Bluetooth Stack Soft Reset (TcSE ROIN-304547-1)

Upon detecting that the Bluetooth stack has entered an unstable state, the IVIS shall complete the following:

1. Toggle Bluetooth Off then ON within the IVIS
2. Reload all Bluetooth Profiles
3. Attempt the unsolicited connection sequence described in section BTP-GREQ-295041-2

*Note: The IVIS shall not disconnect ANY devices connected via Wi-Fi during this process.

4 Appendix: Reference Documents

Reference #	Document Title
1	S12_Bluetooth_DUNPAN_USBMBB_Functional_Specification
2	Handsfree Profile 1.6
3	Message Access Profile 1.0
4	Phonebook Access Profile 1.0
5	Advanced Audio Distribution Profile 1.2
6	Audio/Video Remote Control Profile 1.5
7	Personal Area Networking Profile 1.0
8	Device Identification Profile 1.3
9	Generic Object Exchange Profile 2.0+